TREES AND SHRUBS;

AN ABRIDGMENT OF

The Arboretum et Fruticetum Britannicum:

CONTAINING

THE HARDY TREES AND SHRUBS OF BRITAIN,

NATIVE AND FOREIGN,

SCIENTIFICALLY AND POPULARLY DESCRIBED;

WITH THEIR PROPAGATION, CULTURE, AND USES;

AND

ENGRAVINGS OF NEARLY ALL THE SPECIES.

BY J. C. LOUDON, F.L.S., H.S., &c.,

AUTHOR OF "COTTAGE, FARM, AND VILLA ARCHITECTURE."

London:

FREDERICK WARNE & CO.,
BEDFORD STREET, STRAND.

NEW YORK: SCRIBNER, WELFORD, & ARMSTRONG.

1875.
PREFACE.

This Abridgement of the Arboretum et Fruticetum Britannicum contains.—

1. Characters and short Popular Descriptions of all the species and varieties of hardy trees and shrubs now in British gardens, with directions for their culture; including the soil most suitable for them, their propagation, and their uses in the arts, &c.

2. Engravings of all the species which are described, with the exception of half a dozen. The whole arranged according to the Natural System; all the engravings being to the scale of two inches to a foot, or one sixth of the natural size.

3. The Scientific Names and Scientific Synonymes of all the species; and their Popular Names in the languages of the different countries where they are indigenous or cultivated.

4. An Alphabetical Index to all the species and varieties, with their synonymes.

5. A Tabular Analysis of the Leaves, by which the name of any species of tree or shrub described in the work may, in general, be discovered, from a small portion of a shoot with the leaves on.

6. Specific Characters, Descriptions, and Figures of some species, more particularly of pines, firs, and oaks, which were not in the country in 1838, when the large work was completed.

In a word, though this Abridgement does not include all the interesting and useful information on the natural history of trees which will be found in the larger work, or any of the portraits of entire trees which constitute so distinguished a feature in it, yet it contains all that is necessary to enable the reader to discover the names of the different species, and to ascertain their culture, propagation, and uses in Britain; in short, all that is essential for the nurseryman, gardener, and forester.

The most remarkable circumstance connected with this Abridgement is, that the Author has been able to obtain figures of nearly all the species. For the drawings or specimens from which these additional figures were taken, he is indebted to the kind assistance of various Public Institutions, and of several of the most eminent botanists and possessors of herbariums and living collections in Europe and North America.

The Institutions to which he is under obligations are, the Linnean and Horticultural Societies of London, the British Museum, the Museum of Natural History of Paris, and that of Berlin: and the Botanists who have kindly lent him drawings or specimens include the late A. B. Lambert, Esq.; Sir W. J. Hooker; Dr. Lindley; the late Professor Don; George Don, Esq., who prepared the characters of the Orders and of the Genera; Messrs. Lodigies; the late Professor De Candolle; M. Alphonse De Candolle; W. Borrer, Esq.; P. B. Webb, Esq.; Baron De Lessert; M. Michaux; Signor G. Manetti; M. Otto; M. Charles Rauch; M. Francis Rauch, who made most of the drawings; and Drs. Torrey and Gray: to all of whom, to the Curators of most of our Botanic and Horticultural Gardens, and those of many foreign ones; and to all Nurserymen and Gardeners, both at home and abroad, who may have rendered him assistance, he begs to return his most sincere thanks.

To the Council of the Horticultural Society of London he is under especial obligations, for their permission to make drawings from the cones and other specimens sent home by their collectors, Douglas and Hartweg, and for authorising him to procure information from their intelligent and experienced superintendent of the arboretural department of the Garden, Mr. George Gordon, A.L.S.; and to Mr. Gordon he is indebted for the ready and obliging manner in which, at all times, he rendered his assistance.

Baywater, April, 1842.

J. C. L.
Contents.

Enumeration of the Genera and Species, with their varieties and synonyms, in the order in which they are described in the work

Page v

An Analysis of the commoner Trees and Shrubs of Britain, with reference to their Uses in useful and ornamental Plantations

lxix

An Analysis of the Genera of the Trees and Shrubs described in this Abridgement, according to their Leaves

lxvii

Explanation of Abbreviations, Accentuation, Indications, &c.

lxxii

The Species described in detail

1

Exogenæ.

Dichlamydeæ.

Thalamiflora.

Contents.

Sambuceæ

- xxix. lvi. 513 1116

Lonicèreæ

- xxix. lvi. 525 1116

Rubiacæ

- xxxi. 544

Compositæ

- xxxii. 545

Ericaceæ

- xxxii. lvi. 552 1116

Stryacæ

- xxxv. 617

Halesiacæ

- xxxv. 619

Apocynacæ

- xxxvii. 622

Lemiacæ

- xxxvii. 624

Oleiacæ

- xxxv. lvi. 627 1116

Jasminacæ

- xxxvii. 634

Asclepiadacæ

- xxxvii. lvi. 638 1117

Bignoniacæ

- xxxvii. 660

Solanacæ

- xxxvii. lvi. 663 1117

Scrophulariacæ

- xxxvii. 670

Labiacæ

- xxxviii. 672

Jervenacæ

- xxxviii. 676

Monochlamydeæ.

Chenopodiaceæ

- xxxviii. 674

Polygonacæ

- xxxviii. lvi. 681 1117

Lauracæ

- xxxix. 685 1117

Thymacæ

- xxxix. lvi. 696 1117

Lonacæ

- xl. 698

Ellacæ

- xl. lvi. 714 1117

Aristolochiacæ

- xlv. 719

Aristolochiacæ

- xlvii. 731

Euphorbiacæ

- xlvii. 733

Artocarpacæ

- xlvii. 744

Indacæ

- xlvii. lvi. 750 1117

Juglandacæ

- xlvii. 751

Saliciacæ

- xlvii. 753

Betulaceæ

- xlvii. 754

Corylaceæ

- xlvii. 755

Barbacæ

- li. 756

Platanacæ

- li. lvii. 762 1118

Fatsianacæ

- li. 763

Myrtiacæ

- lii. 764

Gnetacæ

- lii. 765

Taxiacæ

- lii. 766

Coniferæ

- lii. lvii. 946 1118

Abietiacæ

- liii. 947

Cupressiacæ

- lv. 1067

Limpræosate

- lv. 1096

Endogenæ.

Smilacæ

- - lvii. 1093

Lilacæ

- - lvii. 1099

Supplementary Figures

- - - - - - - - - - - - - 1105

Supplementary Species

- - - - - - - - - - - - - 1111

List of Authorities for Generic and Specific Names

- - - - - - - - - - - - - 1119

List of Books referred to

- - - - - - - - - - - - - 1124

Glossarial Index

- - - - - - - - - - - - - 1136

General Index

- - - - - - - - - - - - - 1142

* * By turning to the pages of the Contents, the whole of the species and varieties, with their synonyms, of any genus or order, may be seen at a glance; and, by turning to the General Index at the end, any particular species, whether known by its general name or its synonyme, may be found at once, both in the Contents and in the body of the work.
In the following Table the Synonymes are printed in Italics. English specific names are omitted when they are merely translations of the scientific names. French, German, and Italian generic names are, with few exceptions, not given when they are the same, or nearly the same, as the scientific ones; and the specific names are only given in these languages when they are synonyms, and not mere translations.

Class I. EXOGÉNÆ.
Subdiv. I. DICHLAMYDEÆ.
Subcl. I. THALAMIFLOREÆ.

Sect. I.

Carpeilia, that is, the component Parts of compound Capsules or Fruits, numerous; or the Stamens placed opposite the Petals.

Kanunculâceæ.

Tribe I. CLEMATIDÆÆ.

I. CLEÔMATUS L. - 2

Virgin's Bower, Ladies' Bower: Clématite, Fr.; Waldrebe, Ger.; Clématite, Ita.

§ i. Flâmmbula Dec.

1. Flâmmbula L. - 3


2. rotundifâolia Dec. - 3

C. fîguros Ten.

3. marittima Dec. - 3

4. rubélla Dec. - 3

5. caespîtosa Dec. - 4

C. caespîtosa Scop. C. Flâmmbula Bert.

6. paniculâtâ - 4

C. paniculâtâ Thun.

2. orientâlis L. - 4

C. ãrba Monch, C. glàûca Wild., C. ochråcea Hort.: Yellow-flowered V. B.

3. chîminâsis Retz. - 5

C. sinâenis Trou., coch.

4. Vitálba L. - 5


5. virgîniana L. - 6

C. canadënsis Mill. Dict., C. cordifâlia Monch supp., C. trièternâta Hort.: Broad-leaved Canadâ F. B.

2 bractëâta Dec. - 6

C. bractëâta Monch.

6. ârôsâ Wall.

C. odórâta Hort., C. trîèternàta Hort., C. nepalénâs Hort.

7. Viôrma L. - 7


2. cordâta - 7

C. cordâta Sims B. M. C. Simsii Srt. H. B.

8. cylindrîca Sims - 8


9. reticulâtâ Wall. - 9

C. îôsâ Abbott, C. Sîmssi Bissi.

10. Hendersônii Chan. 9

§ ii. Vitêcëla Dec.

11. flôrida Thun. - 10

Atrâgène indicâ Dest, Atrâgène florîs Pers.: Clématite à grandes Fleurs, Fr.; Grossblüthige Waldrebe, Ger.

2. flore plêno Hort - 10

3 fl. pl. violaceâ - 10


12. carûlea Linn. - 11

C. âsêra grandifîôra Sieb., C. grandifîôra Hort.

13. Vitêcëla L. - 11

Vitêcëla detrôlîe Monch: Red-flowered Ladies' Bower, Gerard; Italianische Waldrebe, Ger.

1. cerûlea - 12

2. purpûræa - 12

3. mâltiplex G. Don. - 12


4. tenuifîôra Dec. - 12

C. ten. lusîthinica Tourn.

5. baccâtâ Dec. - 12

C. canamîfôra Hort.

14. camamîfôra Brot. 12

C. viêrümôides Schrader, C. parvifîôra Dec.

2. parvifîôra Fis. Gût. 12

15. crispa L. - 13

C. florîe crispo Dill. Eth.

§ iii. Cheirôpsis Dec.

16. cîrrhôsa L. - 13


2 pedicelâtâ Dec. - 14

C. pedicelâtâ Swî. H. B. C. balâcâria Pers. C. cîrrhôsa Sims B. M.

3 angustifîôlita - 14


§ iv. Anemônifîôla.

17. montânâ Ilam. - 15

C. anemônifîôla D. Don.

Other Species.—C. holosêricas Pursh, Æstifîôlita Nattâli, Drummondiô Tor. & Gray, parvîfîôla Nattâli, lasianthà Natt., linearîflôs Dec., bichêri Tor. & Gray, pubèscens, vitîfîôla, Buchanâïna - 15

II. ATRAGÉNÆ L. - 16

Clematîs Lamm. & Dec.: Atrâgène, Fr. and Ger.

1. alpîna L. - 16


2 White flws. Dec. 16

3 sîbîricà? - 16

A. sîbîricà L.
CONTENTS.

2. sibirica L. - 17
   A. alpina Gmel. & Pall., Clé-
   2 Blue flws. B. M. 17
   A. ochoténica Pall.?
   A. alpina L. ?

3. americana Sint. - 17
   Cléménat verticillata Dec.
   2 obliqua Don. MS. 17

Other Species and Varietiee. -
   A. ochoténica Pall. (A. sibirica
   var.) a. columbiaea Nutt.
   (Cléménat americanana Tor &
   Gray I. p. 11.) - 17

Tribe II. PEONIAE.

1. PEONIA L. - 18
   The Peony. - Peony, Piony
   GIichterose, Ger.; Rosa del
   Monte, Span.; Peonia, Ital.

Donner Sint. - 18
   Tree Peony. - P. arborea (Linn.
   P. sauvageiôa B. Rep.; Piony
   Mooney, Fr.; Baumgarten-Giichter-
   rose, Ger.; Hou-ouang, and
   Pe-Long-Kin, Chinese.
   1 papaveracea B. R. 18
   2 Bansiit B. R. 18

II. XANTHORII'ZAL. 19
   The Yellow-Root.

1. spiiolitha L' Hérit. - 20
   Xanthorize à Fourme de Persis,
   Fr.; Selteerie-blattrregeliwzwrs,
   Ger.

Winter'aeeae.

I. ILLI'Cium L. - 20
   Anisced Tree : Badiane, Anis
   biole, Fr.; Siermon, Ger.;
   Badiane, Ital.

1. floridatum Ellis 20
   Floro Bell Ittiche. Red-flowered
   Anisced Tree Mor. Hist.: Ba-
   diane de la Floride, Fr.; Un-
   achtier Sierman, Ger.

Magnoliaceae.

1. MAGNOLIA L. - 21
   The Magnolia. - Magnolie,
   Fr., Ger., it.; Bicherbaum,
   Hart.

§ i. Magnolâstrum.

1. grandiflora L. - 22
   Laurel Bay. Big Laurel, Large
   Magnolia, Laurier tulipier, Fr.;
   Grossbom Bigler Magnolie, or
   Bicherbaum, Ger.; Magnolia
   Tulipana, Ital.

2 obovata At. - 22
   3 exoniensis Hort. - 23
   M. g. laevolutea At.
   M. g. stricta Hort.
   M. g. ferruginea Hort.

4 angustifolia Hort. 23

5 precox Andry. - 23

Other Vars. - M. g. veà, M.
   g. laubbia, M. g. exoni-
   ensis var. M. g. rubiginosa,
   M. g. rotundifolia Sint.
   M. g. elliptica At., M. g. longifolia
   undulata, M. g. exoniens à

fleur demi-double, M. g. cana-
   licule, M. g. floribunda, M. g.
   variagata, M. g. mogord-
   dénis - - - 23

2. glauca L. - 23
   M. fragrans Salsib.: Swamp
   Safrasas, Beaver-wood, White
   Bay, Small Magnolia, Swamp
   Magnolia: Magnolie gounes,
   Fr.; Aheiro de Castora, Ital.

3 sempervirens Hort. 25

3. tru'tula L. - 27
   M. umbrellifer Lam., M. fron-
   dosa Salsib.: Umbrella Tree,
   Umbrelle Magnolie, ElbowSea
   Magnolie Parish Fr.

4. macrophylla M. - 28
   M. michælii Hort.: Large-
   leaved Umbrella Tree, Amer.

5. acuminata L. - 29
   M. réticula, M. pennsyanica,
   Blue Magnolia, Cucumber Tree,
   U. S.

2 Candollí Savi - 29

3 máxima Lodd. - 29

Other Vars. - M. striata, M.
   lanifolia - - - 29

6. cordata Mr. - 30

7. auriculata Lam. - 31
   M. Fräseri Walt., M. auricu-
   laris Salsib.: Indian Physic,
   N. Amer.

2 pyramidata - 31
   M pyramidal Burton.
   M. Fräseri pyramidata Nt.

§ ii. Guililinia Rott.

8. conspicua Salsib. 33
   Yulan Magnolia. - M. præca-
   tor Correa, M. Yulan Decai.
   Yu Lam., Chinese: LilyLeafed
   Magnolie Yulanis, Fr.; Yulan
   Bicherbaum, Ger.; M. dei Fi-
   ori di Giglio, Ital.

2 Soulangeâna - 33
   M. Soulangeâna An H. P.
   M. SoulangeânaSutt.B.F.G.

Other Varieties, or Hybrïds.
   M. g. c. speciea, M. c. s.
   Alexandria - - 33

9. purpūrea Sims - 35
   M. obovata Thunb., M. sco-
   tor Vent., M. denudata Lam.:
   Ovato-Ind M.; Magnolie dis-
   colorâ, Bon Jard., Magnolie bi-
   colorâ Dun., Fr.; Ruche Bicher-
   baum, Ger.

2 graciola - 35

3 Koubis Dec.
   M. tontomenta Thun.

Other Varies. - M. p. de-
   nudata Lam., M. p. discolor
   Vent., M. p. philorÂ Lam.,
   a dwarf var. (M. obovata phâ-
   silla of Cassoretto) - 35

II. LIRIODE' NDRO'N L. 36
   The Tulip Tree.

1. Tulipifera L. - 36
   The Poplar, White Wood and
   Canoe Wood, Amer.; Vörigian
   Poplar, Tulip-bearing LilyTree,
   and Sadle Tree, Eng.: Tulipier
   de Virginie, Fr.; Vörigiancher
   Vùoebäum, Ger.; Tulipiere,
   Ital.

2 obtusiflora Mr. - 36
   L. integriflora Hort.
   Yellow Wood.
   Yellow Polara.

Other Vars. - L. t. acuti-
   folia Mr. L. t. flatu Hort. 36

Anonâceae.

1. AISIM' MINA Adamson 38
   Annôna L., Orchochetororó
   Mx., Porcellie sp. Pers.; Ûâ-
   ria Tor. & Gray; Custard Apple
   Asimine, Fr.; Fles-
   chenbaum, Ger.

1. trîloba Dun. - 38
   Annôna trîloba L., Porcellie
   trîloba Pers., Orchochetororó
   arietum Mx., Ûâria trîloba
   Tor. & Gray: Papier, Amer.;
   Asimineer de Virginie; Fr;
   Annôna, Other Species. - A. parviflôra. A.
   grandiflôra - - - 39

Menispermiaceae.

1. MENISPER' MUM L. 39
   The Moonseed.-Menisperme,
   Fr.; Mondsaeame, Ger.

1. canadânsê L. - 40
   M. canadânsê var. a Lamark,
   M. angulatâe Mouch.

2 lobâtum Dec. - 40
   M. virginiâm L.

3 sulâcrimum - 40
   M. sulâcratum Dec.

2. dâuricum Dec. - 40
   Triophus Amelthæâgia Frs.
   M. canadânsê ß Lam.

II. COCCULLUS Baeh. 40
   The Cocculus. - Menispermi-
   mum L., Wendraldâa Willde,
   Andróphâlaz Wendl.

1. carolinus D c. - 41
   Menisp. carolinum L., Wend-
   tblâda populiâfloâ Willde,
   Andróphâlaz scoâden Mouch,
   Baumgârtia scoâden Mouch.:
   Cocola, Ital.

Berberiæce.

1. BERBERIS L. - 42
   The Berberry. - Pipérigei-
   dâ Bush: E.Pine vinette, Fr.;
   Berberist, Ger.; Berberis,
   Ital.

1. sibirica Pall. - 42
   B. sibirica Pal.

2. vulgaris L. - 42
   B. e. Köbst Presl, B. macró-
   carpa of some: Pipérigeiâe
   Turo.: E.Pine vinette Fr.;
   Gemeine Berberist, Ger.

2. lutea - - 43
   3 álba - - 43
   4 âlba - - 43
   5 violacea - - 43
   5 purpūrea - - 43
   5 innominata Kalm.
Cruciaceae.

1. VELLA

1. Pseudo-Cytisus L. 54
Cross-Rocket. — V. integri- 
folia Sal.: Faux-Cytise, Fr.; 
Strauchfige Velle, Ger.

Cistaceae.

1. CISTUS L.  54
The Cistus, or Rock Rose 
— Holly Rose, Gerard; Gum Cistus; 
Ciste, Fr.; Cistus Rose, Ger.; 
Cisto, Ital.

1. purpureus Lam.  55
C. cirsica Hort. Kew.

2. incanus L.  55
C. obdias Hort., C. cymbus 
Dec.

3. corbariensis Pour.  55
C. tracheliferus Dec., C. pol- 
piliformis minor of some nurse- 
c. hybrids Pourr.

4. popilionius L.  56
5. larinifolius L.  56
6. ladaniferos L.  57
Ladano, Ital.

1. albiflorus Dec.  57
C. Leon Clus. Hist.

2. macalatus Dec.  57
3. plenilus Ait.  57

7. cyprius Lam.  57
C. ladaniferos Bot. Mag., C. 
stenopholis Lk., C. solici- 
filius of some.

Other Species of Cistus — C. he- 
terophylos, C. cristicus, C. 
eelisus, C. Cupaniáus, C. 
hirniius, C. fáxus, C. villi- 
C. oblongifolius, C. undula- 
tátus, C. salviifolius, C. longi- 
folius, C. philosophus — 76

II. HELIANTHEMUM 58
The Helianthemum, or Sun 
Rose. — Cistissp.L.: Hélianthème, 
Fr.; Sonnen Gurtel, Ger.; Eli- 
antem, Ital.

1. vulgäre Geert.  58
Cistus Hélianthémum L. &c.

Varieties. — Pale yellow 
double-flowered, Lee’s new 
double yellow.

2. surrejánum Mill.  58
Cistus surrojánum L.

3. serpyllifolium Mill.  59
Cistus serpyllifólius L

4. grandiflórum Dec.  59
Cistus grandiflorus Scop.

5. taùricum Fisch.  59
6. apenninum Dec.  59
Cistus apenninus L., Cistus 
hippius B Lam.: Erba botton- 
cina, Ital.

7. macrántum Swt.  60
2 mútiplex Swt.  60
8. canescens Swt.  60
9. hyssopifolium Ten.  60
1 erocástum Swt.  61
2 cápream Swt.  61
3 mútiplex Swt.  61
10. scabrosum Pers.  61
Cistus scabrosus Ait.

Sect. III.

Ovarium solitary; Placenta 
central. (The Column in the 
Fruit to which the Seeds are 
attached central, and not ad- 
taching to the Sides as in Sect. II.)

Malvaceae.

1. Hibiscus L.  62
The Hibiscus. — Ketonié, Fr.; 
Etibisch, Ger.; Iboico, Ital.

1. syriacus L.  62
Althea Frutesc: Ketnie des 
Jardins, Fr.; Syrischer Etibisch, 
Ger.

2. fóllis variegatis  62
3. fóllis variegáto  64
4. fóllis purpuréo  64
5. fl. purp. plénó  64
6. fóllis rúbró  64
7. fóllis álbo  64
8. fóllis plénó plénó  64

Tiliaceae.

1. TILIA L.  63
The Lime Tree.—Lime Tree, 
Gerard; Lind, Anglo-Sax.; 
Tilied, Fr.: Bastolkte, Ger.; 
Linde, Ger. and Dutch; Tílija, 
Ital.; Tília, Span.; Lipa, Russ.

1. europea Dec.  63
T. intermediá Dec., T. vul- 
gúris Hayne, T. e. bordáís 
Wahl.

1. carvifólia — 64
2. microphória Vent., &c. 
T. e. var. y L.

1. ulmifólia Scop. 
3. syphídráris Dec.
4. purpifólia, Ehrh.
5. cordáta Mill.

2 grandifólia — 64
3 platyphólia Scop. 
4. cordifólia Bess.
5. europea e Desf.
6. grandifólia Sm.

3 internéda — 65
4. t. intermediá Hayne.
5. t. plátáphólia minor H.
6. lactátá — 65
7. t. platiph. lactátá Hor.
8. asplénfólia nové Hor.

5 rúbra  — 60
6. t. róthra Rose.
7. t. corinthána Rose.
8. t. corintesa Hort. Kow. 
9. t. e. rúbra Sibsthorp.
1. c. y Sm. Brit.
10. grandifólia Sm. &c.

6 parvifólia aura 66
7 grandifólia aura 66

Other Varieties.—With va- 
riegated leaves, T. vitiifólia, co-

 Sect. II.

Carpelota solitary, or connate; 
Placenta parietal (that Part
A. carolinianum 124

5 incisum Booth. 124
A. asplenifolia Hort.

Other Fars. — E. H. cris-pum, nigrum, pra cox, striatum, tortuosum, sqc. — 124

2. (II). ohiensis Mr. 125
A. ohiensis Lindl., ? E. pul-

dida Willd., E. echinata Muhi., E. glabra Tor. & Gray, E. ohiensis Mx., Pavia, glabra Spach: Ohio Buckeye, Fetid Buckeye, Amer.

3. (III). rubicunda Les. 126
E. cárnea Hort., E. rosee Hort., E. coeruia Hort., E. var. rubicundum Schubert, E. Watsoniana Spach: White-

ly’s Five Scarlet.
2 rosee — 127
E. rosea Hort.

Other Varieties.—Whitely’s Scarlet, E. H. americana — 127

4. glabra Willd. — 127

5. (g.) palla Willd. 127

II. PAVIA Boehr. — 128

The Pavia — Buckeye, Smooth-

fruited Horsechestnut Tree.
1. rubra Lam. — 128
A. scutuliflora Pavia, L. Pavia a rubra Hayne, Pavia parvi-

florum Hort.: Small Buckeye, Amer.: Marrone di Pav, Ita., 122
2. arguta G. Don — 129
3. substitués Wats. 129
E. P. serratia Hort.
4. hémulis — 129
P. hémulis G. Don, E. Mémulis Lodd.

2. flava Dec. — 130
A. scutuliflora Ait., E. fistula Wangh., Pavia fistulosa Poir.: the sweet Buckeye, the Big Buckeye, Amer.: The Yellow Horse-

chestnut.
3. (f.) neglecta G. Don. 131
A. scutuliflora Lindl.

4. macrocraper Hort. 132
A. sc. P. macrocraper Lodd.

discolor Sief. — 132
A. scutuliflora discolor Ph., L. P. discolor Tor. & Gray.

6. macrostachya Lois. 133
A. scutuliflora Walt., E. macrostachya Mx. P. albca Poir., P. ética Poit. Mac-

rothymus discolor Spach.

Other Kinds of Pavia.—P. cal-

farina Tor. & Gray (A. scutuliflora Nott.), Lyons’ Hort Soc. Gard. — 134

Sapindaceae.
I. KÖRUTE’RIA LX. 134
The Kolrenteia. — Sapindus sp. L. fil., Ceurtenia, Ita.

1. paniculata Laxm. 135
Sapindus chinensis L. fil., K. paulowniædes L’Herit.

Vitaceae.
I. VITIS LX. 136
The Grape Vine.—Grape, Cel-

tic, Fox Spain, Vigne, Fr., Fite, Ita., Wein, Ger.

1. vinifera L. 136
Vigne, Fr.; Geniem Wein-

stock, Ger.; Fite de Vino, Ita.
2. fíllis incanis — 137
Miller’s Grape, or Miller’s Black Cluster Grape.
3. fol. rubescensb 137
The Cercle Grape.
4. stipit. laciniosa L. 137
Cot, Fr.

Ve, D’eaghito, Ita.

2. Labrusca LX. 137
The Fox Grape.—V. taurina

Walt.: Fidiger Wein, Ger.;

Abrostoa, Ita.

Varieties.—The Isabella, Schuykill or Alexander’s, Catawba, and Bland’s — 137

3. estvialis Mr. 137
The Grape Vine.—V. vinifera merma, Mar. ; V. inter-

média Muhi., V. palida Willd.

4. cordifolia Mr. 138
The ChickenGrape.—V. incisa Jacq., V. vulpina L. spec.: the Winter Grape, the Frost Grape.

3. riparia Mr. 138
The sweet-scented Vine.—V.

odoratissima Donn.: Vigne de Batlle, Ita., 122
6. vulpina L. — 138

The Bullet Grape.—V. ret-

undíflora Mx. : Muscadine Grape.

II. AMPELO’PSYS Mr. 139
Vitis sp., Cissus sp.: Ampel-

bassie, Ita.

1. Æderaceæ Mr. 139
Five-leaved Ivy.—Hedera gum-

quefolia Lin. spec., Vitis qua-

2. hirsuta T. & Gr. 140
A. hirsuta Donn

Cissus heder. b hirsuta Phn.

2. bipinnata Mr. — 140
Vitis arbórea Willd., V. bi-

pinnata Tor. & Gr., Cissus stans Pers.: Vite del Carolina, Ita.

Other Species of Ampelop-sis.—A. inclas (Vitis inquis Nuń), cordata Mr. (Cissus Ampeló-

pis Pers., and Vitis iadáchra Willd.) ; caperata G. Don (Vitis caperata D. Don.), A. bótica Dec. — 140

III. CYSSUS LX. 141
The Cissus.—Ampelopsis and Vitis in part.

1. orientális Lam. — 141
The Ivy Vine.

Xanthyloxeæ.
I. XANTHY'XYLM L. 142
Toothache Tree. — Kamp-
CONTENT.

III. PRINOS L. - 163

Winter Berry.—Agéria Adanson: Apatanche, Fr.; Winterbeere, Ger.

§ i. Prinoides Dec.

1. deciduus Dec. - 164


2. ambiguus Mr. - 164

Cassine carolinana Walt. Fl. Car.

§ ii. Ageria Dec.

3. verticillata L. - 164


4. leavigatus Pursh 165

L. canadensis Lyon, P. Lecc- dus Hort.

§ iii. Winteria Moench.

6. glaber L. - 166

Blkerry, Amer.

7. coriaceus Pursh 166

St. glaber Wats.

Varieties.—Leaves broader than those of the species, ovate-lanceolate and acuminate; and leaves narrower, lanceolate, and acute - - - - 166

Other Species of Prinosis. — 166

P. dubiul G. Don, P. atomarius Nutt. - - - - 166

Rhamnaceae.

1. ZIZYPHUS Thurn. 167

The Jujube.—Jujibier, Fr.; Judendor, Ger.; Giuggiolo, It.

5. vulgans Lam. 167


Other Species of Zizyphus. — Z. sinensis Lam., Z. crenata Fr. Z. Zexuosa, Z. incura 168

II. PALIUS L. 168

Christ's Thorn.—Paliire, Port-chapeau, Fr.; Judendor, Ger.; Paliire, It.

1. aculeatus Lam. 168


2. (a.) virgatus Don 169

III. BERCHEMIA N. 169

Endophila Hedw. F. Gen. and Schult. Syst.

1. volubilis Dec. - 170


IV. RHAMNUS L. 170

The Buckthorn.—Nerprus, Fr.; Wogdorn, Ger.; Ramno, It.; the Ram, or Harri's, Thorn, Gerard; Eiine Thorn.

§ i. Miecorella Neck.

A. Alatérmia Tourn.—Flowers racemose, &c. Left. Evergreen Shrubs.

1. Alatérmia L. - 171

Alatérmia Philégra Mill. Dict.: Alatérmia, It. L. balearica H. Par. 171

2. balearica H. Par. 171

R. rotundifolia Dum. 171

3. hispánica H. Par. 171

4. angustifolia 171

5. R. Ushl Willd. 171

6. folis maculatis 171

7. folis affinis 171

8. folis argenteis 172

9. hulridus L'Hérit. 172


B. Rhamnus Dec.—Flowers 4. cleft, in Fascicles

a. Branchlets terminating in a Thorn.

b. Other Species of Rhamnus Dec.

11. caroliniina 172

The White Thorn of the modern Greeks.

4. tinctorius Waldst. 173

R. cardacipèrmus Willd. Herb.

5. infectorius L. - 173

Avcignon Berry.—R. Lycián Geop. C. migrant, or yellow-berryed, Buckthorn; Nerprus des Teinturiers, Graine d'Aig. Nerm, Nerm, yellowing, Dom.; Farmher Wogdorn, Ger.; Cervino pin, It.

6. saxatilis L. 173

R. longifolius Mill. Dict.; Stein Wogdorn, Ger.; Lyco Italianos, It.

7. luxurians Pur. - 173


9. lycioides L. 174

10. Érythroxylon P. 174

11. arctotherium Decum. 174

B. Branchlets not terminated by Spines.

12. dahuricus Pall. 174

13. olivifolius L'Hér. 175

14. frangulóides Dec. 175

R. frangulóides Mt.

15. alpinus L. - 175

2 grandifolius - 176
CONTENTS.

2 pĕndulus - 216
3 purpurascens H. 216
C. L. purpĕreus Hort.
C. Adam Poir.
C. L. coecinum Baum. Cat.
The purple Laburnum.
The scarlet Laburnum.
4 frăgrans Hort. 217
5. Veldennë Vis. - 217
5. nigricans L. - 218
6. sessifolius L. - 218
7. triflōrūs L'Herît. 219
8. pāten L. - 219
C. pendīnus Lin. fil. Supp;
C. grandifolīrūs Dec. Prod.;
Gεnīsta tonentōsa Poir. Supp.;
Spártilium pāten Lin. Syst.;
Brot. Fl. Lus., not of Cev.;
Spártilium grandifolīrūs Brot.
Fl. Lus.; Sarothorniūs pāten
Webb iter Hisp.
9. scŏparīus Lk. - 219
Common Broom.—Spártilium
scŏparīum Lin. Sp.; Smith Eng.
Bok. Genīsta scŏparīa Lam. Dīct.,
ot of VIII.; C. hîr̄sāta
Mench.; Genītū Kalialis,
Genītū commūn; Fr.; genīcne
Pīrienc, Gen.
2 álbus Hort. - 220
3 flōre plēno Hort. 220
§ iii. Calycŏtēme Lk.
10. spīnūs Lac. 220
Spártilium spīnūs Lin. Sp.
11. trībractequētātus W. 221
12. lanigermes Dec. 221
Spártilium lanigermes Dec.
Fl. Atl., Calycŏtēme vîlūs Ŭk.
Enum., Spártilium vîlūs Brot.
2 rīgīdus Dec. - 221
A. Flowers white or whitish.
13. leucānthus - 221
B. Flowers purplē.
14. purpūreus Scop. 222
2 flōre albo Hort. - 222
3 flōre rōseō - 222
C. Flowers yellow.
15. elongātus W. Ń. K. 222
16. multiﬁōrūs Lind. 222
C. elongātus Hort. not of Kt.;
C. elongātus β multiﬁōrūs Dec.
Prod.
17. falcētus W. Ŋ. K. 223
Varīcetes.—C. trībracteηus Lin.,
C. rūthēnicus Lod., C. de-
cūmēns Lod.
18. austrīacius L. - 223
2 nōva Lod. - 223
19. supīnus Jacq. - 223

20. hirsŭtus L. - 224
C. supīnus Bert. pl. Gen.,
ot of Lin.; C. trībracteηus Lam.
Dīct., not of L'Herît.; C. vîl-
ūas coecītanum L. in N. Dn. H.
21. capitātus Jacq. 224
C. hîr̄sāta Lam Dīct.,
Varīcetes.—Cītus
austrociaus Lod.,
æt lūbēns Lod.,
C. pārīvīlofī L.,
C. hîr̄sātus Lod.,
C. supīnus Lod. 224
22. ciliātus Wahlb., 224
23. polytrichus Beib. 224

§ v. Lotŏcides Dec.
24. argĕntēus L. - 235
25. calycĭnus Beib. 225
C. pārīvīlofī Willd. sp.
26. nānus Willd. - 225

§ vi. Chroûanthus Dec.
27. orientālis Lois. 226
C. orientālis, sc. Gerard &
Vall. Herb.
28. Other Species of Cītus.—C.
medicus Guss., C. rŭcūmus
Marnock.

VIII. ADENOCARPUS D. 227
1. hispānicus Dec. 227
Cītus hispānicus Lam. Dīct.,
C. austrociaus L'Herît.
Stirp., N. Du Ham.
2. Boissiēr Wb. 227
A. deoctācitos Bois. Not, sur
l'Abîes Pinosa: Raca vieja,
Spn.
3. intermēdius Dec. 228
Cītus complicātus Br. Fl. L.
4. parīvīlofī Dec. - 228
Cītus parīvīlofī N. Du
Ham., Lam. Dīct. exclusive of
the syn.; Cītus diāvirceptis
L'Herît. Stirp.;
Cītus complicātus Dec. Fl. Fr.;
Spártilium complicātum Loi.
Fl. Gall.
5. telŏnēs Dec. 228
Cītus telŏnēs Loi. Fl.
Gall., N. Du Ham.; Spártilium
complexum Gütan Hort.
Mois, exclusive of the syn.

IX. ONO'NIS L. - 229
The Restharrow.—Andōnis
et Narthex Mench. Meth.:
Arrive-boot, Begware, Fr.;
Hauechel, Ger.
1. frīttōcīa L. - 229
2 microphylla Dec. 229
2. rotundīfīa L. - 229
O. lâtifŏlia Asso Syn.,
Lm. Mant.; Narthex rotundīfīa
Mench.
2. Other Species of Onō'nis.—0.
trībractētae Dec. - 229
X. AM'ORPHA L. - 230
Bastard Indigo, — Bomasteria

Neck. Elem.: Fonz Indigo.
Fr.: Unforias, Ger.; Amaças,
Ital.
1. frŭcīcōsa L. - 230
Wild Indigo. Amer.; Fonz Indigo,
Fr.; Indaco Bastardo,
Ital.
2 angustīfōlia Pur. 230
3 emargīnāta Pur. 230
4 Lewisīi Ld. Cat. 230
5 cariulēn Ld. Cat. 230
(2. f.) glăbra Decf. 230
(3. f.) nānă Nutl. - 231
A. microphylla Pursh Fl. Am.
Sep.
(4. f.) frăgrans Swt. 231
A. nānă Sim Bot. Mag., not
of others.
(5. f.) crōcoce-lanatā 231
Tawny Bastard Indigo.
(6. f.) canēcēns Nt. 232
? A. pubescēn Pursh.

XI. EYESHNA'RTIHA L. 233
1. amorphaēides H. 233
Dalbėgīa amorphaēides Spn.

XII. ROB'NIA L. 233
The Locust Tree.—Pseudacra-
Torn., Inst., Mench.
Meth.: Robiner, Fr.; Robinnī,
Ger.
1. Pseid.-Acacia L. 233
Faisė Acacia.—Aschynēmone
Pseudacraea Roxb., Pseudac-
arīa osoratā Mench. Meth.:
Locust Tree, Amor.; Bastard
Acacia, Robiner faut Acacia,
Acacia blanc, Corvage des
Américains, Fr.; genēcne
Acacia, Ger.; False Acacia,
Ital.
2 flōre lūteo Dum. 234
3 inĕrnis Dec. - 234
4 crispa Dec. - 234
5 umbraclīfēra Decf. 234
R. inĕrnis Dum. Cours.
6 tortuōsa Dec. - 234
7 soorhēfōlia L. C. 234
8 amorphaēfōlia Lk. 234
9 stricta Lk. - 234
10 procēra Lodd. Cat. 234
11 pęndula Ort. Dec. 234
12 monstrōsā L. C. 234
13 macrophēla L. C. 234
14 microphylla L. C. 234
R. angustīfīola Hort.
15 spectābīlis Dum. 234
Acacia aganetica of the
French Nurseries.
16 latisilikha Pr. Cat. 234
2. viscōsā Vent. - 235
R. glutīcōsa Bot. Mag., R.
montana Bartram; Rose-flow-
ering Locust.
3. dūbia Fouc. 234
R. līfora Audüb., R. am-
bīgua Poir. Suppl., ? R. echis-
XIII. CARAGANA L. 237
Siberian Pea Tree.—Robinia sp. L.
1. arborescens Lam. 237
2. inermis Hort. — 238
2. (a.) Altagana Poir. 238
3. (a.) microphylla D. 238
4. (a.) Redowski D. 238
2 prac’ex Fisch. — 239
5. (a.) arenaria Donn 239
6. frutescens Dec. 239
1 latifolia — 239
2 angustifolia — 239
7. (f.) mollis Ross. 239
8. pygaea ‘a Dec. — 240
2 arenaria Fisch. — 240
9. spinosa ‘a Dec. — 240
10. tragacanthoides 240
11. jubata Poir. — 241
12. graniflora Dec. 241
Robinia graniflora Bleb. Fl. Taur.
13. Chamalagu Lam. 241
Chinese Caragana.—Robinia
Chamalagu L’Hér. Stirp., N. Du Ham.
IV. HALIMODE’NDRON Fisch. 242
1. argenteum Dec. 242
1 vulgaré Dec. Pr. 242
2 brachyséma D. P. 242
3 Sieversii — 243
H. Sieversii Fisch.
2. (a.) subvirgescens 243

XX. GLIED’TSCHIA 249
Acacia sp. Pluk.: Fèvier, Fr.; Gleditsch, Germ.; Gleditsia, Ital.
1. triacanthos L. — 250
The Honey Locust.—G. triacanthos var. a polypermurn Mart. Mill.: G. melobwa Walt.; G. spinosa Du Ham.; Acacia triacanthos Hort. Acacia americana Pluk., Fèvier d’Amérique, Fr.; Fava americana Ital.; Thorny Acacia, Sect. Locust, United States; Carouge à Milé, Canada.
2. inermis Dec. — 250
G. laevis Hort.
3 brachycarpa — 250
G. brachycarpa Pursh, G. triacanthos var. B Mx.
2. (t.) monopérmurn 251
3. sinensis Lam. — 252
G. horrhída Wilb., Sp.: Fèvier de la Chine, Fr.
2 inermis N. Du II. 252
G. japonicus Lodd. Cat.
3. major Hort. — 252
G. horrhída major Lodd. Cat.
4. nana Hort. — 252
G. horrhída nana H. Soc.
5. purpurea Hort. — 252
G. horrhída purpurea Hort.

Sect. III. HEDYS’REA.

1. E’murus L. — 247
E’murus major Mill. ic. t. 132.
2. f. L. — 248
f. 1., E. minor Mill. ic. t. 132.
1. f. 2., C. paniciflora Lam. Fl. Fr.

Sect. IV. PHASŒLE’E.

XIX. WISTA’RIÁ 248
Gelsemium sp. L., Thysanéthus Elliot,克拉華ia Raîn.
1. frutescens Dec. — 249
2. chinensis Dec. — 249
Gelsemium chinensis Bat. Mag., G. sinensis Bot. Reg., W. Con-sequauna Loudon in H. B.

V. Sect. CASSIE’E.

CONTENTS.
XXI. Gymnocalclus L.

1. Canadensis Lam. 255

1. Siliquastrum L. 257
Siliquastrum carolinum Monch. Meth.: Red Bird Tree, Amer.; Gainier de Canada, Bontou rouge, Fr. 2 pubescens Ph. - 259

Rosaceae.

Sect. I. Amygdalæ L. Jus.

1. Amygdalus T. 261

1. nana L. - 262


3. communis L. - 263


II. Pêrsica Tourn. 265
The Peach Tree.—Amygdalus sp. of L. & Juss, Prunus sp. of L. & Juss, Prunus communis L. & Juss. 1. vulgaris Mill. 266 Amygdalus Persica L. Sp.: Pêche denteureux, Fr.; Pirschke, Ger. 1. The free-stone common Peach 266 Pêche, Fr. 2. The cling-stone common Peach 266 Pêche, Fr. 4 flore pleno Hort. 266 4 alba Lindl. - 266 5 fóillis variegátis H. 266 6 comprésa Hort. 266 The Flat Peach of China.

2. (v.) levis Dec. 267

III. Armeniaca T. 267
The Apricot.—Prunus sp. of Lin.and others: Abricoter, Fr.; Apricotbaum, Ger.; Albicocco, Ital.


2 persicifólia Loiss., 269 A. persicifolia Don’s Mill. Abricot noir à Feuilles de Pécher, Fr.


Other Species of Armeniaca.—A. pedunculata Led. - 270

IV. Pru nus Tourn. 270
The Plum.—Prunusphora Neck. Elem., Prunus sp. of Lin. and others: Prunus domestica; Prunus, Ger.; Pruno, Ital.

1. spinosa L. - 271 Common Sloe- Thorn.—P. sylvestris Fabricium, Hist., Ray Syn.: Blackthorn; Prunier épineux; Prunier de Pire, Fr.; Mere-du-Bois, Fr.; Schleddorn, or Schlen Pfalme, Ger.; Prunno or Prunello, Ital.


2 flore pleno Hort. 273 3 fóillis variegátis H. 273 4 armenioides Ser. 273

4. (d.) myrobolána L. 274 P. myrobalán D. Du Ham, P. myrobalána Lois., P. crassifera Fehr, Beitr., Virginiana Cherry, Early Scarlet Plum: Prunier myrobalan, or Cerisette, Fr.; Kerschpfalme, Ger.

2 folis var. N. Du H. 274 5. cándicans Balb. - 275
CONTENTS.

6. Coccoloba Tenore 275
7. maritima Wagner, 275
 \* P. acuminata Mix. Fl. Bor.
 Amer.
8. pubescens Poir. 276
9. divaricata Led. 276

Other Species of Prunus - 276

V. Cerasus Juss. 276
The Cherry—Laureocerasus Torn. Prunus sp. L.: Cerasus; Kirsche; Ger.; Colomb. Ita.

§ i. Cerasophora Dec. The Cherry-bearing Kinds.

A. Species cultivated for their Fruit.

1. sylvestris Bauh. 277


1. Mérisiers or Merries 277

2 Guigniers or Geans (C. Julianna Dec.) 277

3. Heaumiers, the helm-shaped Cherries (C. Juliana var. heaumiana Dec.) 277 

Far. for Ornament.

C. s. duracina 2 fiore pleno Hort. - 278

Mérisier à fleur doubleurs, or Mérisier Renancour-
tier, Fr.

4 Bigarreauciers, the Bigarreaus, or hard- fleshed Cherries (C. duracina Dec.) 277

2. vulgus Mill. - 278


Ornamental Varieties.

2 fiore semipleno H. 279
3 fiore pleno Hort. 279
4 persiciflora Hort. 279
5 foliis variegatis H. 279

Fruit-bearing Varieties.

Selection exemplifying the different forms which the varieties of the cultivated cherries assume, as standard trees.—The Bigarreau, Butler’s Yellow, the Kentish Cherry, the May Durand, Morello, D’Osthheim - 279

6 Maráshe - 280
Primus Marascha Jaq.

B. Species or Varieties cul- tivated as ornamental or cu- rious.

3. (v.) semperflorens 281
Primus semperflorens Ehrh. Beitr. P. scrotina Roth Catal.; the Weeping Cherry, the Al- sovia Cherries; Cerise de la Touraine, Cerise de St. Martin, Cerise tardive, Fr.

4. serralata G. Don 281

Primus serrulata Lindl. Hort. Trans.; the double Chinese Cherry; Yung-Tso, Chinese.

5. Pseudo-Cerasus 282

6. Chamecerasus L. 282

Siberian Cherry — C. inter- media Poir. Dict.; P. fruticosa P. according to Besser; Cera- sus pygmae G. Don, according to Pall. Fl. Ross.; Chamae- cerasus fruticosa Pers. Syn.

7. prostrà Ser. - 282


8. persicifolia Lois. 283

Primus persicifolia Desf. Arb.

9. borealis Michx. - 283

Primus borealis Poir. Dict.; the Northern Chloe Cherry, Amer.

10. pimmala Michx. - 283


11. (p.) depræssa Ph. 284

Americ., not Primus pimmala L. P. Smuckhainz Wild. ed. 2.; Sand Cherry, Amer.

12. pygmaea Lois. 284

13. nigra Lois. - 284

14. hyemalis Michx. 285

15. chicasa Michx. - 285

16. pubescens Ser. - 285


17. pennsylvanica L. 286


18. japonica Lois. - 286


Amagatula pimmala Lin. Mant.

19. sinensis G. Don 287

sulicina G. Don 287

Primus sulicina Lindl. in Hort. Trans.; Ching-Choh-Lee, or Tung-Choh-Lee, Chinese.

Species belonging to the preceding Subsection (B), not yet introd-uced. — C. Phœbea Hyml. Primus cerasoides D. Don, Cerus Cerús Porem., C. glaucodora, C. aspera, C. incisa Lois., C. humilis Mor.

§ ii. Pàdi cèr Ser.

The true Bird-Cherry Kinds of Cerasus.

A. Species of Bird-Cherry Trees already in Culture in Britain.


Primus Mahaleb L. Sp.; Bois de Sainte-Cécile, or Primerobustans, Fr.; Mahaleb-kirsche, Ger.; Cigliego cavingo, Ital.

2 fructu flavo Hort. 288

3 latifolium Hort. 288

22. Pàdis Dec. - 289


1 vulgaris Ser. - 289

C. Pàdis Dec., N. Durm.

2 pàdivora Ser. - 289

3 multià Ser. - 290

4 chelera 290

Primus chelera Wild.; according to Ait. H. K. 2d ed.

4 bracteata Ser. - 290

V. Chelera racemosus Hort.
23. virginiana Mr. 291

24. (v.) serotina Le. 291

25. mollis Doug. — 292


27. nepalensis Ser. 293
Prunus glaucafólia Wall. MSS.

B. Species of Bird-Cherry Trees which have not yet been introd. or of which we have not seen Plants. — C. acumína Wall., C. emarginata Donn. — C. capitóla D. (P. capronica Wall. P. un dalla Hamilt. in D. Don's Prod. Nepal, C. udinata Donn. C. campestris Lois. C. elliptica Lois., C. paniculáta Lois. - - - 234-3

§ III. Laurocerasi. The Laurel-Cherry Trees.

28. húsitáncis Lois. 294

2 Híca Ser. — 294
Prunus Híca Broussonet. P. multiflórum Cav. C. Híxa W. et B. Hlst. C.

29. Laurocerásus L. 295

2 variegátà Hort. 295
3 angustífólia Hort. 295
30. caroliniana Mr. 296

Sect. II. Spiráeæ.

VI. Prúshíja Dec. 297
Tigáren Ph. Ph. Amer. Sept., not of Aublet.

1. tridentáta Dec. — 297
Tigárea tridentáta Ph. Ph. Amer. Sept., not of Aublet.

VII. KE'RRIA Dec. 298
Rúbus L., Céchorhus Thunb., Spiráe a Camá.

1. japónica Dec. — 298

2 flore pleno 298

VIII. SPIRÆA L. — 299

§ i. Physicóporos Camb. 1.
opulifólia L. — 299
Virgíniis Gueider Roze, Nine Bark, Amer.; Eveninúo del Conadali, Itál.

2 tomentólla Ser. — 300
3 monogónica — 300
S. monogónia Torrey.

2. capitáta Ph. — 300
S. opulifólia var. Hook.

§ ii. Chamédryon Ser. 3.
chamédrífolia L. 300
S. cantóniensis Lour. 1
vulgáris Cam. Mon. 300
2 média Ph. Ph. Am. Sept., Camb. Mon. 300
3 oblongófólia C.M. 301

4 subracemousa Ser. — 301
5 incésa Hort. — 301
S. chamédrí futifólia Ht.

6. (c.) almiífolia Sep. 301

2 phyllánta Ser. — 301

5. (c.) flexuósa Fis. 301
S. alpína Hort. Par. according to Camb. & Fisch. in Litt., S. shívóra Hort.

Varieties or Synonyms. — S. flexuósa latifólia Hort., S. thófólia Hort., S. udinata Hort., S. cárpinífolia, S. betulífolia, in Messrs. Lydgate's Colléc- tion — — — 302

6. (c.) cratáegífolia L. 302
7. (c.) betulífolia P. 302

8. cína Waldst. et K. 302
9. trílobáta L. — 303
S. tríscobás Don's Mill.

10. alpína Pall. — 303
11. hypericífolia Dc. 303
Hypericífolia frutes everét Hort.: Italian Mary.

1 uralénsis Ser. — 303
S. cymbálua Lin., Fisch. in Litt., and Don's Mill.
S. hypericífolia Cumb. M.

2 Plúkenetífolia Sr. 304
S. hypericífolia Lin. Ph., Don's Mill.
S. h. var. 3 Dec. Ph. Fr.

9 acúta Ser. — 304
S. sibirífolia Hort. Par. according to Camb. Mon.
S. ambigua Pall.

4 crenátà Hort. — 304

5 savrálica Ser. — 304
S. savrálica Better in Litt., Don's Mill.

6 Bescériá Ser. 304
S. círnata in Litt. S. savrálica & Bescériá Don's Mill.


12. (b.) thálctróides 305

13. cíncifólia Wall. 305

14. pikóweníóis Res. 305
15. cenaníthófolia Hu. 305
16. corymbósa Raf. 306
2 sorória — 306
S. sorória Pen. in Ht. Br.

17. vacínífolia D.J.306
S. adiantífolia Hort.

18. laxífrá Liund. 306
19. bélá Sim. 306

§ III. Spiríria Ser.

20. salíciófolia L. — 307
Spiráe a frúte Hort.: Breed- wort, Queen's Needlepwort.

1 cárnea Att. Ht. K. 307
2 alpéstis Pal. Fl. 307
S. alpéstis Don's Mill.

S. albeta Ehrh. Beitr.

4 latífolia Wall. Sp. 307
S. obérata Raf. in Litt., not of Waldst. et Kit. according to Wild. En. S. carúrcífolia Willd. Emm., Don's Mill.

5 grandífóra — 308
S. grandífolia Lod. Br. C.
6 tárria — 308
S. tárria Hort.

Other Varities or Synonyms. — S. camécus, S. salíciófolia, S. látifólia, S. cíncifólia.
drifolia, S. lanceolata, S. carpinifolia, S. reflexa, S. incarnata.

21. Menziesi Hook. 308

22.的动作钩. 308

23. 埃利贾塔 L. - 309

24. 亚利叶 Smith 309

§ iv. Sorbaria Ser.

25. sorbifolia L. - 309

26. Lindleyana Wal. 310

A Selection of Species - 310

Sect. III. Potentillaæ.

IX. RU'BUS L. - 311

The Bramble.—Ronce, Bramboiser, Fr.; Himbeere, Brombeerstrauß, Ger.; Rovo, Italo.

§ i. Leaves pinnate, of 3–7 leaflets.

1. suberectus Ander. 311

2. affinis W. & N. - 312

3. micranthus D. Don. 312

4. occidentalis L. - 313

5. ideæ L. - 313

6. laciniatus W. - 314

7. cæ'sins L. - 314

The Dewberry.

2 arvensis Wall. Sch. 315

3 grandiflorus Ser. 315

4 parvifolius Wall. 315

5 f. varieg. Hort. 315

8. corylifolius Smith 315

R. vulgâris W. & N., R. morrowii Heyne.

2 cænus Wal. 315

3 glandulosus W. 315


9. spectibilis Pbn. 316

R. rigifolius Wild. Herb.

10. fruticosus L. - 316


2 pomponius Ser. 316

3 fruticosus & W. & N.

4 flore rosé-pléno

Bouun. Cot. - 317

5 folis variegatis 317

6 leucocarpus Ser. 317

11. hispidus L. - 317


§ iii. Leaves lobed, not pinate or digitate.

12. odoratus L. - 317

R. occidentalis Hort., but not of Lin.: the Virginian Raspberry, the flowering Raspberry: Ronce odorante, Fr.; Rove del Guadal, Italo.

13. nutkâns Moc. 318

R. odoratus Hort., not Lin. Species and Varieties of Rubus best deserving of Cultivation in British Gardens, as ornamental Shrubs... - 183

Other Sorts of Shrubby Rubuses.

14. lucida Ehrh. - 324


7. nítida IV. - 325

R. redutaefruitescens Thory in Red. Ros.: the dwarf Labrador Rose.
CONTENTS.

3.37

10. fraxiniția Liörk. 336

Ait. - 330

2.6 orepleno Re. 336

R. - 330

A. Natives of Middle Europe.

10. fraxiniția Liörk. 336

2.6 orepleno Re. 336

R. - 330

A. Natives of Middle Europe.

10. fraxiniția Liörk. 336

2.6 orepleno Re. 336

R. - 330

A. Natives of Middle Europe.
R. cinnamomea R. Fl. Ger.
R. lúcida bicolor Jacq. Vin-
4 flore pleno - 339
Williams's double yellow Sweet Briar.
5 Hogg D. Don 339
Hogg's yellow Aner. Rose.
Other Species belonging to this Section. - R. hibiscia Sm., R. glutinosa Sm., R. Kluki Bass., R. saxovedos Pursh., R. Montozemle Humb.

§ viii. Caninae Lindl.
A. Species Natives of Britain.
42. canina L. - 339
R. usnalis Becht. Forsk.; R. ande
2 secpfiila Lindl. 339
R. officinalis Rau., B.;
Other Varieties. - 339.
43. Försteri Sm. - 339
R. collina & $\gamma$ Woods in Lin. Trans.
44. dumetorum Thunb. 340
45. sarmentacea Sw. 340
46. cae.$\alpha$ Sm. - 340
B. Species Natives of Middle Europe.
47. rubriflóia Vill. - 340
C. Species Natives of Asia.
48. caucásica Pall. - 341
R. luceánhia Bieb. Fl. Taur.
49. indica L. - 341
R. sávica Lin. Syst., R. sem
céflos cárnea Rosig. Ros.; R. indica chinénsis semiplana Ser. Mel., R. reviráátà flore submultíplici Red. Ros.; the monthly Rose, the blish China Rose, the Tea-scented Rose; R. indicíi, Rose Th. Fr.; Indische Rose, Ger.
2 Noisetanea Ser. 342
purpúrea Red. 342
nivea - 342
Airn Êibert.
Smithi - 342
Smith's Yellow Noisette Rose.

3 odoratissima Lindl. 342
R. odoratissima Swt. Hort. Sub. Lond. R. indica frágrans Red. Ros. The sweetest, or tea-
scented, China Rose.
4 longiflóia Lindl. 342
5 púmilà Lindl. 342
6 carphenylic Red. 342
7 punnáosa Red. - 342
8 eruênta Red. and Don's Mill. - 342
9 Frasériana Hort. 342
10 rúga Lindl. B. R. 343
11 oreholéca B. R. 343
12 flavéscens - 343
The true tea-scented China Rose.
13 Blairii D. Don - 343
50. seméflos cárnea C. 313
51. Lawrencea S. 343
52. sericiae Lindl. - 344

§ ix. Systéflos Lindl.
A. Species Natives of Britain and other Parts of Europe.
3. sástyla Bal. - 344
4. arvensis Huds. - 344
2 ayreshírea Ser. - 345
3 híbrida Lindl. 345
B. Species Natives of Middle Europe.
55. (a) seméflos virens C. 345
R. scándens Mill. Diet. R. ba
2 Russellsiana - 346
3 Cláire - 346
The Rose Clare.
C. Species Natives of Asia, and one of them of Africa.
56. multiflorá Thunb. 346
2 Grevéi Hort. - 346
Boursauté Hort. 347
57. Brumónii Lindl. 347
R. Brumwí Spreng. Syst.
58. moschátta Mill. 347
2 flore pleno G. Don 347
3 nivea Lindl. B. R. 348
R. nivea Dupont, not of Dec.
1 nivea 355; var. nivea Ser.
4 nepalíensís Lindl. 348
Other Vars. — The fringed, Fríncense de Naxou, and Tea-scented - 348
D. Species Natives of North America.
9. rubriflóia R. Br. 348
§ x. Banksiáne Lindl.
60. sinéca Ait. - 349
61. Bánkszé R. Br. 349
R. Banksiáne Abel Chin., R. inéáns Rosb.
2 húceta Lindl. - 349
62. microcépáia Lindl. 330
R. cymóánea Tracht. Ros.
63. hýstrix Lindl. - 350
Other Species and Varieites of Rosá - - - 350
Soil and Situation - 330
XIII. Lo'we-l Lindl. 532
Rósa sp. Tull & Lindl in Ros. Monog.
1. berberíía Lindl. 532
Sect. V. Po'mé Lindl.
XIV. Crae'gus Lindl.
The Thorn. — Crae'gus and Mésphílus sp. L. and others: Ni-
§ i. Cocineae.
1. cocíinea L. - 353
C. attíllitia Booth; Mésphílus australis Wall. Fl. Car.; M.
CONTENTS.

Sarrour, N. Du Ham.: Thornless American Azarole. 356

Hagetorn, 356

M. Lazzaruolino, 374

C. M. Harbk., Cat. 400

C. spinescens Gedney. 354

C. acerifolia Hort. 2.

C. § flabelata Hort. 3.

5 neapolitana Hort. 354

Mespilus constantinopolitan a Godefroy. 2.

glandulosa W. 354

C. angustissima P. F. Ros. 2.

Mespilus rotundifolia Ehrh. 3.

B. Pirus glandulosa Mein. 3.

Mespilus rotundifolia Booth. 2.

suculenta Fisch. 354

Mespilus succulenta B. 3.

subvillosa - 353

C. subvillosa Fisch. 3.

3. punctata Alt. - 355


rubra Pursh - 356

C. ciliata Ronals. 2.

rubra stricta Hort. - 356

C. p. stricta Ronals. 2.

аurea Pursh - 356

C. p. flavescens Hort. 2.

C. ciliata Ronals. 2.

C. ciliata Loddt. Cat. 2.

C. pentagyna Godefroy. 5.

5 brevissima Doug. 356

4. pyrifolia Alt. - 356


3. macracanthus L. 357


2 minor - 358


C. Cris-galli L. - 358


2 splendens Dec. - 359

C. arbutifolia and C. sp. dens. Loddt. Cat. 3.

3 pyracanthif. Dec. - 359


salicifolia Dec. - 360

C. salicifolia. 5.

linearis Dec. - 360


C. linearis Loddt. Cat. 6.

C. novae Dec. Prod. 360

Mespilus novae Dum. Sup. 7.

M. epoifolia Horn, 300


5. prunifolia Bose 361


§ v. Nyger. 9.

nigra W. § K. - 362


? C. fissa Jacq. - 362

10. purperea Bose 363

C. sanguinea Hort. 10.

2 alatae - 363

C. alata Hort. Cat. 10.

§ vi. Douglassi. 11.

Douglasii Lindl. 364

§ vii. Flavesc. 12.

hava Alt. - 364


(1.) foliata Bose 365


(1.) triloba L. 366

C. spinosissima Lee. 13.

§ vii. Apifolius. 15.

apifolius Mr. - 366

C. Oxycanthus Walt. Carol. C. apifolius major Loddt. Cat. 2.

2 minor - 366

C. apifolius Loddt. Cat. 2.

§ ix. Microcarpa. 16.

cordata Ind., 357

Mespilus Phenograpum L. 367


spathulata Elliott 367


2 rugosae C. georgica Lodot. 18.

§ x. Azaroli. 18.

Azarolicus L. - 368


19. (A.) macracanthus 369

? C. rubra Lin. fil. Sup. according to Dec.: Saucour, Arabic.

20. Aronia Bose - 370


orientalis Bose 371


sanguinea - 371


tanacetifolia P. 372


2 glabra Loddt. - 372

3 Leucia - 372

C. icaea Lee. 3.

Lee's seeding. Hort. 3.

§ xi. Heterophylla. 23.

heterophylla F. 374

§ xii. Oxycanthae. 24.

Oxycahthae L. 375


A. Varieties differing from the Species in the general Form and Mode of Growth. 24.

2 stricta Loddt. Cat. 375

C. O. rigida Ronals. 3.

punctata Loddt. Cat. 376

Regisina Hort. - 376

Queen Mary's Thorn. 5.

Celsiana Hort. 377
CONTENTS.

6 capitata Sm. Apr 377
7 flexuosa Sm. Apr 377
B. Varieties differing in the Colour of the Flowers.
8 rosen Hort. 377
9 punicea Lod. Cat. 377
C. Varieties differing in the Development or Structure of the Flowers.
10 multiplex Hort. 377
11 porphyrea fl. pleno Hort. 377
12 monogyna 377
13 apicata Lod. Cat. 377
D. Varieties differing in the Time of Flowering.
14 praecox Hort. - 377
15 sibirica - 377
16 transylvanica B. 377
E. Varieties differing in the Colour of the Fruit.
17 melanocarpa - 378
18 Olivieriana - 378
19 aurea Hort. - 379
20 aurantiaca Booth 379
21 leucocarpa - 379
F. Varieties differing in having the Fruit woolly.
22 eriocarpa Lindl. 379
23 eriocarpa Lod. 379
G. Varieties differing in the Form of the Leaves.
24 obtusa Dec. P. 379
25 aureus var. C. 380
26 lineata - 380
27 crenata var. C. 381
28 oxyphylla Monc. 381
H. Varieties differing in the Colour of the Leaves.
29 foliis aureis L. C. 381
30 foliis argenteis 381
31 lucida - 381
§ xiii. Parvifoliæ.
25. parvifolia Ait. - 383

Du Bœuf; C. tibialis Pusch.; C. viridis, azalariis, betulifolia, fiórida, linearis Lodd. Cat. 285
1. Gooseberry-leaved Thorn, Lord Ioy's Thorn.
2 flórida - 383
C. flórida Lodd. Cat.
3 grossularifolia 383
C. linearis Lodd. Cat.
26. virginica Lodd. 384
C. virginiana Michx., Lindl.; C. viridis Hort.
§ xiv. Mexicoica.
27. mexicana Moc. 384
C. stipulacea Lodd. Cat.; C. Lambertiana Hort.
28. Pyracantha Pers. 385
Mespilus Pyracantha L. 1. Evergreen Thorn; Buisson ardent; Fr.; immergerminis Mesp., Ger. A.azzano, ital.
2 crenulata Hort. - 385
C. crenulata Hort.

§ XV. STRANv-V' § L. 403
1. glaucescens Lindl. 403
Crateus glaucescens Wall. Cat.
XI. PhOT1'NIa L. 403
1. serrulata Lindl. 404
Crateus serrulatus Wall. Cat.

9. rotundifolia Wall. 410
10. (r.) microphylla 411
11. (r.) buxifolia H. 411
2 marginata - 411
C. marginata Lindl.

XVIII. AMEL'ANCHIER.
Mespilus L., Pyrus W., Aronia Pers.
1. vulgaris Menc 412
2. (v.) Botryapium 412

B. Varieties differing in the Colour of the Leaves.
28 foliis aureis L. C. 381
C. intemenis Booth.
29 foliis argenteis 381
30 lucida - 381

3. (v.) tomentosa L. 406
Mespilus tomentosa Wild.

Sp., not Lom.; M. crocérpia Dec. Fl. Fr. synops, and Sup. 377
3. (v.) laxiflora Jacq. 407
2 uniflora Fischer 407
4. denticulata - 407
§ ii. Sub-evergreen or deciduous. Tall Shrubs or low Trees.
5. frigida Wall. - 407
6. (f.) affinis Lindl. 408
Mespilus acuminata Lindl. Mespilus acuminata Lindl. 408
Bot. Cat. 408
7. acuminate Lindl. 409
8. succulenta Lindl. 409
Mespilus succulenta; C. 409
Mespilus decidua Lindl. 409

§ iii. Leaves evergreen, leathery, Low Shrubs, with prostrate Branches; Trailers, but not properly Creepers.
9. rotundifolia Wall. 410
10. (r.) microphylla 411
11. (r.) buxifolia H. 411
2 marginata - 411
C. marginata Lindl.

S. (v.) sanguinea - 413
Pyris sanguinea Pers Fl. Amer., Sept., Aronia sanguin- nea Nott., Mespilus canadens-
CONTENTS.

sis y rotundifolia Michx. Fl. Bor. Amer.

4. (v.) ovalis Dec. 413


Aronia subcorticata Raf. Mâlûs microcarpa Raf. 3 semi-integriolâ 414

5. (v.) florâ Lindl. 414

2 parviolâ - 414 A. parviflora Hort. Soc.

XIX. Mespilus L. 414

The Medall.—Mespilus sp. of Lin. and others, Mespilophora sp. of Neck.: Neckler, Fr.; Mselp, Ger.; Mespil., Ital.

1. germanica L. - 415

1 sylvestris Mill. Dic. 416

2 stricta Dec. Alt. 416

3 diffusa Dec. Alt. 416


2. Smithii Dec. - 416


XX. Pyrus Lindl. 417

The Pear Tree.—Pyrus Malus and Susus Tourn. Pyrus and Susus L., Pyrussorum and Apphyphorum Neck.

§ i. Pyrussorum Dec.

1. communis L. - 417


1. AChara Wallr. 417

2 Pyraster Wallr. 418

3 foliis variegatis 418

4 fructu variegato 418

5 sanguinolenta - 418

6 foére pleno - 418

Poire de l'Arménie B. Jard.

7 jascula - 418

Bon Chrétien à Belis jusqu'en Jardin.

8 sativa Dec. - 418

Subser. — Beutel Diel, Bourtre de Rams, Bezi de la Motte, Glott Morceau, Napoleon, Swain's Peg, and the following Scott Pegs, recommended by Mr. Gorrie, as forms adapted for landscape scenery, — the Bennie, the Golden Knop, the Elcho, the Bushed Lady, and the Pow Meg - - 419

2. (c.) ovalifolia Dec. 421

Aurclair, or Orleans Pear; Poire de Reau, in Bibl. Phys. Econ. Ma, 1817, p. 229.

3. (c.) nivalis Lindl. 421

4. (c.) sinuata Thuill. 421


5. (c.) salicifolia L. 422


6. (c.) myxalifolia 422


7. sinuosa Lindl. 422

P. comminatus Lois. Cochin, P. sinuata Royle Ill.; 'Ri entu no Nas, Japanese; the Sandy Pear, Snow Pear, Sand Pear; Shao Lee, Chinese.

8. bollwylleiana - 423


9. variolosa Wall. 424

P. Fisia Ham. ex Herb. Lin. Soc.

10. Michelâxii Bosc 425

11. indica Colebr. - 425

§ ii. Malus.

12. Malus L. 426


13. (A.J. acérba D. 426


14. (A. J. pruniolâ 426


15. (A. J. baccata L. 427

Malus baccatae Desf. Arb.

16. (A.) dioica IV. 427

P. aéctica Münch. Hauws., Malus dioica Ando, Cat.

17. (M.)astracanica 427

Malus astracanica Dum. Cowen: Transparent de Moscou, Glace de Zélande: the transparent Crab of English Nurseries.

Selection of Vars.—The Red Astrachan: the White Astrachan; the Black Crab; the Court pendant plat; the Lincolnshire Holland Pippin; the Tulip Apple; the Violet Apple; the Cherry Crab, or Cherry Apple; the Supreme Crab; Biggs's Everlasting Crab - - 427

18. coronaria L. - 429

Malus coronaria Mill.; Crab Apple, the sweet-scented Crab, Amer.

19. (c.) angustifolia 430


20. spectulibb Alit. 431

The Chinese Crab Tree.—Malus spectulibb Desf. Arb., N. Du Ham.; Malus serrulatus Dum. Cours.

Species of which there are only very young plants in British Gardens.

P. Sieversii Led. Fl. Alt. - 432


P. schischkei Lelsch. - 432

P. stipulacea Hort. - 432

§ iii. Aria Dec.

21. Aria Ehrh. - 432


1 obstusifolia Dec. 433

P. A. obêta Hort.

2 angustifolia 433

Crataegus longifolia N. Du Ham.

? Pirus alba Wild. En.

3 undulata Lindl. 433

4 angustifolia Lindl.433

P. A. longifolia Hort.

5 rugosa Lindl. - 433

6 crética Lindl. - 433

P. A. rotundifolia Hort.; P. gre'va' Hort.

P. A. obéta Hort.

Cratae'gus gre'va Hort.

7 bullata Lindl. - 433

P. A. acuminata Hort.

22. (J.) intermédia 434

Cratae'gus Aria ë Linn. Sp., C. scientifica Wahlena, C. nucéra Lit.; Alisier de Poin- tanebon, Fr.; Schwedicher Melbèbaum, Ger.

1 latifolia

Cratae'gus latifolia Poir. Dict., Du Ham.

Sôrbus latifolia Pers.

Cratae'gus dentiata Thuill.

2 angustifolia - 435

P. cédòla Willk. Emm.

23. vestita Wall. - 435

Pyrus nevàlipes Hort.

Sôrbus vestita Lodd. Cat.
**CONTENTS.**

### XV

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>33.</td>
<td>langinósa Dec. 443 P. híbrida langinósa Hort., Lin. lám. 251, fol. 110.</td>
</tr>
<tr>
<td>35.</td>
<td>foliósola Wall. - 445 Other Species—P. hircína Wall. Cat. - - 445</td>
</tr>
</tbody>
</table>

### XX

**Calycanthaceae.**

#### I. Calycánthus L. 452

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>(f.) glácius Willd. 454 C. floríbunda L. 447</td>
</tr>
<tr>
<td>3.</td>
<td>(f.) Levigátius W. 454 C. oblongifolius Hort.</td>
</tr>
</tbody>
</table>

#### II. Chimoínthus L. 1801

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
</table>

#### Granátaceae.

**I. Púncí Turin.** 456

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Granátum L. - 456</td>
</tr>
</tbody>
</table>
CONTENTS.

4 albescens fl.pleno 457
5 flávum Hort. - 457
(2., (G.), nána L. - 457

Tamaricáceae.
I. Támaríx Decr. 458
The Támaríx—The species of Támaríx of authors that have 4-5 stamens: Támaris, Fr.; Tamaríxsen, Ger.; Tamaric, Ital.
1. gálica L. - 458
T. arborónesis Lob. Ic., Tamarícus gálicus All., Tamarícus pentádéraus Lamb. Fl. Fr., not of Pall.: Mirici, Ital. Varieties - - 458

II. Myricáriá Decr. 459
The species of Támaríx of authors that have monadaphous stamens.
1. germánica Desc. 459

Philadelpháceae.
I. Philádelphus L. 460
The Mock-Orange.—Syringa Tourn. Inst., not of Lin.: Phi-
ladéphus, Fr.; P. éfémétracá (pipe shrub), Ger.; Filadéphus, Ital.; Pipe Privet, Gerard; the Syringa of the gardens.
§i. Stems stiff and straight. Flowers in Racemes.
1. corónárius L. - 460
Syringa sarréndit Monch Meth.: échothéech Pécf-
étracá, Ger.; Fior angelo, Ital.
1 vulgárís Sch. Han. 461
2 nánus Mill. Dict. - 461
3 flóre pléno L. Cat. 461
4 variégátus L. Cat. 461
2. (c.) inódórus L. 461
Syringa inódera Monch; P. léxus in various English gardens: Stíutía serróz odor, Ital.
3. (c.) Zélyéri Sch. 461
4. verrúcösus Schrad. 462
P. gradinfórns Lind. Bot. Regs., Lod. Cat. 1856, 5. (v.) latíólius Sch. 462
6. (v.) floróbádus S. 463
7. speciósus Schrad. 463
P. gradinfórns German gardeners, P. gradifórrns láxus of other gardeners.
8. Gordinárius Lin. 463
§ ii. Stems more slender, rambling, twiggly, and loose. Flowers solitary, or 2 or 3 together.
9. lásix Schrad. - 464
P. bünótus Hort., P. pubé-
cens Lod. Cat. 1836.
10. (l.) grandífórns 464
P. inódero Hort., P. lásix Lod. Cat. 1836
11. húsútus Nutt. - 464
P. villósus Lod. Cat., P. gráculis Lod. Cat.
12. tomentósus Wall. 465
P. nepálásis Lod. Cat. 1836, & P. tríforo Royle.
Other Species of Philádelphus.—P. mexicáns Sch. - 465
II. DEUTZIÁ Thun. 466
Philadéphus, in part; Lep-
tospermum, in part.
1. scábá - - 466
2. (s.) corymósá 466
D. cávcés Siebold, Phi-
ladésphus corymbósus Wall.
Other Species of Délitza. — D. stimáncia B. Br. (Philadéphus stimáncius W.), D. Bránia Wall. (Lep-tospermu m scábrium Wall.) - - 467
III. DEUCAMÍRA L. 466
Forsýthia Wall., not of Vahl.
1. bárbara L. - - 467
2. sámentósá Dec. 467
D. sámentósá Bosc. Forsýthia scáncens Wall.

Nitráriáceae.
I. Nitráriá L. - 468
1. Schóberi L. - 468
1 sibírica 468
N. sibírica Pall. Fl. Ross. 2 cáspíca - - 468

Grossuláceae.
I. RÍBES L. - 468
Grossulária Tourn.; Chry-
sobória, Calobória, Coroçómia, and Rébes Spach; Goosèbèr, Fr.; Johanniért, Ger.; Krúubes, Dutch; Úva Spina, Ital.; Grossleia, Span.
§ i. Grossulária Abc. Goosèbèrres.
Grosselé à Maquerou, Fr.
CONTENTS.

13. Menziessi Ph. - 475

§ ii. Botrycçrum Bect. 475
14. orientale Poir. - 475
15. saxatile Pull. - 475

16. Diecantha L. fil. 475
17. lactistre Poir. - 476
2 R. oxyacanthoides Michx. Fl. Bor. Amer.
2 echinatum - 476
R. ecbinatum Doug. MS. R. armatum Hort.

§ iii. Ribesia D. Currants.
Ribes species of Linnaeus and others; Colocôrya, Cornôsa and Réba Spach; Grosserelli en Grappes, or Grosserellier commun, Fr.; Jannotiaceae, Ger.; Bessebon, Dutch; Ribetel.
A. Flowers greenish, or greenish yellow, or reddish; and Fruit, in a wild State, red.

18. rubrum L. - 477
R. vulgäre N. D. Ham.; Grosserelli commun, Fr.; gemenie Jannotiaceae, Ger.; Aalhessen, Dutch; Ribes rosso, Itat.
1 sylvestre Dec. Fl. 477
2 hortense Dec. - 477
3 canicenum Berl. M. 477
R. rubrum domesticum 2 baccis cánnis Wallr. Sched.
4 variegatum Dec. 477
5 álbum Desf. Cat. 477
6 fólis lúteo variegátiis Duh. - 477
7 fólis álbo variegátis Duh. - 477
8 sibirícum Oldaker 477

19. (r.) alpinum L. 477
R. dioecë Masters. 1 stérile Wallr. Sched. 477
R. dioecë Móench Meth. 2 haeciforá Wallr. 478
3 púmilum Lindl. - 478
4 fólis variegátis - 478

20. (r.) petraüm W. 478
R. alpinum Delabar. Avengar.; Ribes corollífilo Itat.; the woody-leaved Currant the red Marshmallow-leaved Currant.
21. (r.) spicatun R. 478
The Tree Currant.
22. (r.) carpháthicum 478
R. acçëtrinum Rochel ex R. et Schultes.
23. (r.) multifórum 479
R. spicárum Schultes Cr. Fl. ed. 1. R. vitidórum Hort.
24. (r.) albinérum 479
25. acuminánum W. 479
26. (r.) trífidum M. &r 479

B. Flowers greenish yellow, sometimes with the Tips of the Sepals and Petals red. Fruit black.
27. nigrum L. - 480
2 bácce fávida Hort. 481
3 bácce vérid Hort. 481
4 fólis variegátis V. 481
Selection of Garden Varieties. — Black Naples, large Black.
28. (n.) třiste Pull. - 481
R. attacatum Loddb. Cat.
29. (n.) floridum - 481
2 grandifórum Hort. 482
R. regens MS. Fl. Bor.
3 parifórum Hort. 482
30. (n.) procumbens 482
31. (n.) prostrátum 482
R. glándulós Hort. Kew. ôl. R. canadense Lod. 2 laxifórmen - 482
32. (n.) resinósum P. 482
R. orientális Catros, R. reçínutum Hort.
33. (n.) punctatúm 482
34. (n.) heterôtrichum 482
Meyer - - 483
35. (n.) bractéosum 483
36. (n.) viscosísium 484

Escalloníaceæ.

1. Itea L. - - 489
Cedròl Lour.: Diconónga Micx.
1. virginica L. - - 490

II. Escalloña M. 490
1. rubra Pers. - - 490
Steréodylon rubrimum R. & P. 1 glabriuscula Hook. et Arn. - - 490
2 albiôlora Hk. & A. 491
E. glabriótisima Bot. Cab.
3 pubescens H. & A. 491

2 glutinósium - 486
R. angústatum Doug. MS. 3 malváceum - 486
R. maticacum Benth.
4 àtro-rubens Hort. 486

42. àtro-púrürum P. 487
1 Flowers deep purple. Leaves rather pubescent beneath, but smooth and glabrous above, as well as the branches.
2 Leaves rather pubescent beneath, but hispid from bristles above, as well as the petioles and stems.
3 Flowers paler. Leaves pubescent above, but most pubescent below. Branches smooth.

§ iv. Symphócalyx Dec.
43. àurocium Pursh - 487
1 pra'cox Lindl. - 487
2 villósus Dec. Fl. 488
R. longifórrum Fraser Catal.
3 serótium Lindl. 488

44. (a.) tenuifórrum 488
1 frúctu nigro - - 488
2 frúctu lúteo - - 488
45. (a.) flávum Coll. 488

Cédre de la Loire. - - 489
Diconónga Micx. - - 490
CONTENTS.

XXIX

1. fragifera Lindl. - 508
Córnus capitata Wall. in Rosth, Fl. Ital., Don's Mill:
Chung-ua, in Nepal; Blumowro, in Scaramo.

Other Species of Betulânea.—
B. japonica - - 506

Loranthaceae.

1. Juncum L. - 508
The Mistletoe.—Missat., Gut, or Guy, Fr.; Mistel, or
Mosch, Ger.; Tasso, or Tischo, It.; Legamadiga, Span.

2. album L. - - 509

II. LORANTHUS L. 510
1. europeus L. - 511

III. ACUCUM Thunb. 511
Açenum Kampf, Am., Ebas
basis Salisb. Prod.

I. japonica Thunb. - 511
Ebas ischichon Salisb. Prod.; spotted-leaved Laurel,
Japan Laurel.

Caprifoliaceae.

Sect. 1. SAMBUCEAE.

I. SAMBUCUS Tourn. 513
The Elder.—Phytäena Lour. Coch., but not of Lin.

1. nigra L. - - 513
Borony, or Bear Tree, Arne,
trée, Soracis; Fr.; Hollander, Ger.; Samboho, It.; Sauco, and Sambuco,
Span.; Hoeder, swed.; Hylön, Dan.

2. virèscales Dec. - 514
S. viréscales Desf. Arb. Fr.

3. leucocarpa - - 514
lacinia - - 514
8. lacinia Mill. Dict.

5. rotundifolia - 514
6. monstrosa - 514
S. monstrosa Hort.

7. folis argenteis - 514
8. folis lutes - 514

2. canadensis L. - 515

B. Leaves pinnate. Flowers
cyclas;

3. racemosa L. - 515
S. montana Cam. Epit.; S.
cornu Tahera; Bambusco mon-
tana, It.

2. lacinia Koch - 515

3. (r.) pubescens Alz. - 516
S. racemosa Hook. Fl. Bor.
Am., not of Lin.; S. pubescens
Lodd. Cat.

4. heptaphylla Hook. 516

II. VIBURNUM L. - 515
O'pulus, Viburnum, and Zi-
nts, Tourn. Inst.; Viburnum
and O'pulus Mench Meth.;
Viorne, Fr.; Schneeball, Ger.

1. Tinus L. - 516
The Laurustinus.—V. lauri-
fode Lam. Fl. Fr., Tinus
Tourn. Inst., Tinus laurifolii
Bokkh. in Ianm. Arch.; the
Laurustin, wild Bate Tree,
Gerard: Viorne, Laurier Tin,
It.; Lorbevrstiger Schneeb,
or Schneebaltrauch, Ger.;
Lagro sativato, and Laur
Tino, It.

2. hirta Alt. H. Kne. 517
V. Tinus Mill Diet.

3. lucida Alt. - 517
4. virgata Alt. - 517
5. striata Hort. - 517

§ ii. Viburnum Tourn.

2. Lentago L. - 517
Tree Viburnum, Canada Vi-
burnum; Viorne buisante, Fr.;
Biru-blättriger Schneeball, Ca
nadische Schneebaltrauch, Ger.

3. (L.) pyriformiïfolium L. 518
V. Lentago Du Bod

4. (L.) pyriformium P. 518
5. (L.) nudum L. - 519
pyriformium Polr.

6. cassinoides L. - 519
puncatum Raín.

7. (c.) levigatvm W. 519
V. cassinoides Du Roi Harbek.,
V. lanceolatum Hill. Hort.Kew.,
L'Annonjouum Hort. Cat.
now paracae Lin. Mant. C.
nyborina Mill. Icon.: The ame
ricano, It.

8. Lantana L. - 520
The Wayfaring Tree.—V. to-
mencioum Lam. Fl. Fr.: wild
Guepe Scrub, plant-branched
Myaty Tree: Viorne cotone-
cérue, Camara, Viorne com-
mane, Contree-mémsame, Mon-
ceau; Schlagerstrau, wotliger Schneeball, or Schew-
kenbrauch, Ger.; Lætiginge,
Ital.

2. grandifolia Ait. - 520
V. L. latifolia Lodd. Cat.
3. folis variegatis - 520

9. (L.) lantáceoids - 520
American Wayfaring Tree.—
V. Lantana & grandifolia Alt.
Hort. Kew., ed. 1.; V. grandi-
fjum Smith in Rees' Cyc.;

10. (L.) dahuricum - 521
Lonicera mongolica Pall. Fl.
Ros., Cornus Sibirica Laxm.

11. (L.) cotinifolium 521
V. MulliAr Ham. in D. Don

12. dentatum L. - 521
V. dentatum Biciéum Alt.
Hort. Kew., V. dentatum gla-
bélium Mex. Fl. Bor. Amer.

13. (d.) pubescens - 522
V. dentatum & pubescens Alt.
Hort. Kew., V. dentatum sci-
tomenesium Michl. Fl. Bor.
Amer. in Messes. Lodd. Cat.

14. nitidum Alt. - 522

§ iii. O'pulus Tourn.

15. O'pulus L. - 522
The Guelder Rose.—V. go-
béatum Lam. Fl. Fr., O'pulus
plandéulous Mench Meth.,
O'pulus Rall Syn. Samboho
agáptia Bauh. Phn.: Marsh
Elder, Rose Eider, Water Elder;
L'Ourb-Oliver, 'Ouier d'Europe,
Fr.; Schneebaltrauch, Wasscherholder, Schneeballe, Ger.;
Maggi, Itál.

2. stellátis Dec. Prod. 523
V. O. viscom Eem. et S.
The Snow-ball Tree, or
Guelder Rose.
Rose de Guelder, Perle de
Neige, Blute de Neige, Poire
moile, Fr.

3. folis variegatis - 523
4. nana Hort. - 523

16. (O.) occí célíó 523
17. (O.) orientale P. 524
O'pulus orientalis folio am-
phasino tridentato Tourn. Cor.

18. (O.) Oxyceécos 524
V. o'posédes Mohl. Cat., V.
trilebum Marsh. Arb, V. O'pu-

2. subitigrifolios P. 524
3. mollis - - 524
V. müle MS. Fl. Bor. Am.

19. (O.) edule P. - 524
V. O'pulus edulis Michl. Fl.
Bor. Amer.

Sect. II. LONICÉECEAE.

III. DIERVH'ILATou.525
Lonicera sp. L.; Weigelã
Ench.

1. canadensis W. - 525
Lonicera Diervill Life. Mat.
Med., D. Torrurjörfi Michz.
Fl. Bor. Amer., D. hómitis
D. trîgida Mench Meth.,
D. acanéinis Ham. Du Harb.
CONTENTS.

Arrang., E. purpurascens Lam. Diet.
2 pállida - - 557
3 rubescens Bree - 557
4 purpurascens B. - 558
5 álba - - 558
6 tenella - - 558
2. multilífora D. Don 558
3. cárnea D. Don - 558
4. mediterránnea D.D. 558

III. CALLUNÁ Sal. 559
Erica sp. Lin. and others.
1. vulgaris Sal - - 559
1 purpúrea - - 559
2 spúria - - 559
3 decúmbens - - 559
4 toméntosa - - 559
5 álba - - 559
6 flore pléno - - 559
7 fóliis variegátis - - 559
8 aúrea - - 559
9 coccínea - - 559
10 spíciá - - 559
11 [áatro-rúben] - - 559
12 [sérótína] - - 559
§ 2. Andromédce.

IV. ANDROMÉDA L. 560
Polyfíolia Buckbau Cong., Andromédsp. L.
1. polyfíolia L. - - 560
1 angustifólia Bot. 560
2 erícóides - - 560
3 grandifólia Lod. 560
4 latifólia Lod. - - 561
5 mínima - - 561
6 revóluta Lod. - - 561
7 seótica - - 561
8 stricta - - 561
2. rosmarinifólia P. 561
3. polyfíolia Michx. Fl. Bor. Amer.
Other Species of Androméda.— Andromédce Drummónndí Hook. - - 561

V. CASTROPE Don 561
Andromédca sp. Lin., Pall.
1. hypnóides D. D. 561
2. tetragóna D. Don 562
3. lycopódioídes D. 562
Andromédca lycopódioídes Fl. Ross.
4. erícóides D. Don 562
Andromédca erícóides Pall. Ross.
Other Species of Cassiope. — C. fastigáta D. Don, C. Redókowski G. Don. - - 562

VI. CASA'NDRA D. 562
Andromédca sp. Lin. and others.
1. calycúlata D. Don 563
1 ventricósa Sims - 563
2 latifólia Lod. - 563
3 náná Sims - 563
2. (c.) angustifólia 566

VII. ZENO'ÚLA Don 563
Andromédca sp. Michaux.
1. specióná D. Don 564
Andromédca specióná Michx. Fl. Bor. Amer.
2. nírida - - 564
3 pulvérenta - - 564
4. speciósa 564
A. speciósa 2 glásalis Wats. A. acuíflála Lindl. A. oválá Soland.

VIII. LYO'NIA N. 564
Andromédca sp. Lin. and various authors.
A. Leave evérgreen.
1. ferrugínea Nutt. 565
2. rigida Nutt. - - 565
3. margináta Don 565
4. 2 rúbó Lod. - 566
B. Leave deciduous.
4. maríana D. Don 566
Andromédca maríana Lin. Sp. 2 oblángala Surt. - 566
5. racemósa D. D. 566
6. arbórea D. Don 566
7. panicúlata Nutt. 567
8. salicífolia Wats. 567
9. (p.) frondosa N. 567
Andromédca frondósa Pursh Fl. Amer. Sept.
10. (p.) multífora 567
11. (p.) capréeífolá 568

IX. LEUCOTHÉ D. 568
Andromédca sp. of previous authors.
1. axilláris D. Don 568
2. longífolia - - 569
Andromédca longífolia Pur. A. Wilerí Wili. 
2. spínulua G. Don 569
3. acumínata G. D. 569
4. floríbúnda D. D. 569
Andromédca floríbúnda Lyon Fl. Sept.
5. spícáta G. Don 569

X. PIERIS D. Don 570
Andromédca sp. Wallich.
1. ovalífolí D. Don 570

XI. PHYLLÓDOCE 570
Andromédca sp. L. Menziála sp. Swartz., Smith.
1. taxífolí Sal. - 571
2. emécriéírmis D. 571
Menziála spinífrírmis Smith in Lin. Trans.

XII. BRYÁNTHUS 571
Andromédca sp. Lin., Menziála Stea’tz, Pursh; Erica sp. Thunb.
CONTENTS.

XXXIII

1. Gmelini D. Don 571
   Meniesia brýanutha Swartz in Lin. Trans., Androæda brýanutha Lindl., Erica brýanutha Thunn. Duss. Bry-
   anthus régens scarpigliata fóre róce Gmel. Sisu.
2. Stélieri D. Don 572
   Andromédæ Stélieriána Pall. Fl. Ross.; Meniesia cempéri-
   forma Rupis Fl. Amer. Septa., but not of others.

XIII. DABÉCIA D. 572
1. poliólia D. Don 572
   Andromédæ Dabécia sp. Linn. Syt., Erica Dabécia Linn. Syt., Meniesia Dabécia Dec. Fl. Gála., Erica híbrí-

XIV. ARBUTUS C. 573
   The Strawberry Tree.—An-
   droæda Chus., Arbutus sp. Linn. Gen.; Arbour, Fr.; Sand-er-
   beere, Ger.; Abbato, Ital.
1. Úndecó L. - 573
   L’Arbousier commun, Arbor-
   user des Pyrénées, or Fraiser en Arète, Fr.; Erdbärbeerear-
   tige, Sandbeerbeere, Ger.; Comad, Mod. Grek.
   1 álbus Ait. H. K. 573
   2 rúber Ait. H. K. 573
   3 plènum Ait. H. K. 573
   4 schizopétalus 574
   5 integrifólius Simá 574
   6 cripus - 574
   7 salícifólius - 574
2. hyória Ker - 574
   A. androædésiæ Link Enum., 2 Milléri Mayes - 575
3. Andróæchae L. 575
   A. integrífolia Lam.; An-
   droæchæ Theophrit Catull. Hist., Andróæchæ Park. Théatr., An-
   droæchæ Theophrastus: Aдра-
   rchæ, Modern Grek.
   2 serratífolia - 575
   A. serratífolia Nois.
4. procéra Doug. 576
5. tomentósa Pursh 576
   2 nuda Hook. et Arn. 576
6. densíflora H. Bet K. 576
   Other Species of Arbutus.—A. spêuqénica Dickson, Gard. Mag. 1840. A. nupelánica Régé.

XV. ARCTOSTÁPHYLOS Adams. - 577
   The Bearberry.—U’va-úrui

Dod., Tourn.; Arbutus sp. Linn.
1. Uva-úrui Spreng. 577
   Arbutus Uva-úrui Lin. Sp., Arbutus bbusífolia Stokes Bot.; Uva-úrui bbusífolia Sal.In Grays Arran: Bearberries, and Bär-
   whortleberries, Eng.; Bären-
   traube, or Barbecue, Ger.; Bær-
   sehtræbberi, Dutch; la Basse-
   rode, Fr.; Vasa d‘Orzo, Ital.; Vasa d‘Osó, Span.; Vasa d‘Orso, Port.; and Vasa Úrsi, in the work of most old botanists.
2. austriaca Loddi. 577

2. alímpa Spreng. - 578
   Other Species of Arctostáphy-
   los.—A. púngens B. B. et K. 578

XVI. PERNETTYS 578
1. muscónata Gaul. 578
   Arbutus muscónata Lin. fil Suppl., 2 Cummingsii - 579
   P. Cummingsii Loddi.
2. pilósa G. Don 579
   Arbutus pilósa Graham.
   Other Species of Pernetta—P. microphyllá Gaud. (Arbutus microphyllá Forst.—A. ser-
   pyllífolia Lam.), P. púmíla Gauth. (Arbutus púmíla Forst. - 579

XVII. GAUTHÉRIA L. 580
1. procúmbens L. - 579
   Partróige Berry, Mountain Tea, Spring Winter-Green of Smith’s Hist. of Nova Scotia.
2. Shállon Pursh - 580

XVIII. EPIGÉAE L. 580
   Memécylum Mich. Gen.; May
   FLOWER, Nova Scotia.
1. répens L. - 580
2. rubicúndu Svet. 581

XIX. PHALEROCA’Rpus
   G. Don - 581
   Vacciníum Lin., Gaulthíe-
   ria Pursh. Oxygécus Nutt., Ar-
   butus Lam.
1. serpyllífol. G. Don 581
   Vacciníum hispidum Lin. Sp., Gaulthíeíria serpyllífolia Pursh. Sept., Arbutus sál-
   formís Lam. Dict., Oxygécus hispidum Pers.

XX. Clé’threa L. 581
   Cneíliaría Ruiz et Pav. Syst.
1. olífolia L. - 582
2. (a.) tomentósa L. 582
3. (a.) paniculátæ Ait. 582

4. (a.) acumínata M. 582
   C. montána Bartr. Cat.
5. (a.) scábra Pers. 583
   Sect. II. RHODO’REX.
   XXI. RHODE’DROX

Rose Bay.—Azêka sp. of authors, Rhodóre Linn., Cha-
maehódendron Tourn. Inst. Rhododendron, Fr., Ital., and
Sp.; Alpíbasium, Ger.

§ 1. Pontícum D. Don.
1. pontíicum L. - 584
   2 obtusífolium Wats. 584
   3 myrtífolium Loddi. 584
   4 Smithí Svet. Brit. 584
   5 Löwii Gard. Mag. 584
   6 azaléjdés - 584
   R. azaléjdés Desf.
   R. r. subsèdbridum Andr.
   7 fragrants Chandler 585
   8 Nursery Varieties - 585
2. máximum L. - 585
   3 maximum II. 585
   4 American Rose Bay.
   5 Nabed, Fl. Amer. Sept.
   6 hybridum Hook. 585
   7 Japanese H Rosa, 585
   8 tigrinum Hort. - 587
   9. chrysanthum L. 587
   R. florícola Salis.
   7. caucásicum Pall. 587
   8 stramineum Hook. 587
   9 pulchríssimum L. 587
   4 Nobleínum Hort. 588
   8 punctátum Andr. 588
   R. ferrugínèum var. minus
   2 május Ker - 588
9. ferrugínèum L. - 588
   2 álbum Loddi. Cat. 588
10. (?) hirsútum L. 588
   2 variágátum - 589
11. setósum D. Don 589
   Other Species.—R. macrophy-
   lüm D. Don - 589

§ II. Béòram.

12. campanulátum 589
   Other Species.—R. arbóreum
   Smith, R. a. venustum D.
   Don - - - 580
CONTENTS.

§ iii. Pogonanthum.
13. anthropophæ Don 590
R. aromaticum Wall. Cat.

§ iv. Lepidium D. Don.
14. lapponicum Wall. 590
Asaèa lapponica Lin. Fl. Suec. 591
A. furrigeris Hort.

§ v. Chamaecistus D. Don.
15. camtschaticum 592
Asaèa camtschatica Lin. Sp. 592

§ vi. Pemthandra D. Don.
16. Azalea L. 592

18. flavum G. Don 592
Asaèa pòntica Lin. Sp. 592
Asaèa arborea Lin. Sp. 592
Varieties and Hybrids 592

19. nudiflórum Torr. 592
Asaèa nudiflôra Lin. Sp. 592
Asaèa periyctenoides Michx. Fl. Bor. Amer.: the American Honeysuckle. Many Flowers, and mild, or upright, Honeysuckle, Amer.

1. coccineum D. D. 593
Asaèa n. coccineæ Sims 593
2. raitlanus D. Don 593
A. n. raitlanus Kit. H. K. 593
3. crâneum D. D. 593
A. n. crâneæ Kit. 593
4. a. p. crâneæ Pursh. 593
5. palmationæ 593
A. p. palmationæ Pursh. 593
6. partim D. D. 593
A. p. partim Pursh. 593
7. polyandrum D. 593
A. p. polyandrum Pursh. 593
8. Goveniæ D. D. 593
9. rûbrum Lod. 593
8. Lod. B. 594
10. eximium D. D. 594
11. thyriflôrum B. R. 594
12. scintillâns B. R. 594
13. Seymouiri B. R. 594
Varieties and Hybrids as signèd to A. nudiflôra in Lodg. Cat., 1836 594

20. (n.) bicolor D. 594

21. (n.) calendulâceum
Torr. 595
2. Mortèrii Swt. 595
3. falûdum Hook. 595
A. е. falûdum Hort.
4. lëpidum Bot. R. 595

22. canécens G. Don 595

23. viscôsum Torr. 595
Asaèa viscôsa Lin. Sp. 595
2. ornârum Swt. 596
Varieties and Hybrids of A. viscôsa in Lodg. C. 1836 596

24. (v.) glâticum D. 596

25. (v.) hispidum T. 597

26. (v.) nïtidum T. 597
Asaèa nïtida Pursh Fl. Amer. Sept.

27. speciösûm Don 597
Asaèa speciösæ Will. Enum. 597

28. arborécens T. 598
Asaèa arborécens Pursh Fl. Amer. Sept., A. arborea Bart. Cat.

§ vii. Rhôdôra D. Don.
29. Rhôdôra G. Don 598
Rhôdôra canadensis Lin. Sp.

XXII. KAÝMIA L. 598
American Laurel.
1. latifôlia L. - - 599
Mountâin Laurel. Calico Bush, Calico Flower, Amer.

2. angustîfôlia L. - - 599
Sheâp Laurel. Amer.

3. glâuca Alt. - - 599
A. polifolia Wangh. Act. Soc. Berol. 2. rosamarinæ Pursh 600

4. cuneàta Michaux 600
5. hirsuta Wall. - - 600
K. citâlis Bartr. Hin.

XXIII. MENZIE'SIA 600
1. ferruginix Smith 601
M. circumarís Sal. Par. Lond.
2. globulâris Salisb. 601
M. Smithîi Fl. Bor. Amer. M. pîlosa Lam. ill. M. pî-

XXIV. AZA'LEA D. 611
Asaèa procumbëns Lin. and many authors. Louëcheriæ De., Chamineâlon Link Enum.
1. procumbëns L. - - 601
Chamineâlon procumbëns Link Enum., Louëcheriæ procumbëns De.

XXV. LEIOPHYLLUM P.
Amûrûrine Pursh Sept., Fischeri Swartz, Lëdôon buzi-
Jôfïórum Berg. Alt.
1. hyfïóforum Pers. 602
2. hirsiita Michx. 602
Amûrûrine buziôforum Pursh Sept.: Sand Myrtle, New Jersey.


XXVI. LE'DUM L. 602
1. palûstris L. - - 603
L. silvæcum Clus. Pan., Rosmarinum sylvæcam Epit. 2. decumbëns Alt. 603

2. latifólia Alt. - - 603

3. canadënsæ Lodg. 603
Sect. III. VACCINIEAE.

XXVII. VACCINIE L.

A. Leaves deciduous.
1. Pedicellate 1-flowered, usually solitary, rarely twin, or fascicu-

2. Myrtillus L. - - 604
The common Bilberry, or Blueberry.

3. Myrtillus L. - - 605

3. angustîfôlia Alt. 605
V. myrtîfûlœs Michx. Fl. Bor. Amer.

4. cespítosæ Mr. 605
D. Flowers in sessile Tufts.

5. galêzian Michx. 606
V. galêsian Sm. in Rees’s Cycel.

6. tenellîum Alt. - - 606
V. pensylvanîcum Lam. Dict. Variety - - 606

7. figûstrinæ Michx. 606

b. Flowers disposed in Racemes.

8. pâllidîum Alt. - - 606
9. Bilberry Marsh 607

10. stamineum 607
V. album Pursh Sept., V. alpina Banks Herb.: Deer Berry, Amer.

2. album H. B. et K. 607
CONTENTS.

I. DioSP'Y ROS L. - 625
The Date Plum.—{E'benus Comm., Gaulaena Tourn.: Plu-queensy, Fr.; Lattelepflanne, Ger.

II. Bume'lia Stuart, 623
A'ehtras sp. Lin., Potr.; Si-derogyon sp. Lan., and others; Chrysophyllum sp. Aulb., and others: Hochstetn, Ger.

1. lycioides Genii, 623

2. reclinata Vent. - 623
Siderogyon reclina'niuwn Michx. Fl. Bor. Amer.

3. tenax Wild. - 624

4. lanuginosa Pursh 624

5. oblongoi'dia Nutt. 624

Ebenaceae.

教学 XXV.

OXYCO'CUS

The Cranberry.—Vaccini- um sp. of Lin. and others.

1. palust'ris Pers. - 616

2. macrocarp'us Purl. 616

2 foliis variagatis 616 Vaccinium macrocarp'um fol. var. Lodd. Cat.


Styraceae.

I. STY'RA'X L. - 618
The Storax.—Ab'toeefier, Fr.; Storax, Ger.

1. officinale L. - 618
Lagomel'ia, Modern Greek; Styrax kalami'tes, Ancient Greek.


Halesiaceae.

I. HALE'SIA Ellis 620
The Snowdrop Tree.—Ha- le'sia, Fr. and Ger

1. tetrap'tera L. - 620 The Snowdrop Tree.—Silver Bell Tree, Amer.

2. (t.) parvif'ora M. 621

3. diptera L. - 621

Sapotaceae.

I. ARGANIA Ræm. 622
Siderogyon spinosum L.; l'Argan, Fr.; Eisenholz, Ger.


Obs., Rhánumus pentaphyllus Jacq. et Boccone, Rhánumus siculius Lin. Syst.
III. CHIONANTHUS 634
The Snow-Flower, or the Fringe Tree.—Chionanthus, Fr.; Schneebuche, Ger.
1. virgínica L. - 634
Snow-drop Tree, Amer.; Arbrc
de Nice, Fr.; Schneebume, Ger.
2. latifólia Cat. Car. 634
c. v. montana Pursh Sept.
3. angustifólia Att. 634
c. triflóida Mill. 633
4. marítima Pursh - 634
c. marítima Lodd. C. 1836.

O'LEA americana L. 635
The Devil-wood, Amer.

Sect. II. SYRINGAE.

IV. SYRINGA L. - 635
The Lilac.—Lilac, Tourn. Inst.: Lilas, Fr.; Fieder, Ger.; Lilac, Ital.
1. vulgaris L. - 636
Lilac gárt.: Pipe Privet, or Pipe Tree: Lilas commun, Fr.; gemeener Flie-
er, Ger.; Lilac, or Lilac Tree, Ital.
1. carrúlea Clus. Hist. 636
2. alba - 636
3. alba májor Lod. C. 636
4. pléna Lod. Cat.
5. rubra Lod. C.
6. rubra májor L. C. 636

Lilas de Marly of the French gardeners.

Other Varieties - 636
2. Josiké'a Jacq. - 637
3. péricia L. - 637
Lilac minor Mench., Lilac pérsica Lam.: Lilas de Perse, Fr.; Lilac de Persia, Ital.
2. alba Lod. Cat. - 637
3. lacíniata Lod. C. 637
S. capitátá Gmel. Ilh.; Lilas à Feuilles de Persié, Fr.
4. saliífoíia Lod. C. 637.

4. rothomágenís - 637
S. álba Pers. Ench.; Lilá-

céan rothomágenés René Fl.
de l'Orme, S. média Dum. 
Cours, Lilas varió N. Du
Ham, S. chínésís Wild., S. 
síbírica Hort.: the Siberian 
Lilac, Hort.
2. Lilas Royal Don J. 638
3. sanguínea Hort. 638
Lilas sangé, Fr.

Other Species of Syringa.—S. 
Émeri Wall. Cat., Don's Mill; 
Royl. Inst. - 638

V. FONTANE'SI Lab. 638
1. phillyréóides Lab. 639
THESE are denied.

Sect. III. FRAXINÉÆ.

VI. FRAXINUS Tom. 639
The Ash.—Fréne, Fr.; Esche, Ger.; Frassino, Ital.

A. Leaves broad, smooth, or shining on the upper surface. 
Natives of Europe.

1. excésior L. - 639
F. apétala Lam. Ill.; F. ros-
Scop. Carn. F. crésa Pers. F. 
crispa Bosc.: lo Fréne, Fr.; 
Aesche, or Esche, Ger. and 
Dutch; Ask, Dan. and Swed.; 
Frassino, Ital.; F. crispa, Span. 
Freixo, Port.; Jas, Jasen, or 
Jasen, Russ.; Esse, Sax.
2. pándula Att. H. K. 640
Fréne Parasaal, Fr.
3. áurea Wild. En. 640 
F. áurea Pers. Ench., 
Lodd. Cat. 1836.
4. áurea pándula - 641
5. crispa - 641
F. crispa Bosc.
F. aeróbreos Des. Arb.
6. lasipéida Wild. 641
7. purpurácens D. 641
F. purpurác Hort.
8. argéntia Desf. 641
9. lútea - 641
10. éósa Pers. Ench. 641
11. horizontális Desf. 641
12. verrúcösa Desf. 641
13. verrue. péndula 641
14. nana - 641
15. fungósá Lod. C. 641
16. verticillátá L. C. 641
17. villosá nóva Des. 641
Other Varieties - 641
2. (c.) heteróphylla 642 
F. monóphíla Desf. Arb., Fr. 
m. pippíníum Hort., F. excésió 
var. L. Diet., F. excésió 
Hort.: the Siberian 
Lilac, Hort.
2. varígáta - 643
3. (c.) angustífolía B. 643 
F. saliífoíia Hort.
B. Leaflets small, smooth, or shining above. Natives of the 
South of Europe; the North of Africa, or the West of Asia.
4. parvífolía Wild. - 643
5. (p.) argéntia Lois. 643
6. (p.) oxycára D. 644 
F. oxyphíla Bieb. Fl. Taur., 
F. O'írns Pall. Fl. Taur.
7. pállicá Bosc - 645
8. eliísícola Desf. 645 
F. tamarícofolía Vahl Ench., 
Don's Mill; F. pippíníum Lam. 
Diet., F. ephéépius Fluck. 
Phys.
2. péndula - 645
C. Leaves and Leaflets large, 
glossous, and downy beneath. 
Natives exclusively of North 
Africa; and in Britain 
chiefly to be considered as 
ornamental Trees.
9. americáná Wild. 646 
F. acuminátá Lam. Don's 
Mill, Pursh Sept.; F. diócolor
Asclepiadaceae.

I. Periploca L. 658

Periploca fruticosa, Schlinge, Ger.; Periploca, Ital.

1. graecae L. 659

P. maculata, Marnich, Schmidt, Baum: Silk Tree; Apocyno serpygenti, Ital.

2. angustifolia Lab. 659

P. rigida, V. lavoitiga, Vahl.

Physia'nthus álbens Mart. 659

Bignoniaceae.

I. Bignonia L. 660

The Trumpet Flower.—Bignone, Fr.; Trumpetbance, Ger.; Bignonia, Ital.

1. capreolata L. 660

II. Tecoma Juss. 661

Bignonia sp. Lin. and others.

1. radicans Juss. 661

Bignonia radicans Lin., Bignonia radicans (a.) Epipactis, Ger.; Gelsemium Catesba; Icon., Bignonia fruticosa Catesba; Car.: Jasmian de Virginie, Fr.; Warzeta Bignonia, Ger.; Escenehiindige Bignonia, Dutch; Gelsemum americano, Ital.

2. major Hort. 661

2. grandiflorae Ser. 661


III. Catalpa Juss. 662

Bignonia sp of Lin. and others: Bignone Catalpa, Fr.; gemeine Trompetenbance, Ger.

1. sinningfia Sims 662


Solánaceae.

I. Solanum Tour. 663


1. Dulcamara L. 664


Muhl.: White Ash, Green Ash, Amer.

2. latifolia 646

10. (a.) pubescentis W. 646


2. longifolia Wild. 647

F. pennsylvanica Marsh.

3. latifolia Wild. 647

4. pubescenti Fors. 647

? F. subfoliosa Bosc.

11. (a.) sambuciifolia 647

F. nigra Mench., Fr. crispa Hort.: the Black Ash: Water Alder.

2. crispa Lodd. Cat. 647

12. (a.) quadrangulará 648

M. tretagóna Cels ex Dum., de Courc.: F. quadrangularis Lodd. Cat.: Blue Ash, Amer.

2. nervósa Lodd. Cat. 648

13. (a.) juglandifolia 649

F. viridá Mx. N. Amer. Syl., F. canócolor Muhl.: the Green Ash; Michx.: Western Ash, Pursh.

2. subsergériina 649


14. (a.) carolíniá 649


15. (a.) epítera Vahl 650


16. (a.) platyceprá 650

F. caroliniana Catesb. Car.: the Carolina Ash, Amer.


VII. O'rnus Pers. 651

The Flowering Ash.—Fráxíus sp. of the old authors: te Frene a fleurs, Fr.; die blü- hende Eiche, Ger. Orno. Aven. Orno. Hebrew; Öremiten mill; Greek.

1. europae Pers. 651

The Manna Ash.—Fráxíus O'rnus Lin. Sp., F. O'rnus and F. paniculátá Mill. Dict., F.


2. (e.) rotundifólia 652


3. (e.) americá P. 653

F. americá Linn. Sp., F. O'rnus americá Lodd. Cat. 1836.

4. floribúnda G. D. 653


Other Species of O'rnus.—O. stríata (Fráxíus stríata Bosc, Don's Mill.). 653

Jasmináceae.

I. Jasminum Forsk. 654

The Jasmine.—Mongórium Lanc.: Jasminum: Jasmin, Fr. and Ger.; Schasmum, Ger.; Gelsemium, Ital.; Jasmin, Span.

1. frutícans L. 655


2. hímile L. 655

Italian yellow Jasmine.

3. heterophyllum R. 655

J. arboréum Hamilton. MSS.: Goocce and Jasminum in Nepal.

4. revólitum Ker 655

J. chroáthecum Roxb. Fl. Ind.: the Nepal yellow Jas- mine.

5. (r.) pubígerum D. 656


6. officínale L. 656

2 folíis argéntis 656

3 folíis aéreis L. C. 656

4 floribus plénis H. 656

Apocynáceae.

I. Víncia L. 657

The Periwinkle.—Pervincia Tour.: te Perwencque, Fr.; Spúgyniun, Ger.; Víncia, or Fior da Morte, Ital.

1. major L. 636

Víncia, mediá Delle, Pervin- cia major Scop. Carn.

2 variegátá Hort. 657

2. minor L. 657


Perwinkle.

2 folíis argéntis L 658

3 folíis aéreis Lod. 658

4 flore ábő Lod. C. 658

5 flore plénó Lod. 658

6 flore puniceó L. 658

7 acetifóra Bert. 658
CONTENTS.

I. LYCIIUM L. - 665
   1. europeum L. - 665
   2. (e.) chinense M. 666
   3. (e.) Africana M. 666
   4. (e.) Trewiaunum 667
      L. bárbarum Lam. Dict.; L. chinense X. Du Ham.

II. SCROPHULARIACEAE.

I. BUDDLEIA L. - 670
   1. globosa L. - 670
      Buddleia globiflora N. Du Ham.; B. capilata Jacq., Col.; Bar.; Pále; Fênugre.: Buddleia globiflora, Fr.; Kagyragnâe Bâdje, Ger.


I. IMPERIALIS Sieb. - 671

LABIACEAE.

PHLOMIS fruticosa 672 Jerusalem Sage.

ROSARMIUS officinalis L. - 672

LAVANDULA Špica 672
   The common Lavender.

SÁLYIA officinalis L. 673

VERBENACEAE.

I. VITEX L. - 673
   The Chaste Tree. - Gardilier, Fr.; Ktschauquin, Ger.; Fiter, Ital.

I. A主旨 cátus L. 673
   2 latifolia Mill. - 674

II. (A.) incisa Leon, 674
   V. Negandô Bot. Mag.

III. arborea Ros. - 674

Subdiv. II. MONOCHLAMY'DEAE:

I. CHENOPODIACEAE.

1. CHENOPODIUM L. 675

2. fruticosum Schrad. 675

3. parvifolium R. & S. 675

II. ATRIPLEX L. - 676
   The Orache. - Arroche, Fr.; Melé, Ger.; Atriplexe, Ital.

1. Herállus L. - 676

2. portulacoides L. 676

III. DIOTIS Schreb. 677
   Ceratoides Tourn., A'fgris Lin., Ceratopérmum Pers.

1. Ceratoides W. - 677

nìnis hîrítis Roy, Lugdub.; Ceratoides orientalis fruticosus Ealcgàni foto Tourn.; Cor. Otâltâfâmianse Dickens, Ger.

POLYGONACEAE.


1. lanceolatum Bieb 678

2. lucifídium Bieb. 678
   Polygonum crispánum var. a Sina Bot. Mag. = P. caucásicum Hoffm.

3. polyanum Sp. 679

Other Species of Tragopogon - T. maritima - 679

Chenopodiaceae.

I. CHENOPODIUM L. 675

2. fruticosum Schrad. 675

3. parvifolium R. & S. 675

II. ATRIPLEX L. - 676
   The Orache. - Arroche, Fr.; Melé, Ger.; Atriplexe, Ital.

1. Herállus L. - 676

2. portulacoides L. 676

III. DIOTIS Schreb. 677
   Ceratoides Tourn., A'fgris Lin., Ceratopérmum Pers.

1. Ceratoides W. - 677

nìnis hîrítis Roy, Lugdub.; Ceratoides orientalis fruticosus Ealcgàni foto Tourn.; Cor. Otâltâfâmianse Dickens, Ger.

POLYGONACEAE.


1. lanceolatum Bieb 678

2. lucifídium Bieb. 678
   Polygonum crispánum var. a Sina Bot. Mag. = P. caucásicum Hoffm.

3. polyanum Sp. 679

Other Species of Tragopogon - T. maritima - 679
CONTENTS.

II. ATRAPA'XIS L. 679
A'triplex. Tourn.: Strauch- melde, Ger.

1. spïnosa L. - 680
A'triplex orientalis, fröhne aculeata, Spütter pâtre, Tourn. Cor.

2. undulata L. - 650

III. CALL'GONUM L.650
Pallasia L., Picrocéca Pall.

1. Pallasii L'Herî. 650
pische Hackenknopf, Ger.

Lauráceae.

L. LAURUS L. - 681
The Laurel, or Bay Tree. — Säsasias and Benzôin C. G. Von Essebeck: Daphné, Greek; Laurier, Fr.; Lobbör, Ger.

A. Leaves evergreen.

1. nobilis L. - 681

2 undulata Mill. - 682
3 salicifolia Sieèt. - 612
L. n. angustifolia Lodd.

4 variegata Sieèt. - 682
L. n. fol. var. Lodd. Cat.

5 latifolia Mill. - 682
6 crispa Lodd. Cat. - 682
7 flôre plénô - 682

2. carolinensis Cates. 683

2 glôbra Parsh - 683
3 pubèscens Parsh - 683
4 obtûsa Parsh - 683

3. Catesbiana Mx. 683

B. Leaves deciduous.

4. Säsasias L. - 683

5. Benzônìa L. - 685

6. (B.) Diósypôris L. 685

7. geniculâta Mr. 685

Thýmelàceae.

1. DAPHNE L. - 686

A. Leaves deciduous.

1. Mezereum L. - 687

2 flôre âlbo - 687
3 automnâle - 687

2. altaïca Pall. - 687
Daphne altaïque, Laurêole de Tartaric, Fr.; Sîbircer Seidelbât, Ger.

3. alpina L. - 688


4. Lauréola L. - 688

5. pótélica L. - 688
Thymêle'a pótèlica, citrice foliis, Tourn. Rin.: Lauréole du Levant, Fr.; Pontischer Seidelbât, Ger.

2 rubra Hort. - 689
3 foliis varigàtis L. 689

6. Thymêléle'a Vahl. 689

7. Tàrtaron-ràia L. - 650

8. (? T.) ppusécens 689
Thymêle'a itálica, Tartòn- ràia Gallo-provâncie similiis, sed per omnia majori. Mellihi: Belhaâter Seidelbât, Ger.

9. (? T.) tormëtosa 90

C. Erect. Leaves persistent. Flowers terminal.

10. collína Smith 900

2 neapolitàna L. - 690
D. neapolitàna Lod. Bot.

11. (c.) olêridès - 900

12. (c.) serificea A'hlá 901
Thymêle'a crética olia folio subâns vials Tourn. Cor., Daphné olêsâl Læmis, Læmye: Seidenartiger Seidelbât, Ger.

13. striàta Trol. - 901

14. Gnîdium L. - 901

E. Prostrate. Leaves persistent. Flowers terminal, ag- gregate.

15. Cneorium L. - 901
CONTENTS.

Hist.: Thyméède des Alpes, Fr.; Wohltkinder Schelthaus, Ger.
2 Elixis variagátis 692
3 flore álbo 692
II. Dýrca L. — 692
1. palústris L. — 692
Moor-wood: Bois de Cour, Bois de Plomb, Fr.; Smyn Le- dricks, Ger.
Santaliaceae.
1. Nyssá L. — 693
The Tupelo Tree.
1. bifóra Michx. — 693
2. (b.) vilósa Mr.694
N. syléteca Michx. N. Amer. N. mehrj. unifólia Wangenh. Amer., N. montana Hort., N. peacincúla unifólia Gron, Virg.: Sour Gum Tree, Black Gum, Yellow Gum, Amer.; Hoarier Tupelobaum, Ger.
3. (b.) cándicans M.694
4. (b.) grandídentá 694.
II. Osyris L. — 693
1. álba L. — 693
Elaegnaceæ.
I. Elagynus Torv, 696
The Oeleaster, or Wild Olive Tree. — Chafet, Fr.; Wild Ole- baum, Ger.; Élagné, Ita.
1. horténsis Bieb. — 696
Blättriger Olearster, Ger.; Al- beni del Paradiso, Ita.
1. angustífolia Bieb. 697
E. angustífolia L. 697
2. daetífolííms 697
3 orientális 697
4. argútnea L. 697
2. argútnea Ph. — 697
II. Hippopháe L. 698
The Sea Buckthorn, or Sal- lowcor.—Rhamnóides Tour.: Argousier Fr.; Hoffa: or, Sanddorn, Ger. ; Sypargar, Fr.; Espinu amarillo, Sp.;
1. Rhamnóides L. 698
Rhamnóides florífora salúci fállo Tourn. Cor., Rhamnóides fructiférmis Rail. Syn.: Argousier foce l'or, Fr.; Weib- denblättriger Sanddorn, Ger.; Arec, or Sante épinu, in the Alps of Switzerlan.
2. angustífolia Lod. 698
3 sibíra 699
II. sibíra Lodd. Cat.
3. salícifólia D. Don 699
H. confórita Wall. in MSS. of the Catal. of the Linn. Soc. Indian Herb., Boyle’s Hist. of
III. Sýphéda'ria Nutt.
Hippóphaceæ.
1. argúntea Nutt. — 700
Hippóphaceæ argúntea Pursh sept.: Missouri Silver Leaf, and Búffalo Berry Tree, Amer.; Robin Berry, and Bee Nut Tree, Amer., Indians; Saule d'Alsace, or Buffalo Fat, French traders.
2. canadénis Nutt. 700
Aristolochiaceæ.
I. Aristolóchía L. 701
The Birthwort.—Aristolochía, Fr.; Otterlucy, Ger.
1. siphó L’Hérit. — 701
2 (s.) tomentósa S. 702
Enophríaceæ.
I. Stíllíngia Gard. 702
1. ligústrina Wild. — 702
II. Dù’xus L. — 703
The Box Tree.—Buis, Fr.;
Buxbaum, Buchbaum, Ger.; Bussol. Ita.
1. sempervíren L. 703
1 arboréscens Mill. 703
Buis arborescent, Fr. Haut, Almbatscher Buch- baum, Ger.
Subvars.—argúntea Hort., aérea Hort., marginalis Hort. — 703
2. angustíholis Mill. 703
Subvar.—variagátæ H. 703
3 sufrutícose Mill. 704
B. húmitis Dod. Pemp. B. s. nana N. Du Ham.; Buis nain, Buis a Bor- dures, Buis d'Artois, Buis d'Hollandie, petit Buis, Fr.; Zvcreck Buchbaum, Ger.
4 myrtífolia Lam. 704
2. balcaríca Willd. — 704
B. s. var. gigantica N. Du Ham.: Minorec Buis; Buis de Minoroc, Buis de Mehos, Fr.; Balcaricers Buchscher, Ger.; Bussol geniteit, Ita.
Artocarpææ.
I. Moûr’s Tour, 707
The Mulberry Tree.—Mé- ré, Fr.; Malpuecére, Ger.; Moro, Ita.
1. nigra Poir. — 706
The common Mulberry.—Mùrus Dod. Pemp., M. frutí- nada Baush, Fr.;
2 laciníata Mill. D. 706
II. álba 707
M. cândidá Dod. Pemp., M. frutícet álba, Pia; M. álba fructu naini albo inluxo Du Ham. Arb.
2 multicaulis Per. 707
M. tadiréa Dod. Pemp., M. bifólia Bobil. Balbis.
Chinéè Black Mulberry, Perronet Mulberry.
3. Many-stalked Mulberry. — Mùrier Perrotet, Mè- rier à Tiges nombreuses, Mèrier des Philippines, Fr.
4 vistosa Mill. — 708
M. multicaulis Tour. — M. afofoliá Hort., Mèrier d'Espagne, Feuille d'Espagne, Fr.
5 romána Lod. C. 707
M. a. ováfolia, Ita.
6 nervosa Lod. C. 707
M. x multicaulis Bon Jard. M. subálba nervosa Wippophae.
7 Itálica Hort. — 708
M. tadiréa Lod. Cat. 1826.
8 rósea Hort. — 708
Small white Mulberry. Mèrier rose, Feuille rose, Fr.
CONTENTS.

4 major - 723
The Canterbury Sculling.
3 glandulosa Lindl. 723
5 latifolia Lindl. - 723
6 microphylla Hort. 723
U. g. parvifolia.
B. Ornamental or curious.
8 pendula - 723
U. campesira pub. Hort. The Downing Elm.
9 variegata Hort. 723
10 ramulosis Booth 723
7. álba Kt. - 723
8. americana L. - 723
The white Elm, Amer.: the Canadian Elm, the American white Elm.
1 rúbra Ait. H. K. 724
2 álba Ait. Hort. K. 724
U. multifoíia R. & S.
3 pendula Pursh S. 724
4 ineasa Hort. 723
5 foliis variegatis H. 724
9. (a.) fúlva Michx. 724
The slippery Elm.-U. rúbra Mx. Arb.: Orææ gras, Fr.: red Elm, red-wooded Elm, Moose Elm.
10 álata Mr. - 725
U. pumilla Walt. Fl. Carol.: the Wahoo of the North American Indians.
II. Plánera Gmel. 723
Rhómus Pall. Glænæus: Ulmus various authors, as to the Plánera Richárdi.
1. Richárdi Mx. - 726
2. Gmelíni Mx. - 726
III. CeLtis Town. 727
The Nettle Tree.—Lorís of Label and other authors: Micocoulier, Fr.; Zingibelasum, Ger.; Cella, Carol.
1. australis L. - 727
L. árbor L. also L. latifolium árbor L. Epít.: Lebe Tree: Micocoulier austral, Micocoulier de Provence, Fabre- coulier, Fabre-couleur des Pro-

5 laciniata - 728
Náz Júglans fórbis laci-
Other Varieties - 733
2. nigra L. - 734
The black Walnut, the black Hickory Nut, N. Amer.; Noyer noir, Fr.; Nocé nera, It.; Varies - 735
3. cinérea L. - 735
II. Caérya Nutt. - 735
1. oliveformis Nutt. 736
2. amara Nutt. - 737
3. aquática Nutt. - 737
The Water Bitter-nut Hick- ory. —Júglans aqu atica Mx.
4. tomentosa Nutt. 738
2 máxima Nutt. - 739
5. álba Nutt. - 739
6. sulcata Nutt. - 739
7. porciná Nutt. - 740
Júglans porciná a obovárida Mx. Arb.; porciná a, with fruit round, and somewhat rough, Mx N. Amer. Syt.; J. obovárida Mâhâenj.; Pig-nut, Hog-nut, Brown Hickory.
2 glabra - 741
Júglans porciná β ficio- fóris Mx. Arb.; J. glabra Mâhâenj.
CONTENTS.

8. myristicaeformis N. 741

The Nutmeg Hickory.—Juglans myristicaeformis Michx. Arb. 9. microcarpa Nutt. 742

Other Species of Carya.— C. americana (Juglans ambigua Michx.), C. pubescens Link, C. rigida (J. rigida Lodd. Cat.), C. integrifolia Spreng., Coriarius integrifolius Rain. 427

III. PTEROCARVA KUNTH

Juglans sp. Lin. 1. caucasica Kunth 743


Salicaceae.

1. SALIX L. — 744

The Willow.— Harah, Hebrew : Hea, Gr. ; Saler, Latin ; Sandsul : Weide and river, Ger. ; Salice, Ital. ; Serrue, Span. ; Wide, Swed. ; Wilge, Flem. ; Witig, Anglo-Sax. ; Willow, Withy, Sallow, Oxier, English ; Saugh, Scotch.

Group i. Purpureae Koch.

Onger-Willows, with one Stamen in a Flower.

1. purpurea L. — 746


2. helix L. — 747


3. Lamberti ana Sm. 747

The Barton Willow.— S. purpurea & Koch Comm.

4. Woolgariana Bor. 747


5. Forbyann Smith 748

The fine Basket Osier.— S. fissa Lin. Soc. Trans., not of Hoff. (Smith.) ; S. rubra & Koch Comm.

6. rubra Huds. — 748

S. linearis Walker’s Essays.

Group ii. Actutifoliae Bor. (Syn. Prunifoliae Koch.)

Willows with dark Bark, covered with a fine Bloom.

7. acutifolia Wild. — 748


8. daphnoide Villars 749


9. pomerânica Willd. 749

S. daphnoide Villars, var. with narrow leaves, and more slender catkins, Koch Comm.

Group iii. Triandrae Bor. (Syn. Amygdaînæ Koch.)

10. undulata Koch 749

S. lanceolata Sm. 749

2 undulata Forbes 751

3 lanceolata Sm. 751

4 var. having catkins androgyrous — 751

11. hippophaeifolia T. 751

12. triandra L. — 751

S. amygdaêna, part of Koch Comm.

2 gâlica — 752

3 Hoppeana — 752

S. androgyna Hoppe.

4 S. triandra undulata Mertens, ined. — Approaches to S. amygdaêna.

13. Hoffmanniana S. 752

S. triandra Hoff. and 7 of German botanists in general.

14. amygdaêna L. 752

S. amygdaêna, in part, Koch Comm.

15. Villarsiana Flig. 752


Group iv. Pentändrae Bor.

Trees having Flowers with 3—5 Stamens.

16. pentândra L. — 754

S. pentándra, part of Koch Comm. : the Sweet Willow, the Bay-leaved Willow.

2 hermaphroditica 754

17. Meyeriana Wild. — 754


18. lucida Mühlenb. 754


Group v. Frágiles Borrer.

Trees with their Twigs brittle at the Joints.

19. babylônica — 757


1 vulgaris from. H. 758

2 Napoleona Hort. 758

3 crispa Hort. — 758

S. ammûdræa Forb. in S.W. The ring-leaved Willow.

20. decipiens Hoffm. 758

The white Welsh, or varnished Willow.— S. americana Walk. Essays on Nat. Hist. S. frâgiis, part of Koch Comm.

21. montana Forbes 759

22. frâgiis L. — 759

The Crack Willow.— S. frâgiis, in part, Koch Comm.

23. monspeliensis F. 760

24. Russelliana Sm. 760

The Duke of Bedford’s Wil- low. — S. frâgiis Woodr. : the Dibbly, or Leicestershire, Willow ; in some counties, the Huntingdon Willow ; S. penda Var., S. viridifries, S. rubens Schrank.

25. Purshiana Bor. 761

Group vi. Albae Borrer.

Trees of the largest Size, with the Foliage whitsih.

26. alba L. — 761

S. alba, part, of Koch Comm. : the Huntington, or Swallow-tailed, Willow.

2 carâlica 761

S. alba var. Smith Fl. B. S. carâlica Smith Eng. B. The upland, or red-tinged, Willow, Pontes.

2 The Leicester Willow, Davy’s Agric. Chem. Blue Willow, Smith.

3 crispa Hort. — 761

4 ìsoea Lodd. Cat. 761

27. vitellina L. — 763

The Golden Osier.— S. alba Koch Comm.


Extra-European Kinds allied to the Kinds of one or all of the three preceding Groups.

28. nigra Mühl. — 768


29. Humboldtiana 764

30. Bonplandiana 764

Group viii. Prinioides B.

Shrubs, mostly Natives of N. America, and used in Basket-making.

31. rigida Mühl. — 766

32. prinioides Pursh 766

33. discolor Mühl. 766

34. angustata Pursh 766

35. conîormis Forbes 766

Group ix. Griseae Borrer.

Chiefly Shrubs, Natives of N. America.

36. viriscens Forbes 765

S. hippophaeifolia Lodd.
CONTENTS.

37. reflexa Forbes 765
38. virgata Forbes 765
39. Lyonii ? Schl. 765
40. Houstoniana P. 765 
41. falcata Pursh 765
42. grisea Willd. - 765
43. petiolaris Smith 765 
44. pennsylvanica F.766
45. Muhlenbergiana 766
46. tristis Alt. - 766
47. cordata Muhlenb.766

Gr. x. Rosarinifoliae Bor. 
Low Shrubs, with narrow-Leaves.
48. rosinarinifolia L. 766 
Sal. rosinarinifolia, part of Koch Comm.
49. angustifolia Borre,766 
50. decumbens Forbes766
51. fuscata Pursh - 766 

Group xi. Fusca Borrer. 
Mostly procumbent Shrubs.
52. fusca L. - 767 
1. vulgaris - 767
S. repens Koch, b Koch Comm.
2. repens - 767
3. prostratus - 767
4. fe'zia - 767
S. fe'zia Sm. Eng. Fl.
5. incubacea - 767 
S. f. 5 Hook. Br. Fl. 
6. argentea - 767 
S. f. 6 Hook. Br. Fl. 
Forbes in Sal. Wob.

53. Doniçiana Smith 768

The rusty-branched Willow.

Group xii. Ambiguae Bor. 

Shrubs.
54. ambigua Ehr. 768 
S. ambigua Koch, part of Koch Comm.
1. vulgaris - 768 

2. major - 768 
3. ambigua & Hook. 
S. variformis Ser. 
Sauces de la Suisse. 
3. spatulata - 768 
4. undulata - 769 
S. spatulata Willd. var. undulata Mertens.
55. fimnuchica W. 769
56. versicolor F. - 769
57. alaternoides F. 769
58. protecea Sch. 769 
Erroneously referred to S. ambi gua in Hook. Brit. Flor. ed. 2. (Borrer MS.)

Gr. xiii. Reticulatae Bor. 
Leaves reticulated and cora ceous.
59. reticulata L. - 769

Group xiv. Gloioae Bor. 
Small, upright, with soft silky-Leaves.
60. cleagmagnides Sch. 770
61. glatia L. - 770
62. sericea Villars 770 
S. glatia Koch Comm.
63. Lapponium L. 770 
S. arcuariia Fl. Dan.
64. obtusifolia Wild. 771
65. arenaria L. - 771
66. obovata Pursh 771
67. canescens Wild. 771
68. Stuartiana Sm. 771
69. pyramica Gov. 771
70. Waldsteiniana W.771

Gr. xv. Viminalis Bor. 
Willows and Osiers. — Mostly Trees or large Shrubs, with long plant Branches, used for Basket-making.
71. subalpina F. - 771
72. cándida Wild. 771
73. incana Schr. - 771
74. linearis Forbes 772 
S. incana var. linearia Bor rer in a Letter.
75. viminalis L. - 772

The common Osier.—S. long ifolia Lam. Fl. Fr.
76. stipularius Smith 772 
The arched-leaved Osier.
77. Smithiana Wild. 772
78. mollissima Ehr. 772
79. holosarcen Hh. 772
80. Micheliana Forbes, 772
81. ferruginea And. 773
82. acuminata Sm. 773

The large-leaved Sallow. — S. lanceolata Seringe.

Group xvi. Cinéreae Bor. 
Sallows. — Trees and Shrubs, with roundish shaggy Leaves, and thick Catchins.
83. pâldida Forbes 773
84. Willdenoviana 773
85. Pontederâna W. 773 
S. pânta alpina nigricans, folio oleagino seravo Ponted. 
Comp.; S. Pontederâe Bellardi App. ad Fl. Pot.
86. macrostipulacea 773
87. incanecens Sc. 773
88. pannonâa Forbes 773
89. mutâtis Forbes 776
90. cârea L. - 776 

91. aquatica Smith 776
92. oleifóia Smith - 776
93. geminâta Forbes - 776
94. crispa Forbes - 776
95. aurita L. - 776
96. lâtiolia Forbes 776
97. câræa L. - 776 

The great round-leaved Sallow, common Black Sallow, Saugh in Yorkshire, Grey Wilky.
98. phacelâa Sm. 777

Gr. xvii. Nigrifolientes B. 
Shrubs with long Branches, or small Trees. Mostly Sallows.
99. australis Forbes 778
100. vaudensis For. 778
101. grissophylla F. 778
102. lacustris For. 778
103. crusifolia Frh. 778
104. cotinifóia Sm. 778

105. hirta Smith - 778
S. nitens Schleiher is the fern. of S. hirta (Forbes in Sal. Wob.)
106. rivulâa For. - 778
107. atropurpurea 778
108. coriaceae For. 778
109. nigricans Smith 778
110. Andersoniana 779

The Green Mountain Sallow.
CONTENTS.

143. phylleireiôria B. 784
144. Dicksoniâna Sm. 785

Gr. xix. Vacciniiôria Bor.
Small and generally procumbent Shrubs.

145. vacciniiôria W. 785
S. prunôfia, part of Koch Comm.

146. carâmata Smith 785
147. prunôfia Smith 785

148. venulisôsa Smith 785

149. cuêas Villars 785

Gr. xx. Myrtôlides B.
Small Bilberry-like shrubs, not natives of Britain.

150. myrtôlides L. 786
The Bilberry-leaved Willow.—S. elegans Besser En. Vol.

151. pedicellârias Ph. 786
152. planôfia Ph. 786

Gr. xxi. Myrsânites Borre.
Small bushy Shrubs.

153. Myrsânites L. 787

154. betulôfia For. 787
155. procumbens For. 787

156. retiâs L. - 787
S. scârpyôfia Jacq. Austr.

157. Kutaibélia W. 787
158. Uva-ursa Pursh 787
S. retaux Koch, y Koch Comm.

160. cordôfia Pursh 788

Gr. xxii. Herbeôcea Borr.
Very low Shrubs, scarcely rising an inch above the ground.

161. herbeôcea L. - 788
162. polâris Wahlenb. 788

Gr. xxiii. Hastâte Borr.
Low Shrubs, with very broad leaves, and exceedingly shaggy and silky catkins.

163. hastâte L. - 788
2 serrulata - 789

3 malôfia - 789
4 arbuscâla - 789

164. lanâta L. - 789

Gr. xxiv. Miscellânea A.
Kinds of Sâlix described in Sat. Wob., and not introduced by any of the preceding Groups.

165. âyptaca L. 789
166. alpina Forbes 789
167. berberiôfia Pall. 790
168. tetraspérma R. 790
169. zumilliôsia Forbes 790
170. villôsia Forbes 790

Gr. xxv. Miscellânea B.
Kinds of Sâlix introduced, and of many of which there are Plants at Messrs. Lod-diges, but which we have not been able to refer to any of the preceding Groups - 790

Appendix.
Kinds of Sâlix described or recorded in Botanical Works, but not introduced into Britain, or not known by these names in British Gardens 790

II. POPULUS Traur. 819


1. álba L. - 819


2 hybrida Bieb. - 820
P. álba Bieb. l.c.  
P. intermedium Mertens.  
P. a. crusâfia Mertens.  
P. gríaca Lodd. Cat.

3 accrîfia - 820
P. accrîfia Lodd. Cat.

4 p. chariôfia Hort.  
P. palômata Hort.  
P. arcûmbérica, Lod. Cat.

5 p. béglea Lodd. Cat.

6 cándicans - 820
P. cándicans Lod. Cat.

7 p. nivea Lod. Cat.

8 p. weiseltôsa of the Ha-wick Nursery.
The hoary Poplar of the Edinburgh Nurseries.

5 sâgyptaca Hort. 820
P. a. poliôtia Hort.

6 pendula - 820
P. a. vor. graeícis trânis pendûtibus Mertens.

2(a.) canâscens Sm. 820

The common white Poplar.—
3. trémla L. - - 821

4. balsamífera L. - 830

5. cordifolia L. - 832

6. angulata Ait. - 828

7. incrassata L. - 834

8. glauca L. - 831

9. pubescens L. - 833

10. spinosa L. - 832

11. obtusata L. - 833

12. pubescens L. - 834

13. pyramidalis L. - 834

14. globosa L. - 834

15. variegata L. - 834

16. pyramidalis L. - 834

17. obtusata L. - 834

18. pubescens L. - 834

19. pubescens L. - 834

20. obtusata L. - 834

21. obtusata L. - 834

22. obtusata L. - 834

23. obtusata L. - 834

24. obtusata L. - 834

25. obtusata L. - 834

26. obtusata L. - 834

27. obtusata L. - 834

28. obtusata L. - 834

29. obtusata L. - 834

30. obtusata L. - 834

31. obtusata L. - 834

32. obtusata L. - 834

33. obtusata L. - 834

34. obtusata L. - 834

35. obtusata L. - 834

36. obtusata L. - 834

37. obtusata L. - 834

38. obtusata L. - 834

39. obtusata L. - 834

40. obtusata L. - 834

41. obtusata L. - 834

42. obtusata L. - 834

43. obtusata L. - 834

44. obtusata L. - 834

45. obtusata L. - 834

46. obtusata L. - 834

47. obtusata L. - 834

48. obtusata L. - 834
CONTENTS.

8 foliis variegatis - 839
Other Varieties - 839

2. (?a.) diuicìa Pall. 840
2 parvifolia Hayne 840

3. (?a.) fruticosa Pall. 840

5. nana Lam. - 840

6. (?n.) glandulosus M. 841
Leaves large. Natives of North America.

7. populifolia Alt. - 841
2 laciniata - 841
B. laciniata Lodg. Cat.
3 pendula - 841
B. pendula Lodg. Cat.

8. papyricea Alt. - 842
2 åsa - 842
B. åsa Bose.
3 trichoclada Hort. 842
4 platyphilla Hort. 842

9. nigra L. - 843

10. excelsa H. Kev. 843

11. lenta L. - 844
B. carpinifolia Ehrh. Beitr., B. nigra Du Rol Harb., under both these names, and also that of B. lenta in Lodg. Collection: Black Birch, Cherry Birch, Canada Birch, Sweet Birch, Mountain Mahogany, Amer.; Bouveon Mésirer, Fr.; Betula delta Virginita, Italia.
Species of Betula not yet introduced - B. Divavatulae Wall., B. acuminata Wall., B. nitida, B. cylindrostachya - 845

Corylaceae, or Cupuliferæ.

I. Quercus L. - 846
The Oak. - The Tourn., Sieber

Tourn.: Derw., Celtic; Anac., or Ac.; Saxone.; Al., Abn., or Al., Hebrew; Drus., Greek; Chêne., Fr.; Eiche., Ger.; Birk; Dutch; Quercia., It.; Encina, Span.
A. Leaves deciduous.

- Natives of Europe.

1. pedunculata Wild. 849
The common British Oak.
2 pubécens Lod. C. 849
3 fastigiata - 849
B. fastigiata Lam. 849
4 pendula - 849
5 pendula Lodg. Cat. The Weeping Oak.
5 heterophylia - 851
B. salicifolia Hort. 851
6 laciniata Lodg. Cat. 851
7 tenuiflora - 851
8 purpurea - 831
9 purpurea Lodg. Cat.
Other Varieties - 851

2. sessiliflora Sal. - 851
2 pubescens - 852
3 macrocarpa - 852
B. florâ macrocarpam Booth.
4 folkenbergensis - 852
B. folkenbergensis Booth, Forbes Hort. Tour.
5 australis - 852
B. australis Link.
Other Varieties - 852

3. pyrenaica Wild. 853

4. Esclusus L. - 853

5. (E.) apennina L. 854
Q. conglomerata Pers.: Chêne bisonva, Ital.

6. Cerris L. - 854
Q. crinita a and b. Lam.

Q. cristata a var.; Lam. Q. sowerbyi Wild.
Q. orientalis tutifolia, &c., Tourn. Cor.
Q. Cerris Oliv. Voy.
Q. Boscii Bosc.
2 pendula Neill - 856
3 laciniata - 856
4 variegata Lod. C. 856
b. Leaves deciduate. Crops of the Acorns buoyant.

5 austriaca - 856
Q. austriaca Wild.
Q. Cerris Host Syn., a and b
Q. cristata Cerris Lin.
Q. čapecrube, &c., Bau.
6 câna major - 857
Q. câna major Lod. Cat.
7 câna minor - 857
Q. câna minor Lod. Cat.
8 Ragnál - 857
Q. Ragnál Lod. Cat.

- Foliage sub-evergreen. Leaves deciduate. Acorns with buoyant Cups.

9 fulhamensis - 858
Q. C. decidàta Wats.
Q. C. crispà, var. den- tàta Swt.
10 latifolià Hort. - 859
11 Lucombe à - 859
Q. Lucombeà Sert.
Q. crenimus Lod. Cat.
Q. the Evergreen Turkey Oak, the Devonshire Oak, the Eeaster Oak.

- Foliage deciduous.

a. Leaves pinnatifid or sinuate. Cups of the Acorns mossy.

1 vulgâris - 855
Q. Cerris frondosa Mill. Diet.
Q. crinita var.; Lam. Q. sowerbyi Wild.
Q. orientalis tutifolia, &c., Tourn. Cor.
Q. Cerris Oliv. Voy.
Q. Boscii Bosc.
2 pendula Neill - 856
3 laciniata - 856
4 variegata Lod. C. 856
b. Leaves deciduate. Crops of the Acorns buoyant.
CONTENTS.

**Foliage evergreen, or very nearly so. Leaves varying from dentate to sinuate. Cups of the Acorns bristly.**

12 L. crispa - 859
Q. L. crispa Hert. New Luxembourg Oak.

13 L. suberosa - 859
Q. L. suberosa Hert. Oak.

14 L. incisa - 859
Q. L. incisa Hert. Oak.

15 L. dentata - 859
Q. L. dentata Hert. Oak.

16 heterophylla - 859
Q. L. heterophylla Hert. Oak.

7. A. giglops L. - 860
The Valonia Oak.—Q. orientalis, &c., Tourn. Cor.; A. giglops cc., Q. orientalis C. Buchh. Secondat; Velini Tourn. caric., Glans Cerri Dalech. Hist.; the great prickly-cupped Oak; Chêne Velain, Fr.; Chêne l'orangede Bosc; Knopper Eiche, Ger.; Tavoline, Ita.

2 pendula Hert. - 860
3 latifolia Hert. - 860


8. alba L. - 862

1 pinnatifida Mr. 862

2 repanda Michx. 862

9. (a.) oliviformis 864
The mossy-cupped Oak, Amer.

10. macrolepida W. 864
The over-cup white Oak, Bar. Amer.; Chêne à gros Glaus, Chêne frise, Fr.; grossfrüchtige Eiche, Ger.

11. obtusifolia Mr. 865

12. hybrida W. 865
The Swamp Post Oak, Water white Oak, Amer.


13. Primus L. - 866
The Chestnut-leaved Oak.

1 palustris Mr. 866

2 monticola Mr. 866
Q. P. monticola Michx. fil.

Q. Primus Smith in Abb. The Rock Chestnut Oak.

3 acuminate Mr. - 867

4 pumila Mr. - 867
Q. P. Chiquapin Mr. Q. Chiquapin Pursh Pl. Q. pseudoacida Wildl. Sp. Pl. The Chiquapin, or Dwarf Chestnut Oak.

5 lamontosa Mr. - 868
Q. P. diozoma Mr. Q. bicornis Wildl. Sp. Pl. Q. Michauxii Nutt. The Swamp white Oak.


14. rubra L. - 868

15. cocinea Wildl. 869
Q. rubra Ait. 

16. ambigua Wildl. 870

17. falcata Michx. 870

18. tinctoria Wildl. - 871
The Quercetron.—Q. virginiensis, &c., Pluk. Am. Q. diozoma Wildl. Arb.; the black Oak, Amer.; Chêne des Teinturiers, Fr.

1 angustissima Michx. 871

2 sinuosa Michx. - 872

19. palustres Wildl. - 872
The Pin Oak.—Q. montana Lodd. Cat. 1836; Q. Bastleri Lodd. Cat. 1836.

20. Catesbeiana Wildl. 873
The Barren Scrub Oak.—Q. rubra Ait. & Smith Ins., Q. Escali divisiva, &c., Car. Ptyt.


21. nigra L. - 874

22. aquatica Soland. 875

2 nana - 875

3 martima Michx. 875
Q. heutawharia Willd. Other Varieties - 875

23. (a.) flicifolia W. 876
The Bear Oak.—Q. Bastleri Michx., Q. aquatica Abb. & Ins.; Black Scrub Oak, Dwarf red Oak, Amer.


24. Phellóes L. - 876

1 sylvaticas Michx. 877
2 latifolius Lodd. C. 877
3 humilis Pursh - 877
4 sericeus - 877

5 cinereus - 877

6 maritimus Michx. 878
Q. maritimus Wildl. Sp. Pl.

25. (P.) haurifolía W. 878
The Laurel Oak, Swamp Willow Oak.

2 hýbrida Mr. Quer. 878
Q. 1. 2. obtusata Alt. H. K.

26. inbriéca Wildl. 879
Q. latifolia Hort.: Laurel Oak, Fillet-cup Oak, Jack Oak, Black Jack Oak, Amer.; Chêne & Lattes, Fr.

27. heterophylla M. 879
Bartram’s Oak.

Other Species of Phellóes.—Q. agrifolia Wildl. (Q. coccífera) - 879

B. Leaves evergreen.

a. Natives of Europe.

§ viii. Ilex. Holly, or HOLLY, Oaks.

28. Ilex L. - 880
The common evergreen Oak.

-Ilex arbórea Beaut. Hist.: Draycott, or Chêne vert, Fr.; Steineiche, Ger.; Eiche, Ital.; Encina, Span

1 integrifolia Lodd. C. 880
2 serratifolia Lodd. C. 880
CONTENTS.

§ xi. Virentes. Live Oaks.

37. virens Alt. - 856

38. myrtifolia Willd. 887

c. Natives of Nept.

§ x. Larinae. Woolly or downy-leaved Oaks.

39. larata Smith - SSS
Q. lanata 

40. annulata Smith - SSS
Q. Phyllata Ham. MSS., Q. Kurnooli D. l.c., Q. lucida Thumb., Q. auriculata Hort.

App. i. European Kinds of Oaks not yet introduced.

Q. faginea L. - 889
Q. agelopinifolia Willd.
Q. agelopinifolia Pers. Syn. 889
Q. capena & L. 889
Q. Brasen Bosc - 889
Q. Chene Brosse at Nantes;
Q. Chene nain, Bosc, - 889
Q. viminialis Bosc - 889
Q. Chene Osier, Chene de Ha, Fr.
Q. Chene d'epie, Fr.
Q. Chene Lezerrion, Bosc - 889
Q. Chene Castillon, Bosc - 889


App. ii. Oaks of Africa, Asia Minor, and Persia only partially introduced.

Q. obtecta Poir. Diet. - 890
Q. Inextoria Olle. Feg. - 890
Q. carinifrons L. 890
Q. Lusitanica Lma., Q. lusitania Lma., Q. aurea Lma., and Q. humilis Lma. - 889

App. iii. Himalayan Oaks only partially introduced.

Q. pectina Smith in Rees's C. 891
Q. squamata Rox. Hort. 891
Q. Hueiri Ham. MSS.
Q. obtecta D. Don, Q. granifolia D. Don, and Q. velutina Lindl., are described in our 1st ed. - 891
Q. lamellia Smith - 892
Q. glabra Thumb. - 892
Q. concentrica Lour., Q. acuta Thumb., Q. serrata Thumb., 892

Q. glabra Thumb. Q. cuspidata Thumb. Q. dentata Thumb., Q. obscura rugosa, and Q. chinensis Bunge, are described in our 1st ed. - 893


Q. sundalae Blume Fl. Java - 893
The Sunda Oak
Q. prunioides Blume Fl. Java - 894
Q. angustata Blume Fl. Java - 894
Q. pallida Blume Fl. Java - 894
Q. costata Blume Fl. Java - 894
Q. rotundata Blume Fl. Java - 894
Q. elegans Blume Fl. Java - 894
Q. placentaria Blume Fl. Java - 894
Q. latisepalus Blume & Bosc - 894
Q. platycarpa Blume Fl. Java - 894
Q. padiifolium Blume Fl. Java - 894
Q. racemosa Hook. in Comp. D. May, Q. geniculata Blume Fl. Java, Q. induta Blume Fl. Java, Q. urenaefolia Hook. & Arn., and Q. Psidium latifolium, are described in our 1st ed. - 894
Q. molucca Blume Fl. Java - 894
Q. turbinata Blume Fl. Java - 894
Q. limbata Blume Fl. Java - 894

App. vi. Mexican Oaks only partially introduced.

Q. saltapenis Humb. & Boc. 895
Q. gaucaescens Humb. & Boc. 895
Q. obtusata Humb. & Boc. 895
Q. pandurata Humb. & Boc. 895
Q. repanda Humb. & Boc. 895
Q. hirtula Humb. & Boc. 895
Q. cerasispe angustifolia H. 895
Q. lanceolata Humb. & Boc. 895
Q. reticulata Humb. & Boc. 895
Q. chrysothyrsa Humb. & Boc. 895
Q. pulchella Humb. & Boc. 895
Q. speciosa Humb. & Boc. 895
Q. stipulata Humb. & Boc. 895
Q. crasifolia Humb. & Boc. 895
Q. depressa Humb. & Boc. 895
Q. ambiguca Humb. & Boc. 895
Q. coniferina Humb. & Boc. 895
Q. tridens Humb. & Boc. 895
Q. acutiloba Willd., H. & B. 894
Q. lenticulata Chum. & Schlie. 894
Q. petiolaris Benth. - 894
Q. dysophylla Bent. Plant. Hartzegg., Q. Mont. 894
Q. barboreviris Blt., Q. glabrifrons Blt., Q. hartwegii Blt., and some others, have been discovered by Hartweg, who has sent home specimens of all, and acorns of some, to the Hort. Soc. - 894

H. FA'GUS L. - 905
The Beech. - Fagus of the
1. **Vesca Garth.** - 912

3. **(B.) orientalis** L. 918
   Species or Varieties of *Carpinus* not yet introduced into European Gardens.
   C. *B. Carpinus Hort.* - 916
   C. *vulgaris* Linnaeus. Hort. Wall. - 917

IV. **Carpinus L.** - 916

2. **pumila Willd.** - 914

1. **Avellana L.** - 921
CONTENTS.

5 austriaca - 958
  P. austriaca Hoff.  
  Laricio d'Autriche, ou de la Hongrie, Delamarre.

Other Varieties - 958

6. (L.) austriacallosa 958
  The black Pine. - P. signicata Hort.  
  p. signicatae Hoff. schwartz Föhre, Ger.

5. (L.) Pallasiann L. 959
  The Tartarian Pine. - P. tatarica Hort.  
  P. tatarica in the Hammersley Nursery in 1756.  
  P. martimana Pol. Ill.  
  Taur. : Trans in the Tartar language.

Varieties.
- Cones straight and short - 960
- Cones long and crooked - 960

6. (L.) pyrenaeica L. 961
  P. hispánica Cook's Sketches in Spain.  
  Pinaster hispánica forma HI San Clemente.  
  P. pyrenescens Lap. Hist. of the Pl. of the Pyrénées: P. hægænicensis minor  
  Hort. of Paris in the Luzon.  
  Pin izanau, Pin piceaev, Fr.

7. Pinus Astér - 961
  The Cluster Pine. - P. sphæstrix Lin. Syst. Reich, P.  
  martimina altae Du Ham.  
  P. martimina S. Du Ham.  
  P. martimina Thore Prom. on the  
  Cotes de Gascony, P. mes-  
  serianu Lamb. ed. 2, P.  
  in de Bordeaux, Pin des  
  Landes, Fr.;  
  Pinastro, Ita,  
  P. abderonicum G.M. 963  
  P. P. Escariväuss Brvlt.  
  P. Lemmoniana - 963  
  P. Lemmoniana Booth, Fr.  
  4 minor  
  P. martimina min. N.D.H.  
  Pin Pinsot, Pin de Mans,  
  Pin á Torchet, Fr.  
  5 fœlisi variegatais - 963  
  6 maritimus - 963  
  Other Varieties - 963

8. Pinus L. - 965  
  The Stone Pine. - P. t. sativa, P.  
  sativa Buih. Pin.  
  P. doméstica Math. Comm. : Pin  
  Pignon, Pin bon, Pin cultur,  
  Pin Piner, Fr.; : Genieushe  
  Fichte, Ger.  
  Pin de Pino, Ita,  
  Pin de Bordeaux, Pin des  
  Landes, Fr.;  
  Pinastro, Ita,  
  2 fragilis N. Du H. 965  
  3 eréctica Hort. - 965

9. halepensis Astér - 967
  P. hægænica Du Ham.  
  P. martimina prima Mat-  
  thiolus; Pin de Jérusalem,  
  Fr. : Pin d'Asco, Ita,  
  2 minor - 967
  3 maritimæ - 967
  P. martimina Lamb. Pin.  
  4 genænis - 968
  P. genæensis Cook.

10. brutia Ten. - 968  
  The Calabrian Pine. - P. con-  
  glomerata Greffier Pl. Excisie.  
  Kaltbricshe Niefer, Ger.

B. Natives of N. America.

11. Banksiann L. 969
  The Labrador Pine. - P. sy-  
  pœstrix douaricæita Ast. Hort.  
  Kew., P. rupitiæe Mx. N.  
  Amer., Syl., E. & In.  
  Canad. Ed. 1, Pin clavi, Fr.

13. pungen Mickey, 971
  The Table Mountain Pine.

14. resinosæ Astér. - 972
  The red Pine. - P. olin  
  Mickey. N. Amer. Syl.; Nor-  
  way Pine, Canada: Yellow  
  Pine, Nova Scotia; le Pin rouge  
  de Canada, Fr.

15. mitis Mickey. - 974
  The yellow Pine. - P. var-  
  ïabula Pil.  
  P. var-ïabula Hands, Fr. ;  
  [P. celcinet Mill. Dict. : New  
  York Pine, Spruce Pine,  
  Short-leaved Pine, Yellow, Pine,  
  Amer.

16. contorta Doug. 975
  17. turbinata Bosc 975

§i. Ternantés. - Leaves in a Sheath.

A. Natives of N. America.

18. T. da L. - 976
  The Loddely Pine. - P. fœ-  
  liser yron. Virg.; P. ver-  
  ïaenovia tenusfolia triplæ Puk.  
  Aln.: White Pine, at Peters-  
  burg and Richmond, in Vir-  
  giniä.

2. dioecæurdenä Ait.976

19. rígida Mill. - 977
  The Pitch Pine. - P. T. da  
  a Pin. Dict. : Three-leaved  
  Virginia Pine, Sap Pine,  
  Black Pine: Pin hæabæ, Pin  
  rode, Fr.

20. (r.) Fraséri L. 979
  21. (r.) scoritina Ait.979
  The Pond Pine.- P. T. da  
  scoritinae Ait Hort. Kew.  
  ed. 2,  
  P. variálilis Lamb. Pin. - 980

22. ponderoso Doug. 981

23. Sabinián Doug. 982
  The great prickly-coned Pine.

24. (S.) Coulteri D. 985
  The great hooked Pine.  
  - P. Sabinián ger. Hort. ;  
  P. mac-  
  cæraæra Liadl. MSS.

2 véræ - 985

25. australis Mr. 987
  Purah Sept., Lamb. Pin ed. I.;  
  P. americana palatæs,  
  Arb., P. scoritina Hort.: in America,  
  Low-leaved Pine, Yellow Pine,  
  Pitch Pine, and Brown Pine,  
  in the southern states; South-  
  ern Pine and Red Pine, in the
northern states; Yellow Pine and Pitch Pine, in the middle states; Georgia Pitch Pine of the English and West Indian planters.

2 excelsa - 988 P. palustris excelsa Booth.

26. insignis Doug. 988

28. muricata D. Don 987 Obstao, Span.

29. tuberculata Don 990
30. radiata D. Don 990

B. Natives of Mexico.


32. pátula S. & D. 992 2 folis strictis Brit. 993

C. Natives of the Canaries, India, Persia, China, and Australia.

34. canaríensis Sav. 994 P. additacea Bose.

35. longifolia Roxb. 995

P. Néiva Gourw; cabalab-served Pine of the East Indies; Chúb Bhono Elphinstone; the Norse Pine, Penny Cye.

37. sinensis Lamb. 999 P. ñ Kedr., not Pin. nepalis, Pin. Woh., P. conscientia Hort.

38. timóriensis - 1000

§ iii. Quaes. — Leaves 5, rarely 4, in a Sheath.

A. Cones with the Scales thickened at the Apex.

a. Natives of Mexico.

39. Hartwegi Ldl. 1000
40. Devoniána Ldl. 1001 Pino blanco, or P. redl., of the Mexicans.

41. Russelliana L. 1003

2 Lindley - 1004

43. macrophylla L. 1006
44. Psudó-Stróbos 1008 The False Weymouth Pine.

45. filifólia Lindl. 1008

46. leiophylla Schrd. 1011 Ocote chino in Mexico.

47. oicárpa Schd. 1012

b. Natives of the West Indies.


C. Cones with the Scales not thickened at the Apex.

a. Natives of Europe and Siberia.


51. Stróbos L. - 1018
The Weymouth Pine.


2 álba Hort. - 1018
3 brevifólia Hort. 1018
4 comprésa Booth 1018 P. S. ñoba Loddi Cat. Florebeck Weymouth Pine.

52. (Str.) Lambertina Dougl. - 1019
The gigante Pine.

53. (S.) monticola 1021
The short-leaved Weymouth Pine.

c. Natives of Norway and Mexico.

54. (S.) excésa W. - 1022
The Bhotoan Pine. - P. Dick. Hort.: Chilla, or Chilya, Himalayas; Kuel, Sirmone and Gurhwai; Lemington, Bhotea, Hacuma, or King of the Firs, Hindostan.

55. Ayacahuite Ehr. 1023
Pishops. It is so called because it was believed that the Ayacahuite, the aboriginal name of this species, had originated in P. Púllones (P. Llaveana).

II. A'bies D. Don 1025

1. Leaves tetragonal, awl-shaped, scattered in insertion.

a. Natives of Europe and the Caucasus.

1. excésa Dec. - 1026

1 communis - 1026
White Fir of Norway.

2 nigra - 1026
Red Fir of Norway.

3 carútica - 1027
A. carútica Hort.

4 pénulda - 1027 A. communis pénúla B.

5 folís variegatis 1027
6 Chănbrasiliana 1027
7 Chănbr. stricta 1027
8 pygmaea - 1027

10 tenuifólia - 1027
A. tenuifólia Sm. of Ayr.

11 gigántea - 1027
A. gigántea Smith of Ayr.
12 monstrosa - 1027
A. monstrosa Hort.
13 murocanita Hort. 1027
Other Varieties - 1027

2. orientális Tour. 1029

3. obovata D. Don 1029

B. Natives of North America.

4. álba Mich. - 1030
CONTENTS.

9 intermédia - 1055
L. internedia: Laws. Man., in Linn. intermédiaa Lod. Cr. Other Varieties - 1055

2. americana Mer. 1056


V. CEDRUS Borr. 1057
The Cedrus. - P. americanus. in part; A. abies Poir. in part; Loërf. Tourn. in part; Céde, Fr.; Ceder, Ger.; Cedro, Ita.

1. Libani Borr. - 1057

2. Deodora Roxb. 1059

1. imbricata Pav. 1062


VII. CUNNINGHAMIA. 1065
Pinus Lamb., Bétis Salisb. 1. sinicénsis Rich. - 1065

Tribe II. CUPRESSINE. 1067

VIII. THUJA L. 1068
The Arbor Vitae.—Thuja, or Arbor de Vie, Fr.; Lebensbaum, Ger.; Tája, Ita.;

§ 1. Thuja vera.

1. occidentalis L. 1068

2 variegata Marsh. 1069 T. a folis variegatis Lod.

2. (o.) plicata Donn 1069
Nee's Arbor Vitae.

3. chilensis Lamb. 1070 Cupressus thyoides Paven. MSS.

§ ii. Biota.

4. orientalis L. - 1070
The Chinese Arbor Vitae.

2. plicata Hort. 1070 T. pyramidalis Eam. 3 tatarica - 1070 T. tataricae L. Cat. T. Warana Booth Cat.

§ iii. CYPRÉSSE.

Tender Species. — T. cupressoides L., T. pennis L. 1071

5. penuela Lamb. 1071

Other Species. — T. filiférrmis Lodd. (T. pendula L.), T. dolabrata L. - 1079

IX. CALLITRIS F. 1072
Thuja, part of Lin.; Fœmé- lia Mirbel Mém. MSS.

1. quadriávusven. 1072
Thuja articulata Desf. All. Arb. et Arbîris., Cupressus articulata Pin. Wob.

Other Species of Callitris. — C. Fothergillii (? Cupressus Fothergillii), C. trigusta (Cupressus trigusta Lodd. Cat.; 1852), C. cupressifórmis Fout. C. macrostachya Hort. 1072

X. CUPRESSUS L. 1073

1. sempervirens L. 1073
The common Cypress. — C. pyramidalis Hort.; C. fas- tigiatà Hort. & Pin. Wob.; Cypress pyramidal, Cypress or- dinaire, Fr.; gemeine Cypress.

senbaun, Ger.: the Italian Cypress.

1. stricta Mill. Diet. 1073
Cypres male, Fr.


2. thyoides L. - 1074
The White Cedar.—Thuja sphærodendræs Rich. Mém. sur Conif. : Cypres jaune Thuja, Fr. 2 fóllis variegátis 1075 3 nana Hort. 1075

3. lusitanica Tourn. 1075

4. torulosa Lamb. 1076 The Bhotan Cypress.

5. pendula Thumb. 1076
Fe-mor, Kempt, Ameer. Other Kinds of Cupressus, some of which have been introduced, but of which little is known. C. horizontalis Aubér., C. thuriieta H. B. et K., C. Tournéfort Audibert, C. laccifórmis Willd., C. austra- tális Per., C. saubinsides H. B. et K., C. Coulteri Pin. Wob. (C. thuriera H. B. et K.); fastigata Hort. Pin. Wob. (Cypres fastigata Hort., Fr.) 1077

XI. TAXODIUM R. 1077
The deciduous Cypress.— Cupressus L., Schubértae Memb., Cendryphæa Saligna.

1. distichum Rich. 1078


XII. JUNIPÉRUS L. 1080
The Juniper.—SabiæSal., Cedrus Tourn. : Gertruc, Fr.; Wachholder, Ger.; Gine- pro, Ita.


A. Natives of Europe.

1. communis L. 1081
J. vulgaris, &c., Rail Syn.;
SUPPLEMENTARY SPECIES AND VARIETIES,

AND SYNONYMES.

Berberisaceae.

Berberis,
vulgiris fol. purpureis
Hort. - - 1111

Mahaniana.
pallida - - 1111
Berberis pallida Hartw.

Sdigitilis - - 1111
B. digitiHartw.

trifoliata - - 1111
B. trifoliata Hartw.

lanceolatum - - 1112
B. lanceolatum Bentham.

angustifolia - - 1112
B. angustifolia Hartw.

Hartwegii - - 1112
B. Hartwegii Bentham.

Aceriaceae.

Acer.
levigatum Wall. 1112
colchicum Hirtiext 1112
colchicum var. rurbum
Booth - - 1112
campastre ruribus 1112
c. heterocarpum 1112
glabrum Tor.f& G. 1112
triapartum Nutt. 1112
grandidentatum 1112

Hypericaceae.

Hypericum.
rosmarinifolium 1112

Aurantiaceae.

Limonía.
Laureola Wall. 1112

Magnoliaceae.

Magnolia.
grandiflora var. Harwicus Hort. - - 1111
purpurea var. hybrida
Hort. - - 1111

Iliacaeae.

I. Ruscus L. - - 1099
The Butchers Broom.—Fra.

gon. Fr.; Mäusdorn, Ger.; Rusco, Ital.

1. aculeatus L. - - 1099

2. rotundifolius - - 1099
R. vul. fol. amplifere Dill.

3. lâxus Smith - - 1099
R. lâxus Lodd. Cat.

2. hypophyllum L. 1100

3. (h.) Hypoglossum 1100

1. recurvifolia Salis. 1103
Y. recurva Hort.

7. filamentosa - - 1103

8. (f) angustifolia 1104
fiaccida Haw. - - 1104

10. glaucescens II. 1104
CONTENTS.

Æsculàece.

Æsculus.
(Æ.) rubicúnda 1113
Capparidàeceae.

Capparis.

Isomeris.
arbòrea Nutt. - 1113

Vitáceae.

Vitis.
parviflòria Royl. 1113
dextròphylla 'S.' 1113

Aquifoliàceae.

Ilex.
Aquif. péndulum 1113
dextròfìolia Hort. - 1113

Rhamntàceae.

Ceanothu's.
a, 2 intemédius 1113

Rhamnus.
Wicklius Jacq. 1113

Anacardiàceae.

Anacardiaceae.

Duval'a.
longiflòria Hort. 1113

Léguminòsè.

Soph'orà.
[?japonica] grandiflòra Hort. - 1114

Genista.

Pallàsi Lecèbe. 1114

Astrag'alus.

Astragalus.
fruticosus Dec. 1114

Rosíceae.

Amygdalus.
Pallàsi Lecèbe. 1114

Prunus.

Mume Sieb. - 1114

Cerasus.
L. var çoléchica 1114
L. var. Emeréllí(?) 1114

Spíresa.

Lindl. 1114
laceolàta Poir. 1114
S. Reesteriana Hort.

Nuttallìa.

Nuttallia.
carisiiformis Tor. 1115

Oleòceae.

Oleaster.
lasiocárpus Royl. 1115
dérbus Dec. - 1115

Cratégus.

Oxyac. oxýphylla 1115
O. frútéucocoéne 1115
Pyrae. fr. Alb. H. 1115

Pyraeae. 1115

e. var. populiöffòlia 1115
c. var. olténgàndra 1115
e. var. môllis - 1115
dextròfìolia Tor. 1115
eaèstivaéis T. et G. 1115

Cotonea'ster.

Cotoneaster.
baccárius Wall. 1115

Amélanc'hière.

Amelanchier.
(v.) ovális subsecordáta - 1115

Py'rus.
heteróphylla B. 1115

Philadelphàceae.

Philadelphus.
mexicànius Benth. 1115

Grossúscæae.

Prunus.
taurícum Jacquin 1116

Araliàceae.

He'dera.

Hé'dera.

Co'rusn.
grándis Benth. - 1116

Sambühràceae.

Sambucus.

Viburnum.

Avestàki Sieb. ? 1116

Michellàceae.

Lonicérà.
ciliòsa Poir. - 1116

Eriacèae.

Arctostàphylos.
pungens H. et B. 1116

Pernettya.

angustòfìolia Lindl. 1116

P. phyllyrceàfòlia Hort.
AN ANALYSIS
OF THE COMMONER TREES AND SHRUBS OF BRITAIN,
WITH REFERENCE TO THEIR USES IN PLANTATIONS.

* * * Where the Generic Names only are given, the reader is left to select the Species and Varieties for himself. This he will readily be able to do by turning to the pages referred to after every Generic Name, and consulting the Popular Descriptions. The insertion of the names of all the Species and Varieties in this Analysis would have swelled it to ten times its present bulk.

TREES

Tree grown chiefly useful Purposes.

Selected with reference to their Size.

Large-sized timber trees.


Middle-sized timber trees.


Small-sized timber trees.


Selected as suitable to be grown in Masses. - Social Trees.


Selected as suitable for being grown singly, or in scattered Groups. - Solitary Trees.


Ev. - Cuprésus sempervirens, 1073.

Selected for the sake of their produce in Timber.

Produced in a short time, with a straight trunk.


Produced in a short time, with a branchy head.


Ev. - Pinus Pinaster, P. sylvâstris, P. Laricio, and P. Pallasiana, 950.

Selected for the Quality of the Timber to be produced.

Soft woods.


Hard woods.

ANALYSIS OF THE COxMMONER TREES AND SHRUBS,

ix

Very hard, compact, and durable woods.
Ccrasus,

iJfc/d.
270.

Robiiim, 23:^.
Cupressus, 1073.

JSuxus,703.

.

,n
213.

Laburnum,

Crata!~gu3, 35i. Cytisus

-27(3.

Pyrus, 417.

r-

;

,

Juniperus, 1080.

l-jG.

,n

t,

^utoymus, 149. PrunuSr
r>inr.ji
G3L

,

i~lex,

Phillyrea,

Thiija, IOCS.

llesmous woods.
Dccid.
iarix, 1033.
^~bies,

!).

For

its

Picca, 103G.

Cfedrus, 10S7.

102.5.

Selected for the charactei- of the

^

^.

Kiius, 9o0.

Head.

eeneral bulk.

^.

,-

,

m*

^

^E'sculus Hippoc&stanum, 124
.-i'cer Pseiido-Plat-inus, and A. obtnsatura, 79.
1053. Pupulus,
most^of
CarpinusPctulus.Olfi. Pagus sylvatica, -Ji)'). Parix europas'a,
J iha europic a,
several
846.
s;ilix,
species, 44.
819.
Cerris,
(iuercus
till! species,
G3.
f/'lniu's, most of the species, 715.

Bcrid

/

,

Finns

Ev.

sylvestris,

P. Laricio, P.Pmaster, and P. Pallasza, 9o0.

Ji'lnus glutin&sa laclniata, 832.

"'"'''Ivji".^

^"bies, 1025.

y.

Populus

6"lmus campestris

Quercus Cerris, 846.

Picea, 103G.

fastigiilta,

and P. monililera,

hVi.

stricta. 715.

Plnus, 950.

'"

"prt^/rf!'-!."casttnea vesca, 91 1.
pedunculkta, 846. i7'lmus

a view to tlie production of
For general purposes.

Selected tviih

Kigus sylvitica, 905.
montana, 715.

Praxinus excelsior, 639. Quercus-

Skelter.
,

.

Carpmus Petulus, 010.
Acer Psciido-Platanus. 79.
Vecid
Parix europa;~a, 1053. Populus alba, 819. Pyrus ^~na, 417.
Plnus sylvestris, 950.
For drawing up voung plantations.

,-,

_

Dec?d.BeHx\A

XJirix europa^'a, 10o3.

alba, 837.

,

^

,,_

.

t,a

Pj-rus aucuparia, 41/.

balsamifera, and P. candicans, 819.
Pinus sylvestris, 9aO.
Pti.
yJ'bies exceisa, 1('25.
For protection from the sea breeze.
A'ce.T Pseudo-Platanus, 79.
Wippuphae RhamnolUes,
Dccid.
513.
,
Pyrus ,4Via, 417. Sambticus nigra,

'

Pdpu.us

.

.

.

..

.

Pagus syivatica, 905,
L'lmus montana, 71j.

COS.

POpulus alba,

Selected for the production of Shade.
For shade in summer only.
Most deciduous species.

For shade

in

summer and

winter.

Most evergreen species.
Selected as adapted for particular Soil.
Gledi'tsclna triacanthos, 249.
905.
vulgaris and C. sylvestris, 276. Pagus svlvatica,
1053. Pyrus ^'ria, and P. aucuparia,
i/ii;p6phae Rhamnoldes, 608. iarix euroi]iB"a,
Ro'uinia.Pseudo Achci^, 233.
417.
Ey._P',nus sylvestris, P. Pinaster, and P. austriaca, 950.

'hl'cid

For moist

soils.

Decid.A'cev eriocarpum, and
dentaiis, 927.

Ev.

P6pulus, 819.

,

A. rilbrum,

/9.

.

,

^

o

^'Inus glutmOsa, 832.

n,
Platanus occi-

Aalix, 744.

^"bies communis, 1025.

'^

^PraV/

Ev

/i'bies

communis,

1025.

""^

!e'scu1us Hippocastanum, 124. farya aiba, 73.5. Castanea vesca. 911. Jiiglans
819. auercus, most species, 846. Sklix., 744.
regia, 732. P6pulus, most of the species,

^i)ec!rf.

I/'lmus, 715.
Selected as adapted for particu.'ar Situations.
On elevated surfaces.
Pttula alba, 837. P?rus ^'ria, and P.
Decid.
i^inus sylvestris, and P. Cembra, 950.
Ev.

n

,,..

.

aucupana, 417.

o

i,v

>

Sambttcus nigra,

-1.1
.al3.

^

Sheltered bv houses.
,
^
.
n,r>
^
7iiia
Platanus, 927.
P6pulu3 fastigi;\ta, 819.
A'QfiT Psetido-Platanus, 79.
Decid.
^
[/'Imus campestris, 715.
curopis'a. 63.
sea
breeze.
Exposed to tiie
,,,
Pdpulus alba, 819.
P<'tvrf
Pyrus .-i'ria, 417. Sambticus nigra, 513.
,

Selected for being grcirn for special P'urposes.
For producing an immediate screen, so dense as to interrupt the view.
Decid.
U'lmus campestris and U.
Illia europa;'a, 63.
lus. 91G.
Pagus syivatica, 905.
montana, 715.
^
,
t,
t>r.-n
P. Laricio, and P. Pinaster, 9o0.
Ev.A"bies excclsa, 1025. Plnus
sylvestris,

Partially to interrupt the view.

^
^, j
Petula alba, 837. Cerasus sylvestris, 27G. Praxinus excelsior, r39. r.leditschirt
2,33.
triacanthos, 249. Populus tremula and P. grie'ca, 819. Robinia Pseud-/Jciicia,
For producing timber in hedgerows.
^
CiXrya alba, /o.i. CasDecid. .rccv Psciido-Platanus, 79. ^//a?j<i glandulbsa, 145.
tanea vesca, 911.
Pyrus commanis, 417. fiuercus pedunculkta. Q. sessilifiCira,
U'lmus campestris, 715.
Q. Cerris, Q. rilbra, Q. coccinea, and Q. palustris, 846.
For forming avenues.
^'scnlus
79.
-.'cer Psetido-J^latanus,
Hippocastanum, 124. Carpinus Petuhis
Decid
and C. vulgaris, 276.
916
Carya alba, 735. CastClnca vesca, 911. Cerasus sylvestris.
/.arix
732.
305.
europs^a, 1053. Platanus orientalis,
regia,
JClglans
Pagus
,

jjfCirf

syivatica,

and P. occidentalis, 927. /'opulus, most of the si)ecies, 819. Pyrus commiin is, .and
P. ilfalus, 417. Ouercus, many of the species, 846 Pobinm Pseiid--:Jcacia. 233. P'lmus,
most of the species, 715.


Selected with reference to their Uses in Plantations. 1xi


For forming lofty hedges.


Tàxus europae, 115. Ulûmus campestris, 715.


For being periodically cut down as coppice-wood, but not in the shade of other trees.


For being periodically cut down as coppice-wood, in the shade of other trees.


Selected in part for their produce in Frutas or Seceda.

Used in various arts and manufactures.


Used in household economy.


As food for singing-birds, game, or wild animals.

Decid. — Crataegus, 362. Ìxus aucupâria, 417. Ìlex Aquifóllum, 156.

Selected in part for their produce in Bark.

For the tanner.


For other arts.

Ev. — Ìlex Aquifóllum, 156. Tàxus europæa, 53.

Selected in part for the use of their Leaves.

As substitutes for spent tan in gardens.


As producing, by decomposition, leaf-mould.

All trees, especially the broad-leaved kinds.

As winter food for cattle.


Thîa, 63. Ulûmus, 715.

Trees grown chiefly for Ornamental Purposes.

Selected with reference to their Bark.

Large-sized ornamental trees.


Middle-sized ornamental trees.


Thîa, 63.


Quercus, 846. Tàxus, 593, &c.

Small-sized ornamental trees.


Selected with reference to their Form.

With upright oblong or globose heads.


With spreading heads.


Pèrâca, 255.

With conical heads.

Decid. — Lârix, 1053. Taxídium, 1077.


Píceâ, 1036. Pinus, 950. Thûja, 1068.

With spiry heads.


Ev. — Tàxus baccâta fastigâita, 939.

Selected with reference to their Mode of Growth.

With pendant shoots and branches.

ANALYSIS OF THE COMMONER TREES AND SHRUBS


Ex.—Cupressus pædula, 1073. Iex Aquifolium, T. pædulae (both rare), 196. Juniperus recurva, 1630.

With vertical shoots and branches.

Decid.—Cærpinus Betulus, 916. Fagus sylvatica, 905. Gynaecædus canadensis, 255. Pyrus Aria, and P. accompania, 417. Ulmus montana fastigiate, 713; and the other fastigate or spire-headed trees enumerated above.

With horizontal shoots and branches.


Selected with reference to their Foliage.

Duration.

Deciduous ornamental trees.

Developed early in spring.


Developed late.


Dropping early.


Dropping late.


Persistent, even remaining on in a withered state till spring.


Evergreen ornamental trees.


Subevergreen ornamental trees.


Form and character.

Simple leaves.

Large.


Ex.—Magnobîla grandiflora, 21.

Small.


Linear, or needle-like.

Decid.—Lærix, 1053. Taxodium, 1077.


Compound leaves.

Large.


Small.


Colour.

In deciduous trees in early summer.

Light, or yellowishgreen.


Ex.—Quæerus peduncula, and Q. sessiflora, 484. Sâlix, 744. Tàljia, 63.

Dark-green.


Purplish.

Decid.—A’cer Pæoold-Platanus purpurâscens, 79. Fagus sylvatica purpurâscens, 593. Quæerus peduncula pedunculæscens, 816.

Variegated.

WITH REFERENCE TO THEIR USES IN PLANTATIONS. Ixiii

In deciduous trees in autumn before falling off.
Red or purple.


Yellow.


Green, or without changing colour.


Brown, or without bright colour.


in evergreens.

Light green.


Dark green.


Variegated.


Fragrant leaves.


Selected with reference to their Flowers.

Produced in spring.

Red or purple.


Yellow.


White.


Variegated.


In summer.

Red or purple.

Decid. — Robinia hispida, 233.

Yellow or orange.


White or whitish.


Variegated.

Decid. — Catalpa, 662.

Selected with reference to their Fruit or Seed.

Large and showy.


Small, but conspicuous from colour and quantity.


Singular in form or character.


SHRUBS.

SHRUBS GROWN CHIEFLY FOR USEFUL PURPOSES.

Selected as adapted for Coppice-Woods.


Selected as adapted for producing Shelter for Game.


Selected as adapted for Hedges.


SELECTED WITH REFERENCE TO THEIR Botanical NAMES.

LARGE-SIZED SHRUBS


**Ev. — Athribis, 573. Buxus, 703. Ilex, 156. Juniperus, 1080. Laurus, 681. Phil lýrea, 63.**

SMALL-SIZED SHRUBS


UNDER-SHRUBS


SELECTED WITH REFERENCE TO THEIR FORM AS BRUSHES.

With compact roundish heads.


With open, rather irregular, heads.


With conical or pointed heads.

**Ev. — Cuprássus, 1073. Ilex, 156. Juniperus, 1080. U'lex stricta, 192.**

SELECTED WITH REFERENCE TO THEIR Mode OF GROWTH.

With bushes upright shoots and branches.


**Ev. — Juniperus suécica, 1081. U'lex c. stricta, 190. Buxus h. stricta, 393. Thúla o. stricta, 1699.**

**Ev. With bushes pentagon shoots and branches.**

**Climbers.

**By tendrils, or grasping fibrils.


**By twining stems.


**By elongated slender stems.


**Trailers: the branches prostrate, but not generally rooting.


**Creepers: the branches prostrate and rooting.

**Ev. — Rhus, 186. Rhus, 311.

Ev. — Epíca r. repens, 590. Mahónia r. repens, 50. Oxycocceus, 615.**

SELECTED WITH REFERENCE TO THEIR Foliage.

**Duration.

**Deciduous.

Developed early in spring.


Developed late.

Persisting; remaining on in a withered state.


Evergreen leaves.


Evergreen, from the colour of the shoots.


Subevergreen.


Form and character.

Simple.

Large.


Small or narrow.


Linear, hearth-like, or needle-like.


Compound.

Large.


Small.


Colour.

In deciduous shrubs when first developed, or in early summer. Light, or yellowish, green.


Glaucous green.


Purple.

Decid. — Corylus avellana purpurea, 921. Berberis vulgaris purpurea, 42.

Variegated.


In shrubs in autumn before falling off.

Red.


Yellow.

Selected with reference to their Flowers.

Produced in early spring.

Red, blue, or purple.


Yellow or orange.


White or whitish.


Variegated.


Produced in autumn.

Red, blue, or purple.


Yellow or orange.


White or whitish.


Variegated.


Fragrant flowers.


Selected with reference to their Fruit or Seed.

Large and showy.


Small, but copious from colour and quantity.


Singular in form or character.

ANALYSIS OF THE GENERA DESCRIBED, ACCORDING TO THEIR LEAVES.

Leaves simple.

Alternate, stipulate, (a) - Page lxvii.
Alternate, exstipulate, (b) - - lxix.
Alternate, stipulate, or exstipulate - - lxix.
Opposite, stipulate, (c) - - lxix.
Opposite, exstipulate, (d) - - lxix.

Opposite or alternate, stipulate - Page lxxi.
Opposite or alternate, exstipulate - - lxxi.
Opposite or alternate, stipulate or exstipulate - - lxxi.

Leaves compound.

Alternate, stipulate, (e) - - lxxi.
Alternate, exstipulate, (f) - - lxxi.
Opposite, stipulate, (g) - - lxxii.

Opposite, exstipulate, (h) - - lxxii.
Alternate or opposite, stipulate - - lxxii.

Leaves simple or compound. Alternate, stipulate - - lxxii.

Leaves simple.

Alternate, stipulate.
Deciduous.
Entire along the margins.
Three-lobed, fiddle-shaped - - LIRIOPE'NDRON Page 36
Linear, caducous, slender - - U'LEX - - 159
Heart-shaped, reddish - - CERCS - - 255
Coriaceous, roundish, rough - - CALYCA'NTHUS - - 432
Coriaceous, oblong-lanceolate, smooth - - CHIMONA'STHUS - - 454
Ovate or cuneate - - HANANE'LLA - - 499
Lanceolate - - STILLINGIA - - 702
Serrated.
Cordate (one variety laciniate) - - TYLIA - - 63
Lobed or laciniate - - IVY'TIS - - 136
Oval-lanceolate - - CELA'STRUS - - 134
Ovate or cordate, 3-nerved, with spines in the axils PALIO'NUS - - 169.
Lanceolate, conduplicate when young - 
Ovate, convolute when young - 
Ovate, conduplicate - 
Roundish, downy when young - 
Lanceolate, often nearly entire - 
Oblong, usually unequal at the base, harsh to the touch - 
Oblong, unequal at the base, rough above - 
Lanceolate or ovate - 
Lobed, with glands in the serratures - 
Deeply cut or lobed, fan-serrate - 
Entire or serrated. 
Ovate, tormentose beneath - 
Ovate, the disk oblate, and the petiole compressed - 
Ovate, glabrous, aromatic in odour - 
Ovate, sometimes cut - 
Oblong-lanceolate - 
Ovate, rough above - 
Roundish, rough - 
Dentate, notched, or otherwise cut at the edges. 
Ovate, variously lobed - 
Denticulate, 3-lobed - 
Lobed, angular, or toothed - 
Lobed, or deeply cut - 
Ovate or obovate, with soft starry down - 
Palmate and subtriangular - 
Palmate, divided - 
Entire, serrate or dentate, or otherwise cut at the edges. 
Rough on the upper surface - 

Evergreen. 
Entire. 
Full of pellucid dots - 
Serrate. 
Wedge-shaped, pinna-tailed - 
Lanceolate, glaucous beneath - 
Entire or serrated. 
Shining - 
Deciduous, evergreen, or subevergreen. 
Entire. 
Large, aromatic when bruised - 
Linear, small, semi-cylindrical - 
Oval or ovate - 
Serrate. 
Conuplicate when young - 
Lobed or sinuate, sometimes lanceolate - 
Besprinkled with resinous dots - 
Entire or serrated. 
Ovate or lanceolate - 
Ovate or elliptic - 

Alternate, exstipulate. 
Deciduous. 
Entire. 
Oblong, articulated with the stem - 
Peltate or cordate - 
Cordate, ovate, or lobed - 
Ovate, serrated at the apex - 
Lanceolate, soon dropping off - 
Deeply cut and divided, apparently compound - 
Membranous, heart-like - 
Oblong, coriaceous, shining - 
Cordate, ovate, or lanceolate - 
Fascicled, lanceolate - 
Fascicled, coriaceous, glaucescent - 
Linear-lanceolate, hoary - 
Minute, caducous, evergreen bark - 
Lanceolate, coriaceous, pale green - 
Oblong or lanceolate - 
Lanceolate, beset with scales or stars of hairs - 
Linear-lanceolate, scaly and silvery - 
Cordate, downy beneath - 
Ovate, shining - 
Linear, in alternate fascicles - 
Linear, 2-ranked, flat - 
Serrate. 
Ovate, acuminate - 
Ovate, acute - 
Oval, mucronate - 
Obovate, cuneate, serrated at the tips - 
Obovate or oval, glabrous on both surfaces - 
Cordate or lobed, and rough - 
Lobed variously, sometimes entire, hairy - 
Entire or serrated. 
Oblong-lanceolate, or linear - 
Ovate, obovate, or oval-lanceolate - 
Ovate-acuminate - 

\( \text{Amygdalus} \) - 251 
\( \text{Armeniaca} \) - 267 
\( \text{Prunus} \) - 270 
\( \text{Kerria} \) - 268 
\( \text{Amelanchier} \) - 411 
\( \text{Menispermum} \) - 444 
\( \text{Ulmus} \) - 716 
\( \text{Celtis} \) - 727 
\( \text{Salix} \) - 744 
\( \text{Liquidambar} \) - 832 
\( \text{Salsiburya} \) - 944 
\( \text{Ilex} \) - 450 
\( \text{Potentilla} \) - 819 
\( \text{Rhus} \) - 837 
\( \text{Rosa} \) - 905 
\( \text{Cassia} \) - 911 
\( \text{Campsis} \) - 916 
\( \text{Osyrma} \) - 919 
\( \text{Corylus} \) - 921 
\( \text{Hibi} \) - 62 
\( \text{Zizyphus} \) - 167 
\( \text{Chamaecyparis} \) - 353 
\( \text{Ranunculus} \) - 464 
\( \text{Fothergilla} \) - 500 
\( \text{Ficus} \) - 712 
\( \text{Platanus} \) - 927 
\( \text{Ailus} \) - 832 
\( \text{Ilium} \) - 20 
\( \text{Carya} \) - 321 
\( \text{Stranvier} \) - 465 
\( \text{Photinia} \) - 463 
\( \text{Magnolia} \) - 621 
\( \text{Cheenopodium} \) - 675 
\( \text{Diospyros} \) - 623 
\( \text{Myrica} \) - 634 
\( \text{Rhamnus} \) - 170 
\( \text{Ceanothus} \) - 180
ACCORDING TO THEIR LEAVES.

Dentate, notched, or otherwise cut at the edges.
- Lanceolate, acute
- Oval, mucronate
- Pinnatifidly dentate, downy, with resinous particles

Evergreen.
Entire.
- Lobed or peltate, coriaceous, shiny
- Linear, cleft, small, whorled
- Acerose, whorled, glabrous
- Acerose, trigonal, imbricate in 4 rows
- Linear-lanceolate, mucronulate
- Acerose, very small, imbricate
- Acerose, on short petioles
- Oval, coriaceous
- Linear, spreading, heart-like
- Acerose, elliptic, flat, downy beneath
- Cordate-ovate
- Verticillately ternate, buds naked
- Oval, ovate, glabrous, small
- Linear or ovate, margins revolute, coriaceous, tomentose beneath

Narrow or linear, crowded
- Linear, sheathed, needle-like
- Linear, scattered, needle-like
- Linear, 2-rowed, needle-like
- Linear, in alternate fascicles
- Acerose, imbricate
- Linear, tongue-shaped, obtuse
- Linear, needle-shaped, spreading
- Alike green on both surfaces, usually floriferous
- Eastform, pointed, alike on both surfaces

Serrated.
Linear, small, crowded, spreading
- Roundish-oval, small

Entire or serrated.
- Terminating in a tendril, cordate, oblong
- Oblong-lanceolate, coriaceous, shining
- Linear, linear-linear, more or less 2-ranked

Dentate, notched, or other wise cut at the edges.
- Oval-ovate, coriaceous, often prickly
- Oblong or ovate, small, odour of turpentine
- Linear, hoary or silky beneath
- Linear, small, rowed, tomentose
- Pinnaled, tomentose, white and mealy beneath
- Spinulose, coriaceous
- Ovate, small, approximate, stiff, shining
- Ovate, subcordate, ciliate, coriaceous, glabrous, or shining

Deciduous evergreen.
Entire.
Linear, stem-clasping, small
- Linear, broader at the base, sessile, small
- Oblong-lanceolate, coriaceous, shining
- Ovate or oval, coriaceous, crowded, glabrous
- Terminated by a spathulate (withered) apex, or yellow gland
- Ovate or elliptic, smooth, small, with revolute margins

Lanceolate, bluntish
- Broad, lanceolate, glabrous
- Lanceolate, smooth on both sides
- Ovate-cordate or hastate
- Spathulate, with a frosty hue
- Oblong-pointed, sometimes lobed
- Linear-lanceolate, small

Serrated
- Oblong, coriaceous, smooth, downy beneath

Entire or serrated.
Oval or lanceolate
- Obovate or oblong, full of resinous glands, smooth
- Obovate, coriaceous, shining
- Membranous, often beset with resinous dots
- Reticulated, alike on both sides

Evergreen or subevergreen.
Dentate, notched, or otherwise cut at the edges.
- Coriaceous, in tufts at the axils
- Obovate, glaucous

Stipulate or estipulate.
Deciduous.
Dentate.
- At the apex obconic
- Ovate, unequal at the base, rough, dark green

Deciduous, evergreen, or subevergreen.
Entire.
- Generally woolly beneath

Legend:

- P'TEA
- ZENGA
- COMPTONA
- HEDERA
- EUCALYPTUS
- GYPSOCA LLIS
- CALLUNA
- ANDROMEDA
- CASSANDRA
- PETRIS
- PHYLLODOC
- DAGEULA
- EPIGAEA
- KALMIA
- LEOPHYLLUM
- LEUM
- PHILOMIS
- ROSMARINUS
- LAYANDULA
- NAPLIA
- TACAMARUS
- ARAGANIA
- CAROBERUS
- CHIRATOL
- COREMA
- VITICUS
- SANTOLINA
- BRYANTHUS
- PHALEROGCA RFES
- MUTINIA
- AERUTUS
- CUNNIGHAMMIA
- SANTALINA
- BALENIO
- GAILTHERIA
- OXYCOCCUS
- ARGANIA
- JUMELIA
- FONTANESIA
- SOLANUM
- TRAGOPARUM
- LAURUS
- SYRIS
- GORDONIA
- PRILOS
- ESCALLO NIA
- ARCTOCEPHALOPHLOS
- FACCYNIUM
- SMILAX
- BERNERS
- TELLA
- PUBESIA
- PLA'ERUS
- COTONEASTER
Opposite, stipulate.

Deciduous.

Entire.

- Minute, caducous, bark evergreen
- Deciduous, entire
- Odontoloma - 178
- Symphyotrichum - 541
- Cephalanthus - 544
- Hydrangea - 548

Serrate.

- Ovate-acuminate
- Deciduous, evergreen, or subevergreen
- Opposite or alternate, stipulate
- Entire, connate
- Serrate or entire, petiolate, and shining
- Serrate or entire, petiolate, shining

Opposite, crenulate.

Deciduous.

Entire.

- Ovate-lanceolate, 3-ribbed
- Lanceolate, glabrous, large
- Opposite or alternate, stipulate
- Deciduous, evergreen, or subevergreen
- Connate
- Undivided, sessile, or sub-sessile, dotted
- Lanceolate, downy
- Opposite or alternate, petiolate
- Mullein
- Deciduous, evergreen, or subevergreen
- Deciduous, entire

Serrate.

- Ovate-lanceolate, sometimes lobed
- Lanceolate, rough, with dots
- Serrate or entire
- Ovate-lanceolate, evergreen, pale green with yellow spots
- Elytrigia - 511
- Avenula - 501
- Hyssop - 507
- Oenothera - 507
- Lycaste - 543
- Lanceolate, glabrous
- Linear and scale-like, deciduous, bark evergreen
- Euphrasia - 557
- Serrate or entire
- Opposite or alternate, stipulate

Subevergreen.

- Lanceolate, sometimes whorled
- Oblong, small-fascicled
- Deciduous, evergreen, or subevergreen
- Ovate-lanceolate, rough
- Rigida, pale green on both sides
- Glabrous, shining, sometimes small
- Linear, more or less 2-rowed
- Scale-like, closely imbricated, compressed
- Scale-shaped, minute, sometimes linear

Opposite or alternate, stipulate.

Subevergreen.

- 3-nerved or feather-nerved, hoary or pilose

LEAVES COMPOUND.

Alternate, stipulate.

Deciduous.

Entire.

- Bifoliate or bipinnate, strong-smelled
- Pinnate, 3-5-foliolate
- Trifoliate, pilose, or pubescent

- Adenocarpus - 227
- Atriplex - 675
- Helianthemum - 58
ACCORDING TO THEIR LEAVES.

Impari-pinnate - - - - Amo'raphi - 226
Impari-pinnate, beset with glands - - - - Evsenian'dria - 232
Abruptly pinnate, leaflets mucronate - - - - C1ara'ga - 237
Abruptly pinnate, leaflets 2 pairs - - - - Halimoe'dendor - 2
Impari-pinnate, leaflets orbicular - - - - Cal'opiaca - 245
Impari-pinnate, stipules small - - - - Colu'tea - 246
Abruptly pinnate, and bipinnate, or simple - - - - Aster'galus - 249
Bipinnate, 4—7 pinne - - - - Gleny'tschla - 249
Gymno'cladus - 255

Serrate.

Pinnate, 3—13, foliolate - - - - Xanthoph'yllum - 142
Impari-pinnate, doubly and trebly serrate, very large - - - - Aha'lia - 146
Dentate, notched, or otherwise cut at the edges. - - - - Köl'brete'ria - 134
Dentate or serrate.

Deciduous, evergreen, or subevergreen.

Entire.

Trifoliolate, stipules connate - - - - Pipta'nth'us - 198
Trifoliolate, often pubescent - - - - Cy'tisus - 213
Impari-pinnate, glabrous - - - - Koron'illa - 247
Serrate.

Impari-pinnate, stipules attached to the petiole - - - - Ro'sa - 321
Dentate or serrate.

Pinnate, pinnate or lobed, rough - - - - Ro'dus - 311

Alternate, estipulate.

Deciduous.

Entire.

Impari-pinnate, with 11—13 leaflets - - - - Saph'roza - 195
Impari-pinnate, with 9—11 leaflets - - - - Virgo'lia - 197
Impari-pinnate, leaflets petiolate - - - - Rob'i'na - 233
Impari-pinnate, leaflets ovate, pointed - - - - Wista'na - 248
Serrate.

Trifoliolate or bipinnate, leaflets ovate - - - - Cys'sus - 141
Impari-pinnate, 5—19 leaflets - - - - Ju'glans - 732
Impari-pinnate, 5—15 leaflets - - - - Cu'ha - 735
Impari-pinnate, 17 leaflets, sessile - - - - Pteroca'bya - 743
Dentate, notched, or otherwise cut at the edges.

Palmate, pinnate, or bipinnate - - - - Amel'o'psi - 139
Impari-pinnate, teeth glandulous on the under side - - - - Adlantus - 145

Evergreen.

Dentate or serrate.

Pinnate, coriaceous, dark green - - - - Maho'na - 50
Deciduous, evergreen, or subevergreen.

Entire.

Impari-pinnate, reddish green - - - - Pista'cia - 184
Conjugate, trifoliolate, tendril'd - - - - Brigo'na - 660

Opposite, stipulate.

Deciduous.

Serrate.

Pinnate, with compound and partial stipules - - - - Staphylin'a - 147
Dentate, notched, or otherwise cut at the edges.

Pinnate, the pinnae often bi-glandular at the base - - - - Samu'cus - 814
Dentate or serrate.

Pinnately divided, leaflets irregular - - - - Xanthorh'h'za - 19

Opposite, estipulate.

Deciduous.

Serrate.

Bipinnate, leaflets oblong lanceolate - - - - Atra'gena - 16
Impari-pinnate, leaflets nearly sessile, buds black? - - - - Bra'xinus - 630
(One variety has simple leaves, p. 642.)

Impari-pinnate, buds ash-coloured - - - - O'rus - 651
Impari-pinnate, leaflets 7—9, petioles marginal - - - - Tec'ola - 661
Dentate, notched, or otherwise cut at the edges.

Impari-pinnate, 3—5 leaflets - - - - Ne'gundo - 122
Impari-pinnate, leaflets rough - - - - Zer'culus - 124
Palmate, leaflets smooth - - - - Pa'via - 128

Deciduous, evergreen, or subevergreen.

Entire.

Pinnate, in decussating pairs - - - - Cle'mat'is - 2

Alternate or opposite, stipulate.

Subevergreen.

Entire.

Pinnately cut, hairy - - - - Poten'tilla - 319

LEAVES SIMPLE OR COMPOUND.

Alternate, stipulate.

Deciduous.

Serrate or entire.

Simple, or unequally pinnate - - - - Rius - 186
Simple, but sometimes pinnately divided - - - - Py'r us - 417
Dentate or serrate.

Usually simple, but sometimes pinnately cut - - - - Spire'a - 299
Deciduous, evergreen, or subevergreen.

Entire.

Lanceolate, linear, or trifoliolate - - - - Gen'i'sta - 265
Trifoliolate or pinnate - - - - Jash'num - 664
EXPLANATION OF SIGNS, &c.

Under the titles of the orders are given signs, intended to show at a glance the general habit of the trees or shrubs described in each order. These signs represent large, small, and middle-sized plants, and are as follows: the first sign in each row indicating a deciduous tree or shrub, the next an evergreen, and so on alternately:

1. Round-headed trees; such as the oak, ash, elm, beech, chestnut, &c. Deciduous and evergreen.

2. & 3. Spiry-topped or conical trees; such as the spruce fir, silver fir, larch, pine, deciduous cypress, &c. Deciduous and evergreen.

3. Evergreen fir.

4. Fastigate trees; such as the Lombardy poplar, evergreen cypress, pyramidal oak, &c. Deciduous and evergreen.

5. Drooping trees; such as the weeping willow, weeping elm, &c.

6. Shrubs of the largest size, and also middle-sized shrubs. Deciduous and evergreen, but exclusive of twiners, climbers, trailers, &c.

7. Under-shrubs, or shrubs of the smallest size. Deciduous and evergreen, but exclusive of twiners, trailers, &c.

8. Twining shrubs; such as the honeysuckle, aristolochia, &c. Deciduous and evergreen.

9. Climbing shrubs; such as the clematis, amelopalis, vine, &c. Deciduous and evergreen.

10. Trailing shrubs, the branches of which lie prostrate on the ground, but do not root into it; such as many species of willow, Cytisus, &c.

11. Creeping shrubs, or such as send up shoots from their creeping roots; as many species of Spiræa, &c.

The signs put before each individual species and variety are the same as those used in the Gardener's Magazine, and in the Hortus Britannicus, viz.

- Deciduous tree.
- Deciduous shrub.
- Evergreen shrub.
- Deciduous under-shrub.
- Evergreen under-shrub.
- Evergreen twiner.
- Deciduous twiner.
- Deciduous climber.
- Evergreen climber.
- Deciduous trailer.
- Evergreen trailer.
- Deciduous creeper.
- Evergreen creeper.

Accentuations and Indications.

All the botanic names throughout the Work are accented, and have their origin indicated, as in the Hortus Britannicus and the Gardener's Magazine. The vowels which are sounded short are marked with an acute accent, thus (′), as A'ceras; and those which are sounded long are marked with a grave accent, thus (¨), as A'brus. The origin of each name is indicated thus: if the name has been applied to a plant by the ancients, the first letter is in Italic, as Pinus; if it is commorormite of some individual, the letters additional to the name are in Italic, as Bânkia, Lambertia, Douglasia; and if an aboriginal name has been adopted, or if the name is of uncertain derivation, the whole word is in Italic, as Ailanthus, Caragana, &c. Where the name would otherwise be in Italic, as in the case of synonyms, headings to paragraphs, &c., these distinctions are, of course, reversed, as Pinus, Bânkia, Ailanthus. All the other scientific names, generic or specific, are composed from the Greek or Latin, except a very few which are taken from places: as Araucaria, from the country of the Araucanians; Quercus granitum, from the estate of Gramont, &c.

The Engraved Figures.

Are all to the same scale of 2 in. to 1 ft., or one sixth of the natural size; with the exception of details, which, when given, are generally of the natural size, and indicated by a cross, thus, †.
Trees and shrubs, in common with all other flowering plants, are arranged by botanists in two grand divisions; viz. the Exogenous, or Dicotyledonous, Plants, the stems of which increase from without, and the leaves of which have reticulated veins; and the Endogenous, or Monocotyledonous, Plants, the stems of which increase from within, and the leaves of which have parallel veins. The first class includes all the hardy trees and shrubs in Britain, with the exception of shrubs of the genera Yucca, Smilax, Ruscus, and one or two others, which belong to the second class. We shall arrange the genera and species under the same subdivisions, subclasses, sections, orders, and tribes, as we have adopted from De Candolle in our Hortus Britannicus.

Class I. *EXOGENÆ.*

*Stems increasing from without; Leaves with reticulated Veins.*

Subdivision I. *DICHAMYDEÆ.*

*Calyx and Corolla distinct, by which they are distinguished from Subdivision II., in which the flowers have only a calyx.*

It is in consequence of this high development of the floral envelopes, that the greater part of handsome-flowering trees and shrubs are found in Dichlamydeæ, it rarely happening that those with a single floral envelope have any brilliant colouring.

Subclass I. *THALAMIFLORÆ.*

*Flowers with Petals and Stamens inserted in the Receptacle.*

This subclass contains all the Polyandrous plants of Linnaeus; as the subclass Calycifloræ, in which the stamens are seated on the calyx, contains all the plants of the Linnaean class Icosandria.

Section I.

*Carpella, that is, the component Parts of compound Capsules or Fruits, numerous; or the Stamens placed opposite the Petals.*

Order I. *RANUNCULACEÆ.*

*The Diagnostic, or Distinctive, Character, or, as we shall term it, the Ordinal Character, of this order, is thus given by Dr. Lindley:—* "Polyptalious,
with hypogynous stamens [that is, stamens under the pistil]; anthers bursting by longitudinal slits; several distinct simple carpella [fruits]; estipulate leaves, sheathing at their base; solid albumen; and seeds without arillus." (Nat. Syst., p. 6.) — Climbing shrubs scarcely woody, and low suffruticose bushes. Natives of Europe, Asia, and North America.

Leaves generally alternate, but sometimes opposite, generally exstipulate; deciduous, or evergreen; much divided, especially in Clématis, in which the leaves are not articulate with the stem. The petioles often serve as tendrils; and are dilated at the base, forming a sheath half-clasping the stem. Hairs if any, simple. Inflorescence small in Xanthorrhiza, and some species of Clématis, and large in Péoniæa. Seeds small and pointed, except in Péonia. — The species in British gardens are included in two tribes, Clematidæ and Péoniææ, which contain the genera Clématis, Atragene, Péonia, and Xanthorrhiza.

Tribe I. Clemati'dæ.

Tribal Character. Climbers, characterised by having the aestivation of the calyx valvate or induplicate; with no petals, or with the petals flat; the anther opening outwards; the carpels, or seed-vessels, not opening, one-seeded, terminated by a tail, which is the indurated style. Seed pendulous. Leaves opposite. Deciduous and evergreen climbers. — The genera are two, Clématis and Atragene, which are thus contradistinguished:

Clematis L. Petals none. Atragene L. Petals several.

Genus I.


Identification. The word Clematis was, as well as Atragene, used by Theophrastus, to designate the Clématis Vitælis of Linnaeus. Clematis was used by Matthiolus, and also by Clusius, who applied it to C. Vitæulis L. and C. cirrhosa L.

Synonymes. Ladies' Bower Gerard; Clématis, Fr.; Waldrebe, Ger.; Clematide, Ital.

Derivation. The word Clematis, or Klematis, is derived from the Greek word κλῆμα, a small branch of a vine; and it is applied to this genus, because most of the plants composing it climb like a vine. The English name of Ladies' Bower was probably adopted from its suitableness for covering bowers; and, as the first kind of Clematis brought to England (C. Vitæilla) was introduced in 1592, during the reign of Elizabeth, the name of Virgin's Bower might be intended to convey a compliment to that sovereign, who, as it is well known, liked to be called the Virgin Queen. Waldrebe is compounded of wald, a wood, and rebe, the branch of a vine.

Generic Character. Involucre none, or situated under the flower, in the form of a calyx. Calyx of from four to eight coloured sepals. Petals none. Carpels numerous, aggregate, terminated by a long, and mostly feathery, tail.—Climbing shrubs with variously cut opposite leaves. The recent herb of all the species is acrid, and, when applied to the skin, it occasions blisters. (Don's Mill.) The seed is pendulous, and the carpels are one seeded; each is terminated by a persistent style, and does not open until ruptured by the germination of the seed.

Leaves compound, opposite in decussating pairs, without stipules, deciduous or evergreen; the petiole possessed of a clasping power for attaching the plant to contiguous bushes, or similar objects; in all the species, more or less persistent after they are decayed. Flowers in axillary ramose panicles; small and white in some, and in others larger and highly coloured. Seed
small, seldom seen divested of its envelope, as that never bursts till after it is committed to the soil.—The species are included in four sections; viz. Flammula, Viticella, Cheiropsis, and Anemoniflora.

Root strong; the fibres rather straight, and not very much branched; extended in the soil rather horizontally than perpendicularly. Stem ligneous, not rigid enough to stand erect. Branches the same, and slender. Well adapted for covering bowers, or for ornamenting verandas or trelliswork. The greater number of the species ripen their seeds in England, and are easily propagated by them, or by layers. The seeds retain their vitality for several years; they are of slow vegetation, and ought to be sown as soon as gathered, in which case they will generally come up the following spring; though, sometimes, not till the second spring. All the species require support by props of some kind; and all, with one or two exceptions, grow freely in any soil that is tolerably dry, but more especially in one that is calcareous. From the acridity of these plants, they are not very liable to be attacked by insects; nevertheless, snails and slugs are occasionally found eating their young herbage.

§ i. Flammula Dec.

Sectional Character. Involucre wanting. Tail of the carpels long, bearded and feathery. Cotyledons distinct (that is, slightly separated) in the seed. (Don's Mill., i. p. 3.) Deciduous.

1. Cle' Mattis Flammula L. The inflammatory-juiced Clematis, or sweet-scented Virgin's Bower.


Don's Mill., 1. p. 4.


Derivation. From flammar, to inflame; on account of the blistering qualities of the species.

Engravings. Park. Theat., p. 381. t. 5.; and our fig. 1.

Specific Character and abridged Description.

Leaves pinnate, smooth; with orbicular, oval, oblong, or linear, entire or three-lobed, acutish leaflets. (Don's Mill.) A deciduous climber. South of Europe; in hedges and waste bushy places, not far from the sea, and in soils more or less calcareous. Height 10 ft. to 15 ft. Introduced in 1596. Flowers white, sweet-scented; July to October. Fruit white; ripe in October. Leaves deep green, often remaining on the plants till mid-winter, and dying off black.

Varieties and their Synonyms. The most distinct is C. F. maritima; the rest are of little importance.

1. C. F. 2 rotundifolia Dec. C. fragrans Tenore.—Leaflets almost orbicular.

1. C. F. 3 maritima Dec.—Leaflets linear.

1. C. F. 4 rubella Dec.—Leaflets oval, usually emarginate. Sepals four, reddish on the outside.
A vigorous-growing plant, the stems of which rapidly attain the length of from 15 ft. to 30 ft. in a state of culture. The leaves are subject to much variation, from soil, situation, and climate. The peduncles of the flowers are sometimes simple, and sometimes branched. The colour of the sepals is white, slightly pubescent on their exterior margins. The whole plant has a dark green hue; and in autumn it is abundantly covered with flowers, the odour of which is of a honied sweetness, exceedingly disagreeable to some persons when near, though at a distance it is not unlike the fragrance of the common hawthorn. From the rapidity of its growth, it will in four or five years cover a very large space of wall, roof, or bower. Its heritage is considered less acrid than that of any other of the European species, notwithstanding its name of Flammula.

2. C. orientalis L. The Oriental Clematis.


Engravings. Dict. Eth., t. 119. f. 145.; and our fig. 2.

Spec. Char., &c. Leaves pinnate; leaflets smooth, wedge-shaped, with three toothed pointed lobes. (Don's Mill.) A deciduous climber. Levant and Caucausus. Height 10 ft. to 15 ft. Introduced in 1731. Flowers greenish yellow slightly tinted with russet, sweet-scented; July, August. Fruit white; ripe in October. Leaves somewhat glaucous, dying off black or dark-brown.

Varieties. C. glauca Willd. and C. ochroleuca Hort. are, by some, alleged to be varieties of C. orientalis; but we do not consider them sufficiently distinct for varieties, and have, therefore, included these names in our synonyms.

The general magnitude of this species resembles that of C. Flammula, from which it differs in its ultimate branches being more persistently ligneous, though the main stem in old plants is seldom seen so thick as that of C. Flammula. It is also distinguished from the latter species by throwing up suckers freely, which the other does not. Its leaflets are glaucous, flat, large as compared with those of C. Flammula; and it does not produce flowers so profusely as that species. The flowers are yel-
lowish, and not so strongly scented; and the carpels are dissimilar, though still cottony in appearance when the seed is ripe.


Synonyme. C. sinensis Lour. coch. 1, p. 422.

Engraving. Our fig. 3.


A plant in the Horticultural Society's Garden, grows vigorously against a wall, producing shoots as long and strong as those of C. Flammula; and retaining its leaves till they are blackened by frost. It has never flowered; but, in its leaves and its general appearance, it seems to resemble C. orientalis, except that the leaves are of a dark purplish green, instead of being glaucous.


Derivation. Because of its decked and adorning the ways and hedges where people travel," says Gerard, "I have named it the traveller's joy."

The name of Old Man's Beard is very appropriate to the white and hairy appearance of the tails of the carpels; and Bindwith, from the shoots being used instead of those of willows for tying up plants. White Vine is supposed to allude to the white appearance of the tails of the carpels in autumn. The French name of Clématite brulante has reference to the acrid properties of the plant; and Clématite des Haies to its growing generally in hedges. The name of l'Herbe aux Gueux refers to the employment of it by the beggars in France, who use it to make ulcers in their arms and legs, for the purpose of exciting compassion, curing themselves afterwards by the application of the leaves of the beet. La Viorne des Pauvres alludes to the same practice, Viorne being evidently derived from Viorna.


Spec. Char., &c. Leaves pinnate; leaflets ovate-lanceolate, acuminate, cordate
at the base, partly cut. Peduncles forked, shorter than the leaves. (Don's Mill.) A deciduous climber of vigorous growth. Europe and Britain, in hedges and copses, always indicating a calcareous soil. Height 15 ft. to 30 ft.; in rich soil, and in a sheltered situation, 50 ft. to 100 ft. Flowers white; August, September. Fruit white; ripe from October to February. Leaves long retained, and dying off black or dark brown.

The stems are woody, more so than those of any other species, angular, climbing to the height of 20 or 30 feet, or upwards, and hanging down from rocky cliffs, ruins, or the branches of trees; or being supported by, and forming tufts on, the upper surface of other shrubs or low trees, which they often so completely cover as to have the appearance of bushes at a distance. The footstalks of the leaves are twined about whatever object they approach, and afterwards become hard and persistent, like the tendrils of a vine. The leaflets are either quite entire, or unequally cut; sometimes very coarsely so. The panicles are axillary and terminal, many-flowered and downy. The flowers are of a greenish white colour, with little show; but they have a sweet almond-like scent. The seeds (fig. 5.) have long, wavy, feathery, and silky tails, forming beautiful tufts, most conspicuous in wet weather. The French gardeners use the twigs instead of withs, for tying up their plants; and make very neat baskets of them when peeled, and also bee-hives. The twigs are in the best state for making these articles in winter; and their flexibility is increased by holding them to the fire before using them. In gardens and plantations the plant is valuable for the rapidity with which it may be made to cover naked walls, unsightly roofs of sheds, or low buildings and arbours; and for a variety of similar purposes.

5. C. virginiana L. The Virginian Clematis.


Variety.


The general appearance of this plant is like that of C. Vitálba; but it is less robust in all its parts, and less ligneous in its stems and branches; and it is also somewhat more tender. Panicles trichotomously divided, with small leaves at the divisions. Sepals 4, white, obovate, exceeding the stamens. Flowers often dioecious or polygamous. (Tor. and Gray.) Miller states that it seldom ripens seeds in England; but, as it is dioecious, it is possible that he possessed only the male plant.
I. RANUNCULA'CEE: CLE'MATIS.


Identification. Wall. Asiat. 1. t. 98.

Synonymes. C. odorata Hort.; C. tri-
ternata Hort.; C. nepalensis Hort.

Engravings. Wall. Asiat. 1. t. 98.; and
our fig. 7.

Spec. Char., &c. Flowers axil-
lar, panicled; leaves subbi-
ternate, villous; leaflets cor-
date, acuminated, serrate,
3-lobed; sepals obtuse. (G. 
Don.) A deciduous climber.

Nepal, on mountains. Height
10 ft. to 18 ft. Introduced in
1831. Flowers white.

Closely resembling C. vir-
giIniana, but rather more hoary;
and equally hardy, though it
has not yet flowered freely in
the open air. A shoot intro-
duced into the inside of a stove
in the Chelsea Botanic Gar-
den, from a plant on the out-
side, flowered there in 1833.

Frequent in nurseries as C.
nepalensis.

§ 7. C. VIO'RNA L. The road-ornamenting
Clematis, or leathery-flowered
Virgin's Bower.


Synonymes. C. purpurea repens Ray; Phlomis scandens, flore violaceo clauso, Dill. Eith.;
American Traveller's Joy; the Virginian Climber; the purple Climber; Clématis Viole, Fr.;
Glockenblüthige Waldrebe, Ger.

Derivation. From via, a way, and ornare, to ornament. Leather-flowered Virgin's Bower refers
to the remarkably thick texture of the sepals; the German name signifies bell-flowered woodbine.

Engravings. Dill. Eith., 118. f. 144; and our fig. 9.

Spec. Char., &c. Peduncles 1-flowered. Sepals connivent, thick, acuminated,
reflexed at the apex. Leaves smooth, pinnate; leaflets entire, 3-lobed, alter-
nate, ovate, acute, floral ones entire. (Don's Mill.) A deciduous climber.

Pennsylvania to Georgia. Height 6 ft. to 12 ft. Introduced in 1730. Flowers purple without, whitish within; June to August. Fruit white; ripe in Sep-
tember. Decaying leaves retained long, and dying
off black.

t. 1816.; and our fig. 9. from that plate; Clém.
Simsis Sweet's Hort. Brit.

This species is striking in the dissimilarity of its
flowers to those of most other species. It is of vigo-
rous growth, and, exclusive of its flowers, assimilates
to C. Viticéllo; but its stems and branches are less
decidedly ligneous. The stems are numerous, slender,
and round; the peduncles of the flower are long,
deflexed towards the tip, rendering the flowers pen-
dulous; the sepals never open, except at their ex-
treme ends, which are bent back, giving the whole
flower a bell shape, but with the mouth of the bell
narrower than the body. The sepals are of a greenish purple or reddish
lilac on the outside, and of a very pale green within. The stamens scarcely
emerge from the sepals. The carpels are broad and flat; as they ripen, the
tail becomes bent in and plumose, and of a brownish green colour. It
is most ornamental as a single plant, trained to a rod or to a wire frame. As its branches are not very decidedly ligneous or persistent, but consist mostly of annual shoots from a suffruticose base, and are not much branched, the plant does not exhibit a bushy head. It thrives best in bog earth, kept somewhat moist, in which circumstance it differs from most of the woody species of Clematis. It may be increased by layers, though not so readily as from seeds, which it produces in abundance. This species, C. cylindrica, and C. reticulata, being neither very woody, nor very luxuriant in growth, may all be treated as herbaceous plants, to be supported during the flowering season by temporary props. Few border plants, indeed, will be found more elegant or more ornamental when so managed.


Synonyms. C. crispa Lam., but not of Linn.; C. Viorna Andr. in Bot. Rep.; C. divaricata Jacq.; the long-flowered Virgin's Bower; Clematite à longues Fleurs, Fr.

Engravings. Bot. Mag., t. 1160; Bot. Rep., t. 71; and our fig. 10.


De Candolle describes this species as related to C. Viorna, reticulata, and crispa, and discriminating it from these. C. cylindrica, he says, differs from C. Viorna, in the segments of its leaves being entire and not trifid; in the flowers being blue, not reddish lilac and pale within, and twice the size of those of C. Viorna; in the sepals
being not leathery, but somewhat of the consistence of paper, with the margin waved; the ovaries 12-15, not 25-30. C. cylindrica differs from C. reticulata in its leaves being in consistence papery, not leathery; scarcely veined, not reticulately veined; and in other points. C. cylindrica closely resembles C. crispa in habit and mode of flowering; but differs from it in its sepals being waved in the margin, not rolled backwards, in its larger flowers, and especially in its carpels having long bearded tails, and not naked ones. C. Viörna and C. cylindrica, seen together in a living state, are very dissimilar in appearance. C. Viörna has vigorous long branches and reddish flowers, which are acorn-like in figure, except that they have a spreading mouth; there is also obvious dissimilarity in the foliage and shoots, C. cylindrica being almost herbaceous.


**Synonyms.** C. rosea Abblott; C. Sinisit Hook.; the netted Virgin's Bower; the reticulated Clematis.

**Engravings.** Dend. Brit., t. 72; and our fig. 11.

**Spec. Char., &c.** Peduncles 1-flowered. Sepal connivent. Leaves coriaceous, netted with nerves, smooth, pinnate; leaflets stalked, 3-lobed or entire, ovate, (Don's Mill.) A deciduous climber. S. Carolina and Georgia. Height 6 ft. to 8 ft. Introduced in 1812. Flowers pale purplish red; June to August. Fruit white; ripe in September.

Leaflets all petiolate, 1 in. to 1½ in. long, undivided or variously lobed, the lowest pair 3-parted, sometimes rather acute and mucronate. Peduncles longer than the leaves. Flowers as large as in C. crispa. Sepals dull purple, ovate-lanceolate, velvety externally. Tails of the carpels long. (Tor. and Gray.) In C. Viörna the sepals do not divaricate, except in their recurved tips; while in C. reticulata the sepals expand in the mode of those of C. Viticella. A side view of a flower less expanded resembles more the flower of C. cylindrica, but the cylindrical portion is shorter. The flowers (sepals) of the two are different in colour. The leaves of C. reticulata are veined, as is implied in the specific name. The stems are scarcely ligneous.


**Engravings.** Our figs. 12 and 13.


The stems and foliage bear a general resemblance to those of C. Viticella, while the flowers, in magnitude and colour, and the leaflets in shape and veining, resemble those of C. integrifolia; but the sepals expand much wider, in the manner of those of C. Viticella. This plant is apparently a hybrid between C. Viticella and C. integrifolia, having the flowers of the latter, and the leaves and stems of the former. It was raised by Mr. Henderson,
nurseryman, of Pine-apple Place, and first flowered in the nursery of Mr. Chandler, by whom it was named. It may fairly be described as one of the most ornamental

species of this section, from the largeness of its flowers, their long footstalks, which make them stand out distinctly from the foliage, the great profusion with which they are produced, and the long time the plant continues to produce them. Layers.

§ ii. Viticella Dec.

Derivation. From viticula, a small vine; on account of the plants climbing like Vitis vinifera L.

Sect. Char. Involucre wanting. Tail of the pericarp (that is, of the carpel) short, beardless. Leaves ternate, or decompound. Stems climbing. (Don’s Mill., i. p. 9.) Deciduous.

11. C. fló’rida Thun. The florid, or showy-flowered, Clematis.


Varieties.

1 C. f. 2. floré pléno Hort. has the stamens changed into floral leaves, which may be denominated petals. It is very handsome, but the petals have frequently a tinge of green, which renders it less ornamental than the single species, in which the centre of the flower is comparatively inconspicuous, while the sepals are large, and of a pure white.

Clematis.

and June C. and climbing Don's and introduced into England in 1836. It is a most ornamental plant, and as hardy and easily propagated as the other variety or the species.

The stem is slender and striated; climbing to the height of 15 ft. or upwards when it is trained to a wall with a favourable exposure, though never becoming very woody. The flowers are large and handsome, either in a single or double state; and these, with the neatness of its foliage, and the slenderness of its stems and branches, give it such an air of elegance, that no lover of plants should be without it, who has a garden in which it will thrive. North of London it requires a wall; and in Scotland, as well as in France and Germany, it is generally kept in the green-house. A mode of pruning plants of this species, by cutting them down to the ground annually, though not generally practised, is said to produce vigorous shoots and fine flowers. This species never ripens seeds in England, and is therefore only propagated by layers.

12. C. cœrdiœa Lindl. The blue, or violet-flowered, Clematis.

Synonyms. C. arureg grandiflora Sieb.; C. grandiflora Hort.
Engravings. Bot. Reg., t. 1955.; and our fig. 16.


A free-growing and profuse-blooming plant, with the habit of C. florids. Flowers large, violet-coloured, with deep purple stamens. It differs from C. florids in the colour, delicacy, and transparency of its blossoms, and also in its leaves being only once ternate, and in the sepals not touching and overlapping each other at the edges. Culture and propagation as in C. florids.


Synonyms. Viticella deltoides Manch; the red-flowered Lady's Bower, Gerard; Italienische Waldrebe, Ger.

or purple; July to September. Fruit white; ripe in October. Decaying foliage black or brown.

Varieties.

1. C. V. 1 caerulea. — Flowers blue.
2. C. V. 2 purpurea. — Flowers purple.
3. C. V. 3 multiplex G. Don. C. pulchella Pers. — Flowers double, blue. This variety produces more robust, more extended, and fewer shoots, than the single-flowered blue or purple varieties.
4. C. V. 4 tenusifolia Dec., C. temusifolia Lusitanica Tourn.; and
5. C. V. 5 baccata Dec., C. campaniflora Hort.; are varieties which we have not seen.

C. Vitiella, and all its varieties, are tolerably robust and vigorous in their growth, and decidedly ligneous; though plants, individually, do not endure many years. They are, perhaps, the most beautiful and most estimable of all the kinds of clematis, for the purposes of floral decoration. For the mere covering of bowers and other objects, they are, however, less suited than C. Vitalba and C. Flammula; as these grow faster, extend farther, and each yields a greater aggregate of herbage, and so covers better: but none of them can vie with C. Vitiella and its varieties in beauty; more especially with the single purple and the single blue.


Variety.

1. C. c. 2 parviflora. C. parviflora Fisch. of Göttingen. — Flowers rather smaller than in the species, sepals crisped at the edges. H. S.
The habit of growth of this plant is that of C. Viticella, to which it also comes nearest in affinity, but, though less woody, its shoots are much more robust; the much smaller and white flowers, and pointed sepals connivent (that is, lying close together) below, will readily distinguish it. It seldom ripens wood in England, but is readily propagated by layers.

§ 15. C. crispa L. The curled-sepaled Clematis.


Synonyme. C. fibre crispa Dill. Ethh.

Engravings. Dill. Ethh., 1. t. 73, fig. 84; Bot. Mag., 1822; and our fig. 19.

Species Char., &c. Peduncles 1-flowered, shorter than the leaves. Leaves entire, 3-lobed, or ternate, very acute. Sepals connivent at the base, but reflexed, and spreading at the apex. (Don's Mill.) A deciduous climber. Virginia to Florida. Height 3 ft. to 5 ft. Introduced in 1726. Flowers purple; July to September. Fruit brownish; ripe in October.

Leaves glabrous, or slightly hairy. Flowers one third smaller than in C. Viorna, bright purple. Tail of the carpels thick and rigid, about half an inch long. (Tor. and Gray.) The flowers of this species are pretty, but perhaps never produced in sufficient quantity to render it highly decorative. The sepals have their tips reflexed, and waved with transverse wrinkles. The stems are weak, and do not generally rise higher than 3 or 4 feet. The plants frequently die down to the ground, so that this species requires to be treated more as herbaceous than ligneous. It ripens seeds plentifully.

§ iii. Cheirópísa Dec.

Derivation. From cheir, the hand, and opsis, resemblance; in allusion to the form of the bracteas.

Sect. Char. Involucr in the form of a calyx, from two joined bracteas situated at the top of the peduncle just under the flower. Tails of pericarps bearded. Climbing or rambling shrubs, with simple or ternate leaves. The old petioles persistent, and the new leaves and the peduncles produced in clusters from the axils of these. (Dec. Syst., i. 162.) Evergreen.

§ 16. C. cirrhósa L. The tendrilled-petioled Clematis.


Synonyme. Atrâgæne cirrhósa Pers. Syn. 2. p. 98; Traveller's Joy, Johnson's Gerad; Spanish wild Climber, Parkinson; the evergreen Clematis; Clematis à Vrilles, Clematite toujours verte (Bon Jard.), Fr.; einfachblattärigen (simple-leaved) Waldrebe, Ger.

Derivation. The word cirrhósa, which means cirrhose, or tendrilled, is applied to this species from the peculiar grasping and tendril-like action of its petioles, which retains their hold even after the leaves have fallen. The French word Vrilles signifies tendrils; and the German word einfach alludes to its comparatively simple leaves.

Engravings. See the Varieties.

Species Char., &c. Peduncle 1-flowered, with an involucr. Leaves simple, or variously divided; evergreen. An evergreen climber. Spain and the Balearic Isles. Height in British gardens, in the climate of London, in a warm situation, against a wall, 5 ft to 10 ft. Introduced in 1596. Flowers greenish or yellowish white; March and April. Fruit &. Foliage of the broad-leaved varieties forming a fine dark green mass.
Varieties.

1. C. c. 2 pedicellata Dec.; C. pedicellata Sweet's Hort. Brit. p. 2., and Don's Mill. i. p. 9.; C. baleárica Pers.; C. cirrhösæ Sims B. Mag. t. 1070.; and our fig. 20.; has the pedicel between the involucre and the flower considerably longer than in the species.


The leaves of this variety vary exceedingly, from those shown in fig. 23. of the natural size, taken from a plant in the Horticultural Society's Garden, to those shown in fig. 22., reduced from Smith's *Flora Graeca*. Introduced into England by M. Thouin, in 1783.

The varieties are all elegant evergreen climbing shrubs, rising to the height of from 6 ft. to 10 ft., and branching freely, so as to become, in two or three years, very thick bushy plants.

The leaves vary from simple to ternate; and from being entire to being deeply cut. The flowers appear at the end of December, or the beginning of January, and continue till the middle or end of April. They are pendulous and bell-shaped, the mouth being of the breadth of a shilling, or more. Their colour is greenish white, with some purple on the inside. The sepals are downy without, and smooth within. In its native country it is said to climb up and overwhelm the trees; but in England it is a weak plant, not very readily kept. In nurseries it is generally cultivated in pots, and kept in a green-house, or in a cold-frame. The principal beauties of this species consist in its bright evergreen verdure, and in the earliness of its flowering in spring; and these properties may be best obtained by training it against a wall with a southern aspect. Layers and cuttings.
§ IV. Anemomflora.

Derivation. From the flowers being like those of the Anemone sylvestris.


17. C. montana Ham. The Mountain Clematis.


Spec. Char., &c. Peduncles 1-flowered, not bracteated, several together. Leaves ternately parted, the segments ovate-oblong, acuminate, toothed, the teeth in the mode of incisions. Sepals elliptic-oblong, mucronulate, spreading. (D. Don.) A deciduous climber. Himalayan Mountains at 5000 ft. to 7000 ft. elevation. Height 10 ft. to 15 ft., or in sheltered situations 30 ft. to 50 ft. Introduced in 1831. Flowers white; April in Nepal, May in England. Fruit white; ripe in August. Decaying foliage brown, and dropping more freely than in most of the other kinds.

A highly ornamental species. The plant is large and branching; the bark thick, ash-coloured, and deciduous. Leaves numerous, pale green. Flowers numerous, about the size and form of those of Anemone sylvestris L., borne several together, each upon a separate, upright, slender peduncle, about 3 in. long. Sepals 4, 1 in. long, pure white, faintly stained with pink outside at the base. Styles clothed with long white silky hairs; from which it may be inferred that this species will have its fruits terminated with feathery tails, in a state of maturity. In the climate of England it proves to be quite hardy, and seems to flourish as well as on its native mountains. It grows with great vigour in a loamy soil, flowers profusely early in the season, and is readily increased by layers. A very desirable species.

Other Species of Clematis.—There are several other species of Clematis described in books; some of them as introduced, and others as not yet in cultivation in Britain; but we have refrained from describing any species of which we have not seen living plants. In Torrey and Gray's Flora of North America, C. holoscricea Pursh, C. ligusticfolia Nutt., C. Drummondii Tor. & Gray, C. parviflora Nutt., C. lasántha Nutt., C. lineáloba Dec., and C. Pitcheri Tor. & Gray, are described as woody species, none of which, even by name, are yet in British gardens. C. pubésceus, vitisoida, Buchaniana, and some others, mentioned by Drs. Wallich and Royle, are yet to introduce from the Himalayas; and there are several names in De Candolle's Prodromus of which living plants are not in our gardens.
Genus II.


Synonymes. Clematis Lanm. and Dec.; Atragene, Fr., and Ger.

Derivation. The name of Atragene appears to be taken from two Greek words; atros, pressed, and gena, birth; alluding, as it is supposed, to the manner in which the branches press against or clasp the trees that support them. It was first used by Theophrastus, and was by him applied to Clematis Vitalba L.


Leaves compound, opposite, generally exstipulate, deciduous; leaflets variously cut. Flowers axillary, pedunculate; purple, blue, or white. Climbing shrubs, natives of Europe and North America.

The atragenes differ from the clematises in producing leaves and one flower from the same bud contemporaneously; whereas in most clematises the flowers are produced upon wood developed previously to their appearance, and during the same season. Hence the winter buds of Atragene are larger than those of Clematis, from their including the flower as well as the leaves of the succeeding year. In atragenes the leaves are less divided than in many of the species of Clematis, and they are always divided ternately. All the species of Atragene described in this work have petioles, which not only clasp objects, like those of Clematis, but maintain the hold for more than the season, like the vine. All extremely interesting from the beauty of their blossoms. The culture is the same as in Clematis, and the propagation generally by layers.

II. 1. Atragene alpina L. The Alpine Atragene.


Flowers blue; May to July. Fruit white; ripe in August. Decaying leaves brownish, and in general parting more freely from the stems than in Clematis.

Varieties. DeCandolle mentions its varying with white flowers; and A. sibirica Lin., described below as a species with yellowish white flowers, appears to us nothing more than a variety of A. alpina.

The stems are numerous, branching, weak, forming knots at the joints where the leaves and flowers are protruded. One flower, on a longish scape, springs from between the leaves. The sepals are twice the length of the petals, and are blue on both sides. The petals are small, of a dirty white, and in general 12 in number. Very ornamental. Layers.
I. RANUNCULACEÆ: ATRA'GENE.


Engravings. Sims, Bot. Mag., t. 1591.; and our fig. 27.

Spec. Char., &c. Peduncles 1-flowered, almost equal in length with the leaves. Leaves bipinnate; leaflets oblanceolate, acuminate, serrated. Petals emarginate at the apex. (Don's Mill.) A deciduous climber. Siberia, on mountains. Height 6 ft. to 12 ft. Introduced in 1753. Flowers white; June and July. Fruit white; ripe in August. Decaying leaves brownish.

Variety. A blue-flowered variety of this species is mentioned in Bot. Mag., t. 1591., which is probably the A. ochotensis of Pallies, or possibly nothing more than A. alpina L.

There is a considerable similarity in this to the last, in foliage and habit of growth; but it is less robust and less branchy; its branches are more ligneous-looking, and the segments of the leaves longer. The calyxes of the flower are white, longer, and with the tips rather con- nivente than spreading. The bark and foliage are of a lighter colour, and the flowers longer than those of A. alpina.; and the latter are perhaps less numerous.


Engravings. Bot. Mag., 887.; and our fig. 28.

Spec. Char., &c. Peduncles 1-flowered; leaves whorled, in fours, ternate; leaflets stalked, cordate lanceolate, acuminate, entire or somewhat lobed or serrated. Petals acute. (Don's Mill.) A deciduous climber. Vermont to Carolina, on mountains and rocky places. Height 10 ft. to 15 ft. Introduced in 1797. Flowers purplish blue; May to July. Fruit white; ripe? Decaying leaves dark brown.

Variety.

A. a. 2 obliqua Dou. MS.—Leaflets bluntly serrated.

This species is distinguishable from all the other Clematidæ described in this work, by the peculiarity of its leaves being disposed, not oppositely in alternately decussating pairs, but in whors of four. This is an anomalous charac- teristic, which DeCandolle has expressed by his specific epithet verticillaris. The flowers are very large, and cam- panulate. Sepals oblanceolate, bright purplish blue. (Tor. and Gray.) Layers.

Other Species and Varieties of Atragene. — A. ochotensis Pall. we consider as a variety of A. sibirica L. A. columbiâna Nutt., C. columbiâna Tor. & Gray, 1 p. 11., has ternate leaves, and pale blue flowers smaller than those of A. americâna. It is a native of the Rocky Mountains, but has not yet been introduced.

Tribe II. PÉONIÆCÆ Dec.

Trib. Char. At once distinguishable from Clematidæ, by the character of the anthers opening to admit the escape of the pollen on the side next the ovaries. In Clematidæ, the anthers open on the side outward to the ovaries. The aestivation is also imbricate, and the carpels from one-seeded
to many-seeded. Suffruticose deciduous shrubs, of low growth, natives of temperate climates.

Leaves compound, alternate or opposite, stipulate, deciduous, but without possessing a clasping power. Flowers very large in Paeonia, very small in Xanthorrhiza; and the following are the distinctive characteristics of these genera:


**Genus I.**


*Identification.* The term Paeonia was applied by the Greeks to these plants, which have continued to bear that name ever since.

*Synonymes.* Peony, Pöony; Pivoine, Fr.; Gichtterrose, and Påonie, Ger.; Rosa del Monte, Span.; Paeonia, Ital.

*Derivation.* The term Paeonia is generally said to have been given by Hippocrates and Dioscorides, in commemoration of Paeon, the physician who first used it in medicine; but Professor Delens thinks it more probable that it is derived from Paeonia, a mountainous country of Macedonia, where some of the species grow wild. Gichtterrose, Ger., signifies the gouty rose, from the knobby or gouty appearance of the roots of the herbaceous species.


Leaves compound, alternate, biternate or bipinnate. Flowers large, rosy, or rosy and white, usually with a strong disagreeable smell. A suffruticose shrub. Height from 3 ft. to 10 ft. Native of China and Japan.

There is but one ligneous species, *P. Moutan*; but there are several varieties; all undershrubs, which never attain a great height, and the wood of which always retains a herbaceous character, with a large pith. The roots are ramose rather than tuberous. The whole plant is narcotic and poisonous. The varieties are all beautiful, and hardy in most parts of Great Britain; though, from vegetating early, they commonly suffer from spring frosts.

*1. P. Moutan* Sims. The Moutan, or Tree, Paeony.


*Derivation.* The word Moutan has been applied to this species of paeony, in China, for about 1500 years. *P. arborea* and *P. suffruticosa* signify the tree and the sub-shrubby peony. The German name signifies the tree-like gouty rose. The Chinese name Hoa Ouang signifies the king of flowers, alluding to the beauty of the plant; and Fe-Leang-Kin, a hundred ounces of gold, in allusion to the high price which some of the varieties bear in China.


Decaying leaves brown or black.

*Varieties.*

*2. P. M. 1 papaveracea* Andrews. Bot. Rep., t. 463; Loud. Bot. Cab., 547; Bot. Mag., 2175; and our fig. 29.—Petals from 8 to 13, white, with a purple spot at the base of each. Capsules altogether enclosed in the urceolus, or disk. Introduced in 1805. Professor Don remarks (*Sw. Br. Fl.*
Genus II.


Gen. Char. Calyx of 5 deciduous sepals. Petals 5, of two roundish lobes raised on a pedicel. Stamens 5-10. Ovaries 5-10. Carpels 2-3-seeded, but usually solitary from abortion. (Don's Mill., i. p. 65.)—There is only one species known.

Leaves compound, opposite, stipulate, deciduous; pinnately divided, toothed, and serrated. Flowers in racemes, axillary, compound, appearing with the leaves.

Gor., 2d ser., 238.) that P. M. papaveracea appears to be really the normal form of the species, as the late Mr. George Anderson suggested in his paper on the subject in the Linnean Transactions, vol. xii.

¢ P. M. 2 Bánk .i Andrews. Bot. Rep., t. 448.; Bot. Reg., 379.; Bot. Mag., t. 1154.; and our fig. 30.—Flowers double. Petals slightly tinged with blush, becoming nearly white at the edges, marked at the base with purplish red. In the centre of the flower are some elongated petals, which sometimes appear to rise from amongst the germens. Cultivated in 1787.

Other Varieties. Upwards of twelve are described in the first edition of this work, and the number is continually increasing, in consequence of cross fertilisation with one another, and with the herbaceous species. They are all very beautiful, and well deserving of cultivation.

The Paeonia Moutan, in a sheltered situation, will attain the height of from 6 ft. to 10 ft. in ten years; and no plant can be a more gorgeous ornament of the garden than such a bush, abounding as it does in leaves striking from their branched character and numerous segments, and in very magnificent flowers of extraordinary size; both leaves and flowers being produced early in the spring. On its first importation, this plant was grown in sandy peat; but it has since been found to thrive best in deep rich loamy soil. An open situation is preferable, both on account of maturing the wood and leaves, and for displaying the flowers to advantage; but the plant must be sheltered from the cold spring winds, unless it is intended to cover it, when it is in flower, with a movable glass or canvass case. The protection given to this plant is necessary, not so much to prevent it from being injured during winter (for it will bear the winters of Paris without any protection, if the wood has been properly ripened), as to protect the tender leaves and flowers when they first appear, in April and May, from being blackened by the frost. Seeds are frequently produced from which new varieties are raised, and any variety may be increased by division of the root; by grafting on the tubers of herbaceous peonies, any time from the middle of September to the middle of March; by budding, a mode said to be practised by the Chinese; by layers, which is the most general mode; by ringing a branch beneath each bud, and then pegging down the branch, and covering it with soil; and by cuttings. The details of these modes of propagation will be found in the first edition of this work.
1. X. APHIDOLIA L’Hérit. The Parsley-leaved Yellow-Root.


**Synonymes.** Xanthorhiza apifolia; Zanthorhiza à Feuilles de Persil, Fr.; Sellerie-Bistrique Gellwurz, Ger.

**Derivation.** From the Greek words *xanthou*, yellow, and *rhiza*, a root; applied from the deep yellow colour of the root. The French name needs no explanation; and the German is a literal translation of the English one.

**Engravings.** Lam. Ill., t. 854.; Bot. Mag., 1736.; and our fig. 31.

**Spec. Char., &c.** Flowers minute, dark purple, often by abortion polygamous.

A low, suffrutaceous, deciduous shrub. Flowers dark purple; May.

Height 2 ft. to 3 ft. Pennsylvania. Introduced in 1776. Decaying leaves yellowish or brown, dropping in September.

A small shrub with yellow creeping roots, which attain a large size, and throw up numerous suckers; with irregularly pinnate leaves, branched racemes, and small purplish flowers (which are usually unisexual from abortion) rising from the scaly buds. The flowers appear early in May, and continue a month or upwards before they drop off. We have never heard of its ripening seeds in Europe; nevertheless, this may have occurred, and been overlooked, from the inconspicuousness of the shrub, and the smallness of its fruit. Suckers, or division of the root.

---

**ORDER II. WINTERACEÆ.**

**Ordinal Character.** Calyx of 2—6 deciduous sepals, and 2 to many petals; the sepals and petals, when more than two, disposed ternately. Carpels whorled, very rarely solitary from abortion. — Evergreen shrubs, or low trees, chiefly natives of warm climates.

**Leaves** simple, alternate, stipulate, evergreen; full of pellucid dots, and coriaceous. Properties aromatic and stimulant. *Illícum* is the only genus of this order which contains species that will stand out in the open air in Britain.

**Genus I.**

ILLICİUM L. The Illícum, or Aniseed Tree. Lin. Syst. Polyándria Polygýnia.


**Synonymes.** Badiane, or Anís-étolí, Fr.; Sternanis, Ger.

**Derivation.** The generic name *Illícum* is formed from the Latin word *Illicio*, to allure, on account of the agreeable aromatic smell of all the species. It is called the Aniseed Tree, from its smell bearing a strong resemblance to that of aniseed. Badiane appears to be an aboriginal French word; Anís-étolí, and Sternanis, signify literally the starry anise, and may allude to the starry disposition of the parts of the flower and of the capsules.

**Gen. Char.** Calyx of 3-6 petal-like sepals. Carpels stellately disposed, in a circular mass, opening upon the upper side, 1-seeded. (Don’s Mill., i. p. 79.)

1. ILLÍCUM FLORIDANUM Ellís. The Florida Illicium.


**Synonymes.** The Florida Aniseed Tree, red-flowered Anise-seed Tree, Mor. Hist.; Badiane de la Floride, Fr.; uneischer (spurious) Sternanis, Ger.

**Engravings.** Bot. Mag., 439.; Lod. Bot. Cab., t. 269.; and our fig. 32.

**Spec. Char., &c.** Petals 27—30, dark purple, outer ones oblong, inner ones lanceolate. (Don’s Mill.) An evergreen glabrous shrub. West
Florida to Louisiana, in swamps. Height 4 ft. to 6 ft. Introduced in 1766. Flowers dark reddish purple, with the odour of anise; April to June. Fruit none in England. Decaying leaves reddish brown, dropping in June.

A compact, many-stemmed, bushy, evergreen, slow-growing shrub, attaining, in the neighbourhood of London, the height of 6 or 8 feet or upwards, and flowering every year. The leaves are oblong-lanceolate, quite entire, pointed at both extremities, smooth, shining, and, in common with the whole plant, have a rich reddish hue. The flowers are numerous, solitary, and terminal; and bear some general resemblance to those of Calycanthus floridus. The manner in which the plant is propagated in the London nurseries is, generally, by forming stools of it in a cold-pit, and laying down the shoots, which require two years to root sufficiently to admit of their being separated from the parent plant; but it is sometimes propagated by cuttings both of the young and of the old wood. This very handsome evergreen shrub is sufficiently hardy to have resisted the winter of 1837-8, in several situations in the climate of London.

Order III. Magnoliaceae.


Leaves simple, alternate, stipulate, evergreen or deciduous; oblong, not dotted, more or less coriaceous, articulated distinctly with the stem, and, when expanding, rolled together like those of Ficus. Flowers large, mostly white or yellowish. Seeds roundish, large, red or brown. — The species hardy in British gardens are included under the genera Magnolia and Liriodendron, the differential characters of which are as follows: —

Magnolia L. Carpel dehiscent; that is, opening to admit the escape of the seed.

Liriodendron L. Carpel indehiscent; that is, not opening to admit the escape of the seed.

Genus I.


Derivation. The name Magnolia was given to this genus by Linnaeus, in honour of Pierre Magnol, professor of medicine, and prefect of the botanic garden at Montpellier. The German name Bieberb., beaver wood, is applied generically by Hartweg in the Hortus Curtisianus; but, in America, Beaver-wood appears to be applied only to M. glauca.

Leaves simple, alternate, stipulate, deciduous or evergreen; entire, large, oblong or oval, stipulate. Flowers terminal, solitary, large, odoriferous. Seed large, roundish, produced in conical strobiles. Trees and shrubs, natives of North America and Asia.

One of the species is a lofty evergreen tree; but the others are deciduous, and partly trees and partly shrubs. The seeds are mostly of a scarlet colour. The roots are branched, and yet but sparingly supplied with fibres. Magnolias may be cultivated in most parts of Britain, and of the middle and southern states of Europe; but, north of London and Paris, some of the species require protection during winter, or to be kept in the greenhouse. A deep sandy soil, and a situation sheltered from the north and east, will suit most of the species; though some, as M. glauca, for example, thrive best in a moist peaty soil. Few of the species ripen seeds in England, but most of them do so in France. From these seeds, or from such as are imported, all the American species, except M. grandiflora, are most frequently raised; but the species from Asia are increased by layers, as are occasionally some of the more rare of the American species. In no case whatever would we recommend purchasing any species of magnolia not grown in a pot; because plants so grown may be sent to any distance without injury to the roots, which are few and succulent, and easily damaged by exposure to the air and light. The hardy species of this genus are included in two sections, Magnoliastum and Gwillínia.

§ i. Magnoliàstrum.

Derivation. Magnóla; and astrum, from ad instar, an affixed particle, signifying likeness.

Sect. Char. American species, with one spathe-like bractea enclosing the flower-bud; ovaries approximate; anthers bursting outwards. (Don's Mill., i. p. 83.)

† 1. Magnólia grandiflo'ra L. The large-flowered Magnolia.


Synonymes. Laurel-leaved Magnolia, the large-flowered evergreen Magnolia, the Laurel Bay, big Laurel, the large Magnolia; Laurier tulipier. Fr. in Louisiana; Magnolia à grandes fleurs, Fr.; grossblumiger Magnolie, or Biebierianum (Beaver-wood Tree), Ger. Engravings. Mill. Ic. 2. t. 172.; the plate in vol. v. of Arb. Brit. 1st edit.; and our fig. 34.


Varietés.

† M. g. 2 obováta Ait.—Leaves obovate-oblong. Flowers expanded. (Hort. Kew., iii. p. 329.) This seems to be the only variety found in a wild state. In British gardens it is a magnificent plant, the broad ends of its leaves forming a conspicuous feature, and distinguishing it readily from the original species, the leaves of which are pointed; but it does not flower freely.
M. g. 3 exoniensis Hort. M. g. lanceolata Ait.; M. g. stricta Hort.; M. g. ferruginea Hort. The Exmouth Magnolia. (Bot. Mag., t. 1952; Bot. Cab., t. 1814; the plate in Arb. Brit., 1st edition, vol. v.; and our fig. 33.) — The leaves are oblong-elliptical, generally rusty underneath. Flowers somewhat contracted. This is the most distinct of all the varieties of the species, and, on account of its flowering early and freely, the one best deserving of general culture. It forms a tall, fastigate, elegant bush, or tree, and has attained the height of 30 ft., as a standard, at various places in the South of England.

M. g. 4 angustifolia Hort.—Leaves lanceolate, pointed at both extremities, wavy. A very distinct variety, introduced from Paris about 1825, which has not yet flowered in England.

M. g. 5 praecox Andry.—Leaves oval-oblong. Flowers fully expanded. This is an early variety, introduced from Paris about 1830. The flowers are as large as those of any of the varieties, and they are produced from the end of May till the approach of winter.

Other Varieties. In consequence of the great demand for this species in the nurseries, many slight variations have been noticed by cultivators, and named as distinct. In the garden of the London Horticultural Society, in 1834, there were plants with the following names: — M. g. vera, M. g. latifolia, M. g. exoniensis var., and M. g. rubiginosa. In the London nurseries are — M. g. rotundifolia Swt., M. g. elliptica Ait., and various others. In the nursery of M. Roy, at Angers, are 18 varieties, among which are included M. g. longifolia undulata, M. g. exoniensis à fleur demi-double, M. g. canaliculé, M. g. floribunda, M. g. foliis variegatis, &c. At Desio, near Monza, there is a variety called M. g. magordensis.

Selection of Varieties. M. g. obovata deserves the preference for the magnificence of its foliage; and M. g. exoniensis, because it flowers early and freely; and because, from the fastigate form of the tree, it is less liable to be injured by a heavy fall of snow; it seems also to grow faster than any of the other varieties. Where the tree is to be trained against a wall, M. g. praecox deserves the preference, on account of the largeness of its flowers, and because they appear early, and continue during the whole summer. M. g. angustifolia deserves culture on account of its foliage, which
is quite distinct from that of all the other varieties. The species sold in
the nurseries as the common broad-leaved Magnolia grandiflora is fre-
quently raised from American, French, or Italian seeds; and, hence, the
plants, though they grow freely, do not flower for 20 or 30 years after being
planted out. For this reason, when it is desired to have plants of the
Magnolia grandiflora which will flower early, those plants which have been
raised by layers from flowering trees ought to have the preference; or the
Exmouth, or some other variety, should be made choice of, because the
varieties are always raised from layers.

In its native country, M. grandiflora is a tree varying from 60 ft. to
100 ft., or upwards, in height; but in Europe, except in some situations in
Spain and Italy, and a few in the South of England, it is chiefly to be
considered as a wall tree.

A deep sandy loam, dry at bottom, and enriched with vegetable mould or
heath soil, seems to suit all the varieties of this species. When these are
to be trained against a wall, any aspect may be chosen, except, perhaps, the
north-east. To display the flowers to the greatest advantage, to a spectator
walking in a direction nearly parallel to the wall, the ground plan of the
latter should be curvilinear, by which means a direct or front view of a
considerable portion would be brought before him. In the London nur-
series, propagation is generally effected by forming stools either in warm
situations in the open air, to be protected during winter, or in cold-pits.
The shoots are laid down in autumn, and require two years to become
sufficiently rooted for separation; they are then potted, and kept in pits
or under glass during winter, and set in the open air, in a shady place,
during summer, till wanted for final planting. M. grandiflora is also occa-
sionally raised from American seeds. In planting, the ball should be care-
fully broken by the hand, and the roots spread out in every direction, and
covered with heath mould, or a mixture of leaf mould and sandy loam. The
soil ought to be made firm to the fibrous roots, not by treading, but by abundant watering, and, if the plant be large, by fixing with water; that is, while the earth is being carefully put about the roots by one man, another should pour water from a pot held 6 ft. or 8 ft. above it, so that the weight of the water may wash the soil into every crevice formed by the roots, and consolidate it there. Shading will be advisable for some weeks after planting. If the Exmouth variety be chosen, layers will produce flowers in a year or two after being separated from the parent plant, if kept in pots; but, when they are planted out, and grow freely, so as to make shoots of 2 or 3 feet every season, they will probably not flower for three or four years. Whether the tree be against a wall or trellis, or treated as a standard, all the pruning it will require, after it has begun to grow freely, will be, to cut out the stumps from which the flowers or the strobiles have dropped off, and any dead or decaying wood, and any branches which cross and rub on each other. Magnolias against a wall require very little protection, even when young; and this can easily be given by mulching the ground at the roots, and covering their branches with a mat, or with the fronds of the spruce fir.

**Γ 2. M. glauca L.** The glaucous-leaved Magnolia.


*Synonyms.* M. frâgrans Salisb.; Swamp Sassafras, Beaver-wood, white Bay, small Magnolia, Swamp Magnolia; Magnolia glauca, Arbore de Castor, Fr.; grauer Bieberbaum, Ger.

*Derivation.* It is named Swamp Sassafras on account of its growing in boggy places, and resembling in qualities the Ladrus glauca; and Beaver-wood, because the root is eaten as a great dainty by the beavers, and these animals are caught by means of it. It also grows in the swamps, which they inhabit; and Michaux tells us that it is felled by them for constructing their dens and houses, in preference to any other tree, on account of the softness of the wood.

*Engra'vings.* Lodd. Bot. Cab., t. 215; Sims Bot. Mag., 2164; the plate of this species in Arb. Brit., 1st edit. vol. v.; and our fig. 35.


**Varieties.**

*† M. glauca 2 sempervirens* Hort. — Sub-evergreen, and with smaller leaves than those of the next variety.

*‡ M. glauca 3 Thompsonii *Thomp.* M. glauca var. a major *Bot. Mag.*, new edition, p. 36. The plate of this in the Arb. Brit., first edition, vol. v.; and our fig. 36.—It was noticed about 1820, in a pot of seedlings, by Mr. Thompson, in his nursery at Mile-end; and by him kept distinct, and propagated under the above name.
Other Varieties. *M. glauca Gordoniana* and *M. glauca Burchelliana* are names found in nurserymen's catalogues, of varieties said to have double or semi-double flowers. *M. g. longifolia* Pursh is supposed to be an aboriginal variety, and sub-evergreen; but we think it probably the same variety as *M. g. Thompsoniana*, which may have come up wild in America, as well as in Mr. Thompson's nursery. *M. g. Cardoni*, *M. Cardon J. Knight*, is a variety imported from Belgium, where it was found by Mr. Knight of the Exotic Nursery, in the nursery of M. Cardon, after whom he has named it.

A low tree, nearly evergreen in moist soils, with a slender stem, covered with a smooth whitish bark. The wood is white and spongy; the young shoots of a fine green. The leaves are smooth, of a bluish green on their upper surface, and whitish or glaucous and a little hairy underneath. The flowers are produced in May or June, at the extremity of the last year's shoots. They have six concave white petals, and have an agreeable odour. The spike or strobile of fruits is an inch or more in length, conical, an inch in diameter in the widest part, and of a reddish brown colour when ripe. When the plant is in a soil supplied with moisture during the summer, it continues to produce flowers till the autumn, and retains part of its leaves all the winter: in dry situations the leaves drop off. Seeds are frequently ripened in England: they are of a bright scarlet, and they hang down by slender white threads, as in all the other American species. The young shoots are from 1 ft. to 1½ in. in length, and the plant, in ordinary circumstances, will attain the height of 12 ft. in ten years. Plants are generally raised from seeds imported from America, which should be sown in pots of bog earth about the beginning of March, and placed in gentle heat under glass. In a year they will be fit to transplant into small pots; and every year they should be shifted into others of a larger size, till wanted for final planting out. *M. glauca Thompsoniana*, and the other varieties, are propagated by layers, which require two years to root properly.


*Synonyms.* M. umbella Linn., Nova. Duh., Decr. Prod., Don's Mill., Tor. & Gray; M. frondosa Salis.; the Umbrella Tree; Umbrella Magnolia; Elkwood; Magnolie Parasol, and Arbre Parasol Fr.; dreizellättriger Bieberh., dreizellättrige Magnolie, Ger.

*Derivation.* This species is called the Umbrella Tree, according to Michaux, because its leaves, which are thin, oval, entire, and acuminate at both extremities, 18 in. or 20 in. long, and 7 in. or 8 in. broad, are often disposed in rays at the extremity of vigorous shoots; and these display a surface of 2 ft. in diameter, in the form of an umbrella. The tree is called Elkwood in the mountains of Virginia, probably from the resemblance which the points of the shoots bear to the horns of the elk. The French names merely signify umbrella tree, and the German ones the three-petaled beaver tree, or magnolia.


*Spec. Char., &c.* Deciduous. Leaves lanceolate, spreading, adult ones smooth, younger ones pubescent underneath. Petals 9–12, exterior ones pendent. (Don's Mill., i, p. 83.) A deciduous tree of the middle size. Pennsylvania to Georgia, in moist soil. Height 30 ft. to 40 ft. in America; 15 ft. to 30 ft. in England. Introduced in 1752. Flowers white, 7 in. to 8 in. in diameter, with an unpleasant odour; May to July. Strobiles rose-coloured, 4 in. to 5 in. long; ripe in October. Decaying leaves dark brown or black. Naked young wood of a fine mahogany brown.

![Magnolia tripetala](image)

This tree, both in America and Europe, is remarkable for the largeness of its leaves and its flowers. The wood is spongy, brittle, with a large pith, soft, porous, and of very little use. The bark upon the trunk is grey, smooth, and polished; and, if cut while green, it exhales a disagreeable odour. In Britain the tree sends up various shoots from the root, to replace the stems, which are seldom of long duration; so that a plant that has stood thirty or forty years in one spot has had its stems several times renewed during that period. The leaves are 18 or 20 inches long, and 7 or 8 inches broad. The flowers are 7 or 8 inches in diameter, with large white flaccid petals; they are borne on the extremities of the last year's shoots, have a languid luxurious appearance, and a sweet but heavy odour. The fruit, which is conical, is 5 or
6 inches long, and about 2 in. in diameter; it is of a beautiful rose colour, and contains usually from 50 to 60 seeds. This species is very hardy, and can withstand the most rigorous winters, when the summer has been sufficiently hot to ripen the wood thoroughly. As it is a short-lived tree, and consequently flowers early, there is not the same objection to raising plants of it from seed, as there is to raising plants in that manner of M. grandiflora, which is a long-lived species. The soil should be a deep, rich, sandy loam, and the situation sheltered and shaded. Exposure to the sun is injurious; and, trained against a south wall, the plant suffers extremely. A sheltered glade in a shrubbery or wood, where the tree is sufficiently distant from others not to be injured by their roots, is the most desirable site. In the nurseries it is almost always propagated by seeds, which should be sown immediately after they are gathered, as when they are left exposed they become rancid and lose their vital qualities; though, if enveloped in moist moss or earth, they may be preserved for several months. The plants should be kept in pots until required for final transplanting.

4. M. macrophylla ALB. The long-leaved Magnolia.


Synonymy. Large-leaved Umbrella Tree, Amer.; Magnolia Michauxii Hort.; Magnolier à grandes Feuilles, Magnolier bannanier, Fr.; grosseblattrige Bieberbaum, Ger.


Spec. Char., &c. Deciduous. Leaves very large, oblong-obovate, somewhat panduriform, cordate at the base, under surface whitish, glaucous. Petals 6—9, ovate. (Don’s Mill.) A deciduous tree of the middle size. North Carolina and Georgia. Height 30 ft. to 40 ft. in America; 15 ft. to 30 ft. in England. Introduced in 1800. Flowers white, with a purple spot near the base of each petal; 8 in. to 10 in. in diameter, fragrant; June and July. Strobile rose-coloured; ripe in October. Decaying leaves yellow, brown, or black. Naked young wood of a whitish brown.
The general appearance of this tree greatly resembles that of Magnolia tripétala. The terminal arrangement of the leaves is the same, and it is remarkable that in America the two trees are almost always found together. In point of size, it exceeds the M. tripétala, both in its leaves and general height; but it is seldom found higher than 35 ft., which exceeds the height of the other by a sixth part only. The body of the tree is covered with a smooth and very white bark, by which, in the winter, when stripped of its leaves, it is readily distinguished from M. tripétala. At this season, also, it may be distinguished by its buds, which are compressed, and covered with a soft and silvery down; whereas in M. tripétala they are prominent and rounded at the end. The leaves, in its native country, are 35 in. long, and 9 or 10 inches broad; and in vigorous plants, in England, they sometimes even exceed these dimensions. They are borne on petioles short in comparison with the size of the leaves, and are of an oblong oval shape, pointed at the extremity, and cordiform at the base; their colour is light green above, and glaucous beneath. The fruit is about 4 in. long, nearly cylindrical, and of a vivid rose-colour when arrived at maturity. Young plants of this species grow very slowly till they are thoroughly established, which will require, in general, two years. The year's shoots may then be from 1 ft. to 2 ft.; so that in ten years a plant may attain the height of 12 or 15 feet. It may be considered a short-lived tree, and, like all such, it comes into flower when young. It has rarely, if ever, been propagated in this country by inarching or layers, and very seldom from seeds; and, hence, the plant is very sparingly distributed. Soil, propagation, &c., as in M. tripétala. Seeds are ripened in France, and young plants imported from that country, or from North America.

† 5. M. acuminata L. The pointed-leaved Magnolia.


Synonymes. M. rústica, and M. pennsylvanica, of some; the blue Magnolia, Eng.; the Cucumber Tree, U. S.; Magnolia acuminé, Magnolier à Feuilles pointées, Fr.; zugespitzer Bieberbaurn, Ger.

Derivation. This species is called the Cucumber Tree, in America, from its fruit resembling a small cucumber. The other names are translations of the botanic one.


Spec. Char., &c. Deciduous. Leaves oval, acuminate, under surface pubescent. Flowers 6—9-petaled. (Don's Mill.) A deciduous tree of large size. New York to Georgia. Height in America 60 ft. to 80 ft., with the trunk 4 ft. to 5 ft. in diameter at the base; in England 30 ft. to 50 ft. Introduced in 1736. Flowers yellowish within, glaucous without, slightly fragrant; May to July. Strobile cylindrical, brownish red, 3 in. long; ripe in October. Decaying leaves dark brown or black. Wood of a mahogany brown.

Varieties.


‡ M. a. 3 máxima Lodd.—Leaves much larger than those of the original species. Introduced by Messrs. Loddiges, and cultivated in different nurseries.

Other Varieties. The Magnolia acumináta being frequently raised from seed, and the seedlings varying much in the size of their leaves, and in the presence or absence of pubescence, both on the leaves and wood, it would be easy to select several varieties apparently as distinct as those above mentioned, such as M. striáta, latifólia, &c. In the Goldworth Nursery, Woking, Surrey, are some which appear remarkably distinct.

Trunk straight, branches numerous, shoots regularly distributed. The leaves are from 6 in. to 7 in. long, and from 3 in. to 4 in. broad, upon old truces, but double that size upon young vigorous-growing plants. Michaux describes them as oval, entire, and very acuminate; but, in the seedlings raised in British nurseries, they are found sometimes ovate, nearly orbiculate,
and cordate acuminate. The flowers are 4 or 5 inches in diameter, bluish, and sometimes white, with a tint of yellow. They have but a feeble odour, and the petals are never fully expanded, though, as they are large and numerous, they have a fine effect in the midst of the superb foliage. Plants raised from seeds do not usually produce flowers till they are eight or ten years old, when the tree will probably be from 15 ft. to 20 ft. in height; but plants raised from layers produce flowers in two or three years. The fruit is about 3 in. long, and nearly 1 in. in diameter. It is nearly cylindrical, and often a little larger at the summit than at the base; it is convex on one side, and concave on the other; and, when green, it nearly resembles a young cucumber: it becomes rose-coloured when ripe; and, as in the case of the other species, the seeds, before they drop, remain suspended for some time by long white threads. The wood of this tree is of a fine grain, and of an orange colour. A free, deep, and rather moist soil answers best for this species; but, as it is much harder than any of the others in this section, it will grow in almost any soil that is moderately free, and not overcharged with moisture. It is generally propagated in the London nurseries by layers, the plants so produced flowering much sooner than seedlings; but the latter, as they make far more durable plants, should always be preferred when this species is used as a stock to graft or inarch others on. It is so used very generally, not only for M. auriculata and cordata, but for M. conspicua and Soulangeana. The plants are, in some nurseries, grown in the free soil; but it is always preferable to rear them in pots; because, in that case, they are not checked by transplanting, and at least a year is gained in their growth.

Y. 6. M. (A.) cordata Mr. The heart-leaved Magnolia.


*Synonymes.* The heart-leaved Cucumber Tree, Amer.; Magnolier à Feuilles en Cœur, Fr.; herzblättiger Bieberbaum, Ger.
**III. MAGNOLIACEÆ: MAGNOLIA.**


**Spec. Char., &c.** Deciduous. Leaves broadly ovate, subcordate, acute, under surface tomentose, upper surface smooth. Petals 6—9, oblong. *(Don's Mill.)* A deciduous tree of the middle size. Carolina to Georgia, on mountains. Height 20 ft. to 40 ft. and 50 ft. in America, and 20 ft. to 30 ft. in England. Introduced in 1800. Flowers yellow slightly streaked with red, with a disagreeable odour, seldom expanding fully; June and July. Strobile like that of *M. acuminata*, but smaller; ripe in October. Decaying leaves dark brown or black. Naked young wood hoary brown.

40. Magnolía cordata.

This tree, in its native country, has a trunk 12 or 15 inches in diameter, straight, and covered with a rough and deeply furrowed bark. Its leaves are from 4 in. to 6 in. in length, and from 3 in. to 5 in. wide, smooth and entire. The flowers are from 3 in. to 4 in. in diameter, and are succeeded by fruit about 3 in. long, and nearly 1 in. in thickness, of a similar form to those of the preceding species. The soil, situation, propagation, &c., may be considered the same as for *M. acuminata*; but, as *M. (a.) cordata* seems, in its native country, to inhabit higher and drier localities than *M. acuminata*, it may probably be placed in still more exposed situations than that species in Britain.

**† 7. M. AURICULA'TA Lam.** The auricled-leaved Magnolia.


*Synonymes.* M. Fræseri Walt., Tor. & Gray; M. auricularis Salisb.; Indian Physic, and long-leaved Cucumber Tree, *Amer.*; Magnoliæ auriculæ, *Fr.*; geährter (eared) Bieherbaum, *Ger.*


*Variety.*

*M. a. 2 pyramidata.* M. pyramidata *Bartr.*; M. Fræseri pyramidata *Nutt., Tor. & Gray.* The plate in Arb. Brit. 1st edit. vol. v.; and
41. Magnolia auriculata pyramidata.

our fig. 41. — Leaves shorter than those of the species, and the plant altogether weaker. It is found in the western parts of Carolina and Georgia, but only in two or three localities. Propagated by inarching on M. auriculata, but it requires two years to adhere, and seldom makes a vigorous plant.

This tree has a straight trunk 12 or 15 inches in diameter, often without branches for half its height; the branches spread widely, and ramify but sparingly; and this circumstance, Michaux observes, gives the tree a very peculiar air, so that it may readily be known at a distance, even in winter.

42. Magnolia auriculata.

The leaves are of a light green colour, of a fine texture, 8 or 12 inches long, and from 4 in. to 6 in. broad: on young and vigorous trees they are often one third, or even one half, larger. The flowers are 3 or 4 inches in diameter, of a milky white, and of an agreeable odour, and are situated at the extremity of the young shoots. The fruit is oval, 3 or 4 inches long, and, like that of
Magnolia tripétala, of a beautiful rose colour when ripe; it differs from those of the other species by a little inferiority of size, and by a small appendage which terminates the carpels. Each carpel contains one or two seeds. The wood is soft, spongy, very light, and unfit for use. The bark is grey, and always smooth, even on the oldest trees. When the epidermis is removed, the cellular integument, by contact with the air, instantly changes from white to yellow. In England, annual shoots of young plants are from 1 ft. to 2 ft. or more in length; and the height which the tree usually attains in 10 years is from 10 ft. to 15 ft. The soil for this species ought to be free and deep; and the situation low, sheltered, and moist, rather than dry. As seeds are not very easily procured, the common mode of propagation is by layers, or by inarching on M. acuminata. Two years are required before the plants can be separated from the parent stock.

§ ii. Gwillinia Rott. in Dec. Syst.

Derivation. Named in honour of General Gwillim, sometime governor of Madras. (Don's Mill., 1 p. 83.)


♀ M. conspicua Salisb. The Yulan, or conspicuous-flowered Magnolia.


Synonymes. M. prêcia Correa; M. Yulan Desf.; Yu lan, Chinese; the Lily-flowered Magnolia; Magnolier Yulans, Fr.; Yulana Bieberbann; Ger. Magnolia dal Fiori di Giglio, Ital.

Derivation. The epithet prêcia was given to this magnolia by M. Correa, because it produces its flowers before its leaves. Yu lan signifies the lily tree. Giglio is the Italian for a lily.

Engravings. Bot. Mag., 1621: the plate of this species in Arb. Brit. 1st edit. vol. v.; and our fig. 44.


Varieties, or Hybrids.

♀ M. c. 2 Soulangeana. M. Soulangeana An. Hort. Soc. Par.; Magnolier de Soulange, Fr. (M. Soulangeana Swt. Brit. Fl. Gard., t. 260; and our fig. 43.) — The leaves, wood, and general habit of this tree bear a close resemblance to those of M. conspicua. The flowers resemble in form those of M. purpurea var. gracilis or of M. purpurea, and the petals are slightly tinged with purple. It was raised at Fromont, near Paris, from the seeds of a plant of M. conspicua, which stood near one of M. purpurea, in front of the château of M. Soulange-Bodin; the flowers of the former of which had been accidentally fecundated by the pollen of the latter.

Other Varieties, or Hybrids. M. conspicua has ripened seeds in various places; and, as it fertilises readily with M. purpurea and M. gracilis, many new varieties may be expected when the attention of cultivators is more
especially directed to the subject. *M. c. S. speciosa* and *M. c. S. Alexandrina* are in British gardens, but they are not worth keeping distinct from *M. c. Soulangiana*.

![Image of Magnolia speciosa](image)

This is a very showy tree, distinguishable from all the other magnolias of both sections, by its flowers expanding before any of the leaves. The tree assumes a regular conical shape, with a grey bark and numerous branches and twigs, which generally have a vertical, rather than a horizontal, direction. The young shoots are from 1 ft. to 18 in. in length, and the tree, in ten years, will attain the height of from 10 ft. to 15 ft., flowering the second or third year after grafting. It is nearly as hardy as the American species; flowering freely every year, as a standard, in the neighbourhood of London, when the wood has been properly ripened during the preceding summer. A rich sandy loam seems to suit this species best; but it will grow in any deep free soil, properly drained, and moderately enriched. The situation, when it is to be treated as a standard, ought to be sufficiently open to admit of ripening the wood in autumn, and yet not so warm as to urge forward the flower-buds prematurely in spring, as they are very liable to be injured by frost; from which, however, they may be protected by a very slight covering (during nights and frosty days) of gauze or bunting, stretched over the tree horizontally, and supported by posts. Against a wall, the tree shows itself in its greatest beauty; and there it can easily be protected, by a projecting coping, from the severest weather ever experienced in the neighbourhood of London. In warm situations, sloping to the south or south-east, the tree has a fine effect planted in front of a bank of evergreens; and, indeed, wherever it is planted, evergreens should be placed near it, and, if possible, so as to form a background, on account of the flowers expanding before the tree is furnished with any leaves. The species and all the varieties are propagated by layers, or by inarching on *M. purpurea* or on *M. acuminata*. When inarched on *M. purpurea*, the tree is comparatively dwarfed, by which it is rendered very convenient for use as a shrub, or for growing in pots, and forcing; but, when it is intended to form a tree, it should either be inarched on *M. acuminata*, or raised from layers or seeds. It generally requires two years before the plants can be separated from the parent stock. Some plants of this species have been raised from seed ripened in Europe; and we have no doubt that, when this magnificent tree becomes better known and more generally in demand, it will be raised in this way extensively in France and Italy, and supplied to the British nurseries from these countries.


Synonymes. M. obovata Thun., and Don’s Mill. 1. p. 84; M. discolor Vent.; M. denudata Lam.; the obovate-leaved Magnolia; Magnoler discoloré Bon. Jard., and Magnolle bicolore Dun., Fr.; rothe Bieberbaum, Ger.

Engravings. Sal. Par., t. 87; Bot. Mag., t. 390; and our fig. 43.


Varieties,

M. p. 2 gràcilis. M. Kòbus Dec. and G. Don; M. tomentosa Thun. in Lin. Trans. Kämpf. Icon., t. 42; Par. Lon., t. 87. — The two main points of difference between it and M. purpurea are, the paler green, and somewhat narrower shape, of the leaves; and the longer and more slender form of the flower, the points of the petals of which are slightly turned back; while the flower of M. purpurea is more cup-shaped, and the petals at the points are rather turned inwards. The petals of M. gràcilis are on the exterior entirely of a dark purple, whereas those of M. purpurea melt off into white at their upper extremities. A number of plants of this variety, which stood in the Hammersmith Nursery as border shrubs, and flowered freely every year, were killed down to the ground in the winter of 1837–8.

Other Varieties. In De Candolle’s Prodromus, and in Don’s Miller, three varieties are described: M. p. denudata Lam., distinguished by the flowering branches being without leaves; M. p. discolor Vent., which is said to be rather more tender than the species; and M. p. lilìflòra Lam., the petals of which are white on both sides. These varieties were originally described by Kämpfer; but, as far as we know, none of them are in British gardens. Several plants of this species having been raised from seed ripened in this country, the plants may exhibit slight shades of difference, as has been the case with certain seedlings raised in the Brentford Nursery; but, as far as we have observed, none of these are worth keeping distinct. The only variety which we consider truly distinct is M. p. gràcilis, considered as a species by Salisbury and other botanists, but which, we are convinced, is nothing more than a race, or a variety. At Desio, a variety has been raised which grows only 1½ ft. high, and which Signor Cassoretti, the garden director there, calls M. obovata pinnàta.

A deciduous shrub, attaining, in the gardens about London, the height of from 4 ft. to 8 ft. in as many years, and seldom growing much higher as a bush. The stems are numerous, but not much branched; the leaves are large, of a very dark green; and the plant produces a profusion of flowers, which do not expand fully till a day or two before they drop off; and which, unless the weather is warm, do not expand at all, but wither on the plant, and disfigure it. The flowers are large, more or less purple (according to the season, but never wholly dark purple) without, and always white within. The bark, when bruised, has an aromatic odour. A very ornamental species, which no garden ought to be without. This species is generally considered as requiring a mixture of heath soil, or sandy peat, with loam; but in many gardens about London it succeeds perfectly both in sand.
and clay; the latter soil being rendered free by sand, leaf mould, or manure, and drainage. The situation, when the plant is treated as a bush, ought to be open, in order that the wood may be ripened; and the plant should be detached, in order that it may be covered with foliage and blossoms on every side. North of London, in most situations, it requires a wall, and few plants are more deserving of one. Against a wall, it will reach the height of 15 ft. or 20 ft. In the London nurseries, it is generally propagated by layers; but it will also strike by cuttings, both of the ripened and the herbaceous wood. The stools are generally formed in pits; or, if in the open ground, they are covered with mats during winter. Seeds have been ripened both in England and France; and from these plants have been raised in some few nurseries. The plants, whether raised from layers, cuttings, or seed, should always be kept in pots till wanted for final planting. This species often serves as a stock for grafting the other kinds on, which belong to this section.

Genus II.

LIRIODE'NDRON L. The Tulip Tree.

Gen. Char. Carpels 1—2-seeded, disposed in spikes, indehiscent, deciduous, drawn out into a wing at the apex. Calyx of 3 deciduous sepals. Corolla of 6 petals, conning into a bell-shaped flower. (Don's Mill., p. 86.) — There is only one species; a deciduous tree of the first rank, native of North America.

Leaves simple, alternate, stipulate, deciduous; 3-lobed, the terminal lobe emarginately truncate, the lateral ones with two sinuses. Stipules flat. Flowers terminal, solitary, greenish yellow, orange within. — The only species in British gardens is the Liriodendra Tulipifera.

1. Liriope'ndron Tulipif'era L. The Tulip-bearing Liriodendron, or Tulip Tree.


Synonyms. The Poplar, White Wood, Canoe Wood, the Tulip Tree, Amer. ; Virginian Poplar, Tulip-bearing Lily Tree, Saddle Tree, Engl.; Tulipier de Virginie, Fr.; Virgilischer Tulipe rebaum, Ger.

Derivation. This tree is called Liriodendron, from leforon, a lily, and dendron, a tree; from the flowers resembling those of a lily, though more correctly those of a tulip, as the specific name implies. It is called Poplar, from its general resemblance to trees of that genus; White Wood, from the colour of its timber; Canoe Wood, from the use to which it is applied by the native Indians; Tulip Tree, from its tulip-like flowers; and Saddle Tree, from the form of its leaves. The French and German names are literal translations of the words Virginian tulip tree.

Engravings. Bot. Mag., 275; Duh., tom. 3. t. 18; the plate in Arb. Brit., 1st edit. vol. v.; and our fig. 45.

Spec. Char., &c. Leaves smooth, truncate at the top; 4-lobed, resembling a saddle in shape. Flowers large, solitary, terminal; variegated with green, yellow, and orange colour; furnished with two deciduous bracteas under flowers. (Don's Mill.) A smooth deciduous tree of large size. Canada to Florida. Height 70 ft. to 140 ft., and trunk 8 ft. to 9 ft. in diameter, in America; 50 ft. to 90 ft. in England. Introduced in 1688. Flowers greenish yellow without, orange within; June and July. Strobile brown; ripe in October. Decaying leaves rich yellow and brown. Naked young wood smooth, and of a mahogany brown.

Variety.

† L. T. 2 obusiloba Michx., integrifoli Hort., Yellow Wood, or Yellow Poplar, has the leaves with blunter lobes than the species, but is in no other respect different from it.

Other Varieties. L. T. acutifolia Michx. has never, we believe, been introduced. L. T. flijc Hort. has yellow flowers. As the tulip tree is almost always raised from seeds, it is probable that the flowers of seedlings will
vary in their shades of colour, and any desirable variation may be perpetuated by propagating the plant possessing it by layers or inarching.

In the development of its leaves, the tulip tree differs from most other trees. The leaf-buds, in general, are composed of scales closely imbricated, which, in the spring, are distended by the growth of the minute bundle of leaves that they enclose, till they finally fall off. The flowers, which are large, brilliant, and on detached trees very numerous, are variegated with different colours, among which yellow predominates; they have an agreeable odour, and, surrounded by the luxuriant foliage, they produce a fine effect. The fruit is composed of a great number of thin narrow scales, attached to a common axis, and forming a conical spike 2 or 3 inches in length. Each fruit contains 60 or 70 carpels; of which never more than a third, and, in some seasons, not more than seven or eight in the whole number, are matured. It is also observed, that, during ten years after it begins to yield fruit, almost all the seeds are unproductive, and that, on large trees, the seeds from the highest branches are the best. The heart, or perfect, wood of the tulip tree is yellow, approaching to a lemon colour; and its sap, or alburnum, is white. The annual shoots of young plants, in the neighbourhood of London, are from 18 in. to 2 ft. in length; and the tree will, in favourable circumstances, attain the height of from 15 ft. to 20 ft. in ten years; seldom, however, flowering till it is upwards of twenty years old. The height, in England, frequently exceeds 70 ft.; and it has ripened seeds here, occasionally, from which young plants have been raised. It ripens its fruit very generally in France; though it is observed, in the Nouveau Du Hamel, that these seeds do not vegetate so freely as those which are imported from America. Deep, loany, good soil best suits the tulip tree; and the situation most favourable is one which, while it is sheltered from high winds, is, at the same time, sufficiently exposed to the light and air to admit of the maturation of its leaves on every side, and the perfect ripening of its wood, without which it can neither resist the severe frosts of winter, nor form blossom buds. The species is seldom, if ever, propagated otherwise than by seeds, which come up best in heath soil, very fine mould, or sandy loam, in a shady situation, kept rather moist; but the varieties are multiplied by layers or inarching. When the seeds are sown in autumn, they generally come up the following spring; but, sown in spring or the beginning of summer, they generally remain a year in the ground. The tulip tree, like the magnolias, having roots furnished with but few fibres, does not transplant readily; and, therefore, the plants ought either to be kept in pots, or, if in the tree ground, transplanted in the nursery every year; or if neither of these modes be practicable, removed to their final situation, when not more than two, or at most three, years old. The tree is, like the magnolias, not very patient of the knife, either in a young or in an old state; and, from the bitter qualities of the
leaves, it does not seem to be much attacked by insects. As tulip trees raised from seed seldom flower before they are twenty or thirty years old, it is much to be wished, that nurserymen would propagate them by grafting or inarching from flowering trees, in consequence of which the plants would probably flower the second or third year.

Order IV. *Anonaceae*.

**Ord. Char.** The distinctive characteristics of this order from that of Magnoliaceae are: **Authors** with an enlarged four-cornered connectivum, which is sometimes nectariferous; **albumen** pierced by the substance of the seed-coat; **leaves** without stipules, conduplicate in the bud; **properties** aromatic. — **Trees** or shrubs mostly natives of warm climates. **Leaves** simple, alternate, exstipulate, deciduous; distinctly articulated with the stem, entire; leaves and branches pubescent when young, the leaves commonly minutely punctate, with pellucid dots. **Flowers** axillary. — The hardy species, in British gardens, are included in the genus *Asimina* Adans., formerly *Anona* L., and are natives of North America.

**Genus I.**


**Identification.** Adans. Fam., 2, p. 365; Dec. Prod., 1, p. 87; Don's Mill., 1, p. 91. **Synonymes.** *Anona* L.; Orchidocarpum *Ms.*; Porcelain sp. *Pers.*; Uvâria Tor. & Gray; Custard Apple; *Asimílium*; and *Anone, Fr.*; Flaschenbaum, Ger.

**Derivation.** *Asimina* is Latinised from a word of Canadian origin, the meaning of which is not known. Orchidocarpum was, it is probable, intended to express a likeness between the figure of the fruit, and that of some species of *O'crhis*. Porcelain is a name given by Ruiz. In honour of *Antonio Porcel,* a Spanish promoter of botany. *Anona* is a South American word that signifies a mess, or dish of food, to be eaten with a spoon. *Uvâria* is from *uvâ*, a grape, to which, however, the fruit has little resemblance. The German name, Flaschenbaum, flask tree, is given from the shape of the fruit.

**Gen. Char.** Calyx 3-parted. **Petals** 6, spreading, ovate-oblong, inner ones smallest. **Anthers** numerous, nearly sessile. **Ovaries** many, but for the most part only 3, ovate or oblong. **Carpels** the same number as the ovaries, baccate, sessile. **Seeds** many, disposed in a single or double row. (Don's Mill.) — Low trees or shrubs, deciduous, with white or purplish flowers, and fruit about the size of small plums. Rather tender, and difficult of culture. Only one species is truly hardy in the climate of London.


**Engrewns.** Mill. Icon., 1, t. 35; *Tor. and Gray*, 1, p. 46; *Ms. Arb., 3, t. 9;* and our fig. 47.

**Spec. Char., &c.** Leaves oblong-cuneated, acuminate, and, as well as the branches, smoothish. **Flowers** on short peduncles; outer petals roundish-ovate, four times longer than the calyx. (Don's Mill.) A low deciduous tree. Middle, southern, and western states of North America. Height 15 ft. to 20 ft. in North America; 7 ft. to 10 ft. in England. Introduced in 1736. **Flowers** dark purple and yellow. Fruit yellowish, esculent; ripe in August in America, rarely seen in England. Decaying leaves rich yellowish brown. Naked young wood dark brown.

A small tree, densely clothed with long leaves, lying over one another in such a manner as to give a peculiarly imbricated appearance to the entire plant. The flowers are campanulate and drooping, and appear before the
leaves; the outer petals are purple, and vary in colour in different plants; in some being very dark, and in others light, inclining to yellow. All parts of the tree have a rank, if not a fetid, smell; and the fruit is relished by few persons except the negroes, who call it papaw. The fruit ripens in America in the beginning of August, and is about 3 in. long and 1½ in. thick, oval, irregular, and swelling into inequalities. In British gardens, the plant is always raised from American seeds; and, to thrive, it requires to be planted in sandy peat or deep sand, and kept moist. In England it may be considered as a curious, slow-growing, deciduous shrub, or low tree, well deserving a place in gardens, but which ought always to be isolated, and at some distance from rapid-growing plants. Relatively to growth, it may be placed near Dirca palustris, some of the daphnes, or Illicium.

Other Species of Asimina. — _A. parviflora_ and _A. grandiiflora_ are North American shrubs, seldom growing higher in their native habitats than 1 ft. to 2 ft., and rather too tender for the climate of London.

**ORDER V. MENISPERMA'CEÆ.**

**Ord. Char.** Flowers unisexual. Sepals and petals similar. Stamens monadelphous, or rarely free. Ovaries somewha connected at the base; with one or many styles; many-celled. Fruit, in most, baccate or drupaceous, one-seeded or many-seeded, oblique or lunulate, compressed, with the seeds of the same form. Embryo curved or peripheric. Albumen none, or very sparing and fleshy. (Don's Mill.) — Climbing or twining flexible shrubs, natives of North America and Asia.

Leaves simple, alternate, exstipulate, deciduous; stalked, usually cordate or petate, palmately veined, and always with the middle nerve terminating in an awn or point. Flowers in axillary racemes in most species, small. — The species in British gardens are included in the genera _Menispernum_ and _Coeculus_, which are thus contradistinguished: —

**Menisper'num** _L._ Sepals and petals quaternary. Male flowers with 15—20 stamens.

**Co'eculus** _Baul._ Sepals and petals ternary. Male flowers with 6 stamens.

**Genus I.**

**MENISPERMA'NUM** _L._ THE MOONSEED. _Lin. Syst._ Diœ'cia Dodecandria.


*Synonymes._ _Ménisperme_, Fr.; _Mondsame_, Ger.

*Derivation._ From _mēn_, the moon, and _spērma_, a seed; from the seeds being crescent-shaped.

**Gen. Char._ Sepals and petals disposed in a quaternary order, in two or three series. Male flowers with 16 to 20 stamens; female flowers with 2 to 4 ovaries. _Drype_ baccate, roundish-kidney-shaped, 1-seeded. — Climbing shrubs natives of North America and Dauria.
Leaves simple, alternate, peltate or cordate, entire, smooth. Peduncles axillary, or supra-axillary. Male and female peduncles rather dissimilar. Flowers small, greenish white.—The species are all of the easiest culture in common soil, and are propagated by dividing the root, or by cuttings.


_Synonymes._ M. canadense var. L. Lam.; M. angulatum Moench; Menisperme du Canada, Bon. Jard.; Canadischer Mondsaamo, Ger.


_Varieties._

§ M. c. 2 lobatum Dec. M. virginicum L. (Dill. Elth., t. 178. fig. 219.)—This variety is distinguished by the angles of the leaves being acutish, and the flowers of a greenish white.

§ M. c. 3 smilacium. M. smilacinum Dec. (Jac. Icon., t. 269.; and our fig. 49.)—Leaves smoother, and racemes more simple than in the species.

Roots thick and woody, with numerous very slender shoots, which, though somewhat ligneous, never attain any considerable diameter; and are not of many years' duration. The stem twines in a direction contrary to the sun's apparent motion, and is smooth and even, having more the appearance of a herbaceous plant, than of a shrub.


_Synonymes._ Trilophus Ampelisagria Fisch.; M. canadense var. 3 Lam.

_Engravings._ Deless. Icon., t. 109.; and our fig. 50.

_Spec. Char., &c._ Leaves peltate, smooth, cordate, angular; angles acute, terminal one acuminate hardly mucronate. Racemes in pairs, capitulate. (Don's Mill.) A twining, deciduous, suffruticose shrub. Dauria, on rocky hills, near the river Chilca. Height 5 ft. to 10 ft. Introduced in 1818. Flowers yellowish; June and July. Berries black; ripe in September.

Resembles the preceding species, and probably only a variety of it.

Genus II.


Gen. Char. Sepals and petals disposed in a ternary order, in 2, very rarely in 3, series. *Male flowers* with 6 free stamens opposite the petals; *female ones* with 3 or 6 carpels. *Drupes* baccate, 1 to 6, usually obliquely reniform, somewhat flattened, 1-seeded. *Cotyledons* distant. (*Don's Mill.*) Leaves simple, alternate, exstipulate, deciduous; cordate or ovate, entire or lobed. *Flowers* small. — The only hardy species is *C. carolinus*, a native of Carolina, of the same culture as *Menispernum*.

1. **Coecculus carolinus** Dec. The Carolina Cocculus.


**Synonimes.** *Menispernum carolinum* Linn.; *Wendlandia* popullifolia Wild.; *Pursh, and Dill.; Androphilax* scandens Wend.; *Baumgartia* scandens Moench; *Menispermum da Carolina*, Fr.; Carolinischer Mundeasme, Ger.


**Spec. Char.** &c. Leaves cordate or ovate, entire, obtuse, and somewhat 3-lobed; under surface velvety pubescent. Male racemes floriferous from the base, female ones 3-flowered. (*Don's Mill.*) A twining, deciduous, suffruticosus shrub. North Carolina and Georgia. Height 6 ft. to 10 ft. Introduced in 1759. Flowers small, greenish; June and July. Fruit red; ripe in September. Decaying leaves yellowish or brownish.

Leaves extremely variable in form, 2 in. to 4 in. long, often quite entire, but usually with several sinuated, obtuse lobes. Drupe red, as large as a small pea.

---

**Order VI. Berberaceae.**

**Ord. Char.** Sepals usually 6, in two whorls, deciduous, and furnished with petal-like scales on the outside. The petals are equal in number with the sepals, and the stamens equal in number with the petals, and opposite to them. The anthers "open by reflexed valves; that is to say, the face of each cell of the anther peels off except at the point, where it adheres as if it were hinged there;" a structure so remarkable, Dr. Lindley observes, as to be "found in no European plants except Berberacoee and the laurel tribe." (*Penny Cyc.* vol. iv. p. 259.) — Bushy shrubs, which throw up numerous suckers; natives of the temperate climates of Europe, Asia, and North America.

Leaves simple or compound, alternate, generally exstipulate, deciduous or persistent; shoots generally furnished with prickles; the sap, and the colour of the leaves and bark, more or less yellow. *Flowers* generally yellow. — The genera containing species hardy in British gardens are two, *Berberis* and *Mahonia*, which are thus contradistinguished: —

**Berberis** L. Petals with 2 glands on the inside of each. Stamens toothless. Leaves undivided.

**Mahonia** Nutt. Petals without glands. Stamens furnished with a tooth on each side. Leaves pinnate.
Genus I.


Synonyms. Piperrydʒ Bush; E’pine vinette, Fr.; Berberizte, Ger.

Derivation. Berbery is the Arabie word used for this plant by Averroes and other writers on medicine; but some persons derive the name from the Greek word berberis, signifying a shell, from the leaves of the common species having a hollow surface. Bochart says that the word Berbery is derived from the Phoenician word barrar, which signifies shining like a shell, from their shining leaves. Gerard says that the word Berbery is a corruption of anuyheris, the name given to the plant by Avleema. Du Hamel says that Berbery is derived from an Indian word signifying mother of pearl. Piperrydʒ bush, or pipriage tree, Gerard says, is Dr. Turner’s name for the plant, and it is still given to it in Cambridgeshire. E’pine vinette signifies the acid, or sorel, thorn, from the taste of the fruit and leaves.


Leaves simple, alternate, exstipulate, deciduous or evergreen; toothed or serrated, coriaceous, with numerous small leaves produced at the axils of the larger ones, often abortive in the form of prickles. Flowers yellow. Fruit red, in some kinds black, purple or white in others.—Shrubs natives of Europe, North America, and Asia; characterised in a general view by being crowded with suckers, and having axillary tufts of leaves and spines.

The species are all readily propagated by seeds which most of them ripen in England; and also by side suckers and root suckers, which almost all of them throw up in abundance.

A. Leaves thin, deciduous. Flowers solitary.

1. B. Sib’rica Pall. The Siberian Berberry.


Synonyms. B. altaica Pat.; Vnétier de Sibérie, Fr.

Engravings. Pall. Fl. Ross., 2. t. 67.; and our fig. 52. after Hayne, and fig. 53. after Pallae.


B. Leaves thin, mostly deciduous. Flowers in Racemes.

2. B. Vul’ga’ris L. The common Berberry.


Synonyms. B. stúennis Prest.; B. macrocrkpra of some; Piperrydʒ Tree, Dr. Turner; E’pine vinette, Fr.; gemeine Berberizte, Ger.

Engravings. Eng. Bot., t. 49.; Wild. Baum., t. 39.; and our fig. 54., in which a is a specimen in flower, b a specimen in fruit, c a flower of the natural size, and d a fruit of the natural size.

Varieties.

B. v. 2 lutea. — Fruit yellow, sometimes stoneless.
B. v. 3 alba.—Fruit white.
B. v. 4 violacea.—Fruit violaceous
B. v. 5 purpurea. B. innominata Kalm.—Fruit purple; leaves narrow, hardly ciliated.
B. v. 6 nigra. — Fruit black; leaves oblong, ciliately serrated, serratures few. The fruit of this plant is said by Tournefort, who found it on the banks of the Euphrates, to be of delicious flavour.
B. v. 7 dulcis.—Fruit red, somewhat less acid than that of the common berberry. Leaves of a bright shining green. Native of Austria, where it was first considered to be a distinct species, till the fruit of plants raised from its seed was found to be as acid as that of the common berberry. It is now, however, propagated by layers; the leaves and fruit are considerably larger than those of the species, and the fruit is found perfectly sweet and agreeable to eat. In short, this variety is to the common berberry, what the apple is to the crab.
B. v. 8 asperma. The seedless Berberry. — Fruit destitute of seeds. Miller, and also Du Hamel, both say that suckers taken from this variety commonly produce fruit with seeds; that, as the tree grows older, the seeds become fewer, and that it is the age of the plant that at last causes the fruit to be seedless; in that case this plant must be considered more a variation than a variety. B. v. asperma is said by Du Hamel to produce the best fruit for preserving; and it is from it that the delicious Confitures d'Epine vinette, for which Rouen is so celebrated, are made. (Nouv. Duh., iv. p. 13.)
B. v. 9 longifolia Booth. — Leaves longer than those of the species.
B. v. 10 glauca, B. glauca Booth. — Leaves glaucous. Mr. Gordon considers this plant as related to B. sibirica; but, as it has not yet flowered in the Horticultural Society's Garden this point cannot be determined. (See Gard. Mag., vol. xvi. p. 2.)
B. v. 11 minus. — Shoots without spines. Leaves glaucous, rather broader.
B. v. 12 provincialis Schrad. — Young shoots brown. Leaves and fruit as in the common berberry.

All these varieties are in the London Horticultural Society's Garden.

Other Varieties. In the Horticultural Society's Garden a number of alleged species of berberries have been raised from seed, which have all proved varieties of B. vulgaris, and most of them so slight, as to be scarcely worth keeping distinct. (See Gard. Mag., vol. xvi. p. 2.)

The common berberry will live for two or three centuries, without increasing much in size. The wood is hard and brittle, of a yellow colour, and but little used except for dyeing. The rate of growth, when the plant is young, is rapid; and, in consequence, in five or six years it will attain the height of
7 or 8 feet; but it grows slowly afterwards, unless the suckers are removed from it as they are produced. It is seldom seen above 10 ft. high; but there are examples of trees of it 30 ft. high, probably of 30 years' growth. The inner bark, both of the stems and roots, affords a yellow dye. The leaves are agreeably acid, and, according to Gerard, were used in his time "to season meat with, and instead of a salad, like sorrel." The berries are so acid, that birds seldom touch them. They are not eaten raw, but are excellent when preserved with sugar in syrup, or candied. They are also made into jelly and rob, both of which are not only delicious to the taste, but extremely wholesome; and they are pickled in vinegar, when green, as a substitute for capers. The plant is cultivated in gardens as a fruit tree or fruit shrub; and the variety, or rather variation, in which the seeds are said to be wanting, and that in which the fruit is sweet, are recommended in preference. The plant makes an excellent hedge; but there exists a prejudice against it among agriculturists, from its supposed influence in producing blight, or mildew, on the corn adjoining it. This opinion is of unknown antiquity; but it is now generally considered to be an erroneous prejudice.


Synonyme. Ausgerandete (serrated) Berberitze, Ger.
Engravings. Hayne Abbild., t. 62.; and our figs. 55. and 56.


Closely resembling B. vulgaris, of which it is, doubtless, only a variety; but it is one half smaller in all its parts, and has the petals emarginate, and the leaves decidedly glaucous.


Engravings. Fl.Grav. t. 282.; and our figs. 57. and 58.

VI. BERBERACEÆ: BERBERIS.

(Don's Mill.) A deciduous shrub, crowded with shoots. Crete, Candia, and, perhaps, Japan. Height 3 ft. to 4 ft. Introduced in 1759. Flowers yellow; May and June. Berries ovate, black; ripe in September. Decaying leaves whitish yellow. Naked young wood also whitish.

The leaves are produced without any obvious order; they are small, and in their shape they resemble those of the narrow-leaved variety of the common box. The berries are ovate, black, 2-seeded, more astringent than acid; stigma on a very short style.


Distinguished from all the other species, by the leaves being long, flaccid, entirely glaucous, or whitish. Young shoots brown.

A plant bearing this name in the Horticultural Society's Garden is 5 ft. high, with the leaves much longer than those of B. vulgaris; serrated, as in tla flat species, and decidedly glaucous. In other respects we can see no difference.


Readily distinguished from the common berberry by its smaller and smoother leaves, its red shoots, and its almost upright racemes; and from B. sinensis by the leaves being comparatively entire.


Spec. Char., &c. Branches verrucose, dotted, with short triple spines; leaves spatulate, oblong, remotely serrate, with somewhat bristly teeth; racemes sub-corymbose, few-flowered; petals emarginate; berries subglobose, or oval. (Tor. and Gray.) A deciduous shrub. Canada to Georgia. Height 2 ft. to 3 ft., in England 5 ft. Introduced in 1759. Flowers yellow;
May and June. Berries red; ripe in September. Decaying leaves yellowish green and reddish. Naked young wood whitish yellow.

Leaves much smaller and narrower than in B. vulgaris, attenuate at the base, but nearly sessile; the margins serrulate, with 6–8 distant, often inconspicuous, mucronate teeth. Raceme 5–8-flowered, nodding; flowers smaller than in B. vulgaris; fruit smaller and much shorter. Stem and roots yellow; the former rarely exceeding 3 ft. in height. Found in the Alleghany Mountains, Virginia and Carolina, Tennessee, and Georgia. (Tor. and Gray.) Introduced into England in 1759, but probably lost, as we have seen no plant answering this description in British gardens.


Engravings. Our fig. 52. and 53. from a specimen in the Hort. Soc. Garden.

Leaves oblong, obtuse, entire, or the lower ones a little toothed. Racemes many-flowered, nodding. (Don’s Mill.) A deciduous shrub with slender shoots. China. Height 3 ft. to 5 ft. Introduced in 1800. Flowers yellow; May and June. Berries oval, dark red; ripe in September. Leaves smooth, sharply serrated. Decaying leaves of a fine yellowish red. Naked young wood reddish yellow.

The plant at the Horticultural Society’s Garden, and at Messrs. Loddiges’s, has smooth leaves, red shoots, and closely resembles Béberis ibérica.
VI. BERBERACEÆ: BERBERIS.

C. Leaves leathery, evergreen, or sub-evergreen. Flowers solitary, or in Clusters.


Spec. Char., &c. Spines long, slender, simple, or 3-parted. Leaves obovate obtuse, with or without a bristly point, quite entire, glaucous on the under side. Flowers solitary, on slender stalks, twice as long as the leaves. (Lindl., Pen. Cyc.) An evergreen shrub, with shining leaves. Straits of Magellan to Valdivia. Height 2 ft. to 5 ft. Introduced in 1830. Flowers yellow; March to June. Berries round, black, about the size of a black currant; ripe in August. Decaying leaves bright yellow; dropping in May and June.

An elegant evergreen bush, which, in some places, has attained the height of 5 ft. The flowers are large, of a fine bright yellow, more expanded than they are in many species, and, from their long slender stalks, they hang down in a very graceful manner. In its native country, the fruit is used, both green and ripe, as we use gooseberries, for making pies and tarts and preserves, for which it is most excellent. It is quite hardy and evergreen.

10. B. buxifolia Lam. The Box-leaved Berberry.

Identification. Lam. Ill., t. 253. fig. 3.; Don's Mill., 1. p. 117.

Engravings. Lam. Ill. t. 253. fig. 3.; and our fig. 65.


Said to be nearly allied to B. dulcis. A very valuable addition to our hardy evergreens; though, at present, rare in British gardens.

11. B. actinacanth a Mart. The ray-spined Berberry.


Engraving. Our fig. 66.

Spec. Char., &c. Spines palmate, 3—5 divisions. Leaves ovate elliptic, rigid, coriaceous, toothed, mucronate. Peduncles 4—5, sub-umbellate, shorter than the leaves. An evergreen shrub, with numerous spreading branches, and long white spines, generally in threes, but sometimes more numerous. Straits of Magellan. Height 3 ft. to 4 ft. Introduced ? 1830. Flowers deep yellow, a little larger than those of B. vulgaris; May and June. Fruit ?

A very desirable species, nearly allied to B. heterophylla. Our engraving is of a specimen taken from a very handsome plant in the rich collection of evergreens at Elvaston Castle. Dr. Hooker mentions a variety with smaller leaves than the species, but it does not appear to be introduced. Quite hardy.


*Spec. Char., &c.* Spines 3-parted. Leaves ovate-lanceolate, glabrous, some of them entire, others furnished with 3 pungent teeth. Pedicles solitary, 1-flowered, hardly longer than the leaves. Filaments toothed. (*Don's Mill.)* An evergreen shrub. Straits of Magellan. Height 3 ft. to 4 ft. Introduced in 1823. Flowers orange yellow; May and June. Berries red; ripe in September. Decaying leaves greenish yellow; June and July.

Much branched, and the older branches covered with dark wrinkled bark. The leaves clustered, and of two kinds; the old ones terminated with a sharp spinose point, and having a lateral spine on each side above the middle, and the younger ones being pale green, unarmed, and having their margins entire and softish. The old leaves are also quite rigid, dark green, and shining.


*Engravings.* Lam. Ill., t. 253., fig. 4.; Sw. Brit. Fl. Gar., 2, s. t. 550.; and our fig. 68.


Branches slender, twiggy, angular, covered with a chestnut-coloured bark. Leaves fasciculate, linear, mucronate, revolute, and entire at the margins, glaucescent; about half an inch long, and nearly a line in breadth. Flowers large, spreading. A very curious and pretty plant, in general aspect much more like a heath than a berberry. It is perfectly hardy, and deserves a place in every collection. It is readily increased by layers, in heath soil.

D. Leaves leathery, evergreen or sub-evergreen. Flowers in Racemes.


*Synonyme.* 1. *glauca Hort.*

*Engravings.* Bot. Reg., t. 1750.; and our fig. 69.


A tall, slender, evergreen bush, with deep brown branches, and scarcely any spines. The leaves are sometimes wedge-shaped and 3-toothed, but more frequently nearly round, with two or three spiny teeth on every side. A curious and beautiful species, well deserving of cultivation. It is quite hardy, and readily increased by layers. which root the same season that they are made.
15. B. asiatica Roxb. The Asiatic Berberry.


Engravings. Deless. Icon. sl., 2. t. 1.; and our fig. 70.


Leaves somewhat resembling those of B. heterophylla, but not glaucous. The plant is easily distinguished from that species by the very short racemes of its flowers, by their being produced much earlier, and by the smoothness of its shoots. On July 20, 1837, a fine plant of B. asiatica, in the grounds at Syon, was covered with fruit, while one of B. aristata, standing close beside it, was covered with its beautiful rich yellow blossoms, many of which were not fully expanded. The fruit is oblong, pinkish or purplish, wrinkled, and covered with a fine thick bloom like that of the best raisins. The plants in 5 or 6 years attain the height of 6 or 8 feet.


Synonyms. B. Chitria Boeh.; B. angustifolia Roxb.; B. sinensis Decf.

Engravings. Hook. Exot. Flror., t. 88.; Bot. Reg., t. 729.; and our fig. 71

Spec. Char., &c. Lower spines 3-parted, simple; leaves oblongate-acute, tapering much to the base, ending in a mucro (prickly point) at the apex, membranous, smooth on both sides, serrated, with 4 or 5 bristle teeth. Racemes nodding, many-flowered, longer than the leaves. Berries oblong. (Don's Mill.) A vigorous-growing sub-evergreen shrub, crowded with suckers which sometimes grow 8 ft. to 9 ft. long in a season. Nepal, on mountains 5000 ft. to 8000 ft. of elevation. Height 6 ft. to 10 ft. Introduced in 1820. Flowers yellow; June and July. Berries purplish, with a fine bloom; ripe in September. Decaying leaves yellow and scarlet. Naked young wood yellowish brown.

Very distinct from any of the preceding species or varieties, growing with extraordinary vigour, and capable of being formed into a very handsome small
tree. The root and wood are of a dark yellow colour, and form the yellow wood of Persian authors; they are used as a dye, and, being bitter and a little astringent, they, as well as the bark, are employed in medicine. (Royle's Illust., p. 63.) In Nepal, the fruit of this species is dried, like grapes for forming raisins, in the sun. A most desirable plant, calculated to produce a splendid effect, both when in flower and when in fruit, upon an open lawn. As a rapid grower, it ought not to be planted near slow-growing shrubs or trees.

Other Species of Berberis. — B. Coriaria Royle, a species having the same general appearance as B. aristata, has been raised in the Horticultural Society's Garden, and there are plants 3 ft. high, but they have not yet flowered. Plants have been raised in the Horticultural Society's Garden, and in some nurseries, from seeds received from Mexico and Nepal; but, though these have new names, it is not certain that they will all prove new species, and therefore we consider it better not to record them till they have flowered. In Hook. Bot. Misc. vol. iii., B. chilensis Gill., B. ruscifolia Lam., B. corinbosa Hook. et Arn., B. gloveriata Hook. et Arn., and B. Grevilleana Gill., are described, or mentioned, as having been found in South America, and Dr. Hooker has specimens of them in his herbarium. Numerous varieties of Berberis vulgaris are raised in the London gardens, under continental names, as if they were species, but very few of them are worth keeping distinct. See in Gard. Mag. for 1840, p. 1, Mr. Gordon's Report on those raised in the Horticultural Society's Garden in 1839.

Genus II.

MAHONO'IA Nutt. The MAHONIA, or Ash BERRy. Lin. Syst. Hexândria Monogynia.


Synonymes. Berberis of authors ; Odostemon Raf. ; Ash Berberry Pen. Cyc.

Derivation. Named by Nuttall in honour of Bernard McMahon, a seedsman at Philadelphia, the author of the American Gardener's Calendar, and an ardent lover of botanical science.

Gen. Char. Sepals 6, guarded on the outside by three scales. Petals 6, without glands on the inside. Staminus furnished with a tooth on each side at top of the filament. Berries 3—9-seeded. (Don's Mill.)

Leaves compound, pinnate, alternate, exstipulate, evergreen; the leaflets coriaceous, with the margins toothed or serrated. Flowers yellow. Fruit mostly black. — Natives of the north-west coast of America, and also of Nepal, and perhaps Japan.

Though some botanists think that the characters ascribed to this genus, and those ascribed to Berberis, as exhibited in p. 41, are not sufficient to keep them separate as genera; yet the habits of the species of one, as to the mode of growth, foliage, and inflorescence, are so distinct from those of the other, as to induce us to adopt the genus Mahonia. The species in British gardens are all of comparatively slow growth, and admit but of slow multiplication by layers, which require to remain on two years, and scarcely at all by cuttings. Some of them, however, seed freely, and are readily propagated in this way. The seeds of all the species of Mahonia, and also of those of Berberis, if sown immediately after they are ripe, and protected through the winter from frost, will come up the following spring.


Synonymes. Berberis pinnâta L., Bot. Reg., Bot. Mag., and Tor. & Gray ; B. fasciculâris Pen. Cyc. In the same work it is stated that Mahonia diversifolia is the same as this species; though it is figured and described by Sweet, as a species from Monte Video; see Sert. Br. Fl.-Gar., 3d series, t. 96.

Engravings. Bot. Reg., t. 702 ; Bot. Mag., t. 2396. ; and our fig. 72.
VI. BERBERÁCEAE: MAHONIA.

51

Spec. Chr., &c. Leaves of 3–6 pairs with an odd one, the lowest pair near the base of the petiole. Leaflets ovate-lanceolate, rather distant, one-nerved, spiny-toothed, with 4 or 5 teeth on each side. Racemes nearly erect, much crowded. Filaments bidentate. (Don’s Mill.)  
An upright evergreen shrub. California and Mexico, on mountains. Height 5 ft. to 8 ft. Introduced in 1819. Flowers yellow; Mar. to May. Berries purple; ripe in September. Decaying leaves rich yellow; drop in June.

Very handsome. “Perhaps the most showy of all the family.” (Hook.) It is readily distinguished, even at a distance, from the other mahonias, by the glaucous green and subdued tone of colour of its leaves; those of all the others being of a darker green, and more or less shining. The plant is rather too tender to be treated as a detached bush, unless some slight protection be given to it during very severe frosts; but it will grow freely against a wall with scarcely any protection. Layers and seeds.


Engravings. Pursh. Fl. Amer. Sept. 1. t. 4.; Bot. Reg., t. 1425.; and our fig. 73.

Spec. Chr., &c. Leaves of 4 pairs of leaflets with an odd one, the lower pair distant from the base of the petiole; leaflets ovate, approximate, cordate at the base, one-nerved, spiny-toothed, with 9 or 6 teeth on each side. Racemes erect, and much crowded. Filaments bidentate. (D’s Mill.) A shining evergreen shrub. New Albion to Nootka Sound. Height 5 ft. to 7 ft. in its native country, probably 10 ft. in England. Introduced in 1823. Flowers yellow; April and May. Berries purple; ripe in September.

Varieties. One variety, M. A. nutkanum Dec., is mentioned by De Candolle; and another, found at the junction of the Portage river with the Columbia, by G. Don. Torrey and Gray consider Mahonias repens and M. pinnata Menzies as only varieties of this species; an inadvertence excusable in those who have not seen the plants in a living state.
One of the handsomest of evergreen shrubs, attaining the height of 6 ft. in 6 years, quite hardy, producing a profusion of bunches of yellow flowers during April and May. In its native country it grows in rich vegetable soil, among rocks, or in woods, where it forms a thick and rich undergrowth. According to Dr. Lindley, it is "perhaps the handsomest hardy evergreen we yet possess. Its foliage is of a rich, deep, shining green, becoming purple in the winter; it bears fruit in some abundance, which consists of clusters of roundish black berries, having their surface covered with a rich violet bloom. It most resembles M. fasciculæris, from which its large shining leaves at once distinguish it." (Penny Cyc., iv. p. 262.) Layers and seeds.

3. M. NERVO'SA Nutt. The nervèd-leaved Mahonia, or Ash Berberry.

**Spec. Char., &c.** Leaves of 3—6 pairs, with an odd one, the lower pair distant from the petiole; leaflets ovate, acuminate, and remotely spiny-toothed, somewhat 3—5-nerved, with 12 or 14 teeth on each side. Racemes elongated. Filaments bidentate. (Don's Mill.) An evergreen undershrub. North-west of N. America, on the river Columbia, in shady pine woods. Height 2 ft. to 3 ft. Introd. in 1822. Flowers yellow; October to March. Berries roundish, glaucescent purple, or deep blue; ripe in July.

According to Torrey and Gray, the stem is so low, that it often scarcely rises from the ground, and, indeed, is much shorter than the leaves, which are 1 ft. to 2 ft. in length. Racemes spicate, often 6 in. to 8 in. long. Flowers larger than in M. Aquifolium. The petioles of the leaves, Dr. Lindley says, "are jointed at every pair of leaflets, in the manner of a bamboo stem." The plant is hardy, and will thrive in a shady border of peat soil. One of the handsomest of undershrubs.

4. M. REPENS G. Don. The creeping-rooted Mahonia, or Ash Berberry.

**Spec. Char., &c.** Leaflets 2—3 pairs, with an odd one, roundish ovate, opaque.

Variety.

₇ M. r. 2 repens-fascicularis. — Habit of M. fascicularis, with larger and more robust foliage, resembling that of M. repens. A sport, or a hybrid, produced accidentally in the Sawbridgeworth Nursery.

The shoots consist chiefly of short unbranched suckers, with the leaves somewhat glaucous on both surfaces. The racemes of flowers are terminal, numerous, fascicled, diffuse, rising from scaly buds. The plant, in British gardens, is perfectly hardy, and produces a profusion of rich yellow flowers in April and May. Layers or suckers; but it does not root readily. Seeds are sometimes produced.

Other Species of Mahonia are no doubt in British gardens; but as they have been only raised lately from Nepal or Mexican seeds, nothing can be recorded of them with that degree of certainty and detail which is suitable for this work. Mahonia tenutifolia, a Mexican species with pinnate leaves, and entire quite smooth leaflets, on very long slender footstalks, has been raised in the Horticultural Society's Garden, and may probably be as hardy as M. fascicularis; but this is uncertain. M. nepalensis, M. acanthifolia, M. tragacanthoides, and M. careyanæfölia, are said to be very desirable species.

---

Section II.

Carpella solitary, or connate; Placenta parietal (that Part of the Capsule which the Seeds are attached to adhering to the Sides or Walls of the Ovary or Germen), attached to the Walls or Cells of the Ovary.

Order VII. Cruciacææ.

Ord. Char. The order Cruciacææ is readily recognised by the cruciform arrangement of the petals, which are always four, in conjunction with tetradynamous stamens, and the fruit a silique or silicle. — Though there are several species which, technically considered, are ligneous plants, such as Alyssum saxatile, Theiris sempervivens, Cheiranthus Cheiri, and some others; yet, in a popular point of view, the only shrub included in the order is the Vella Pseudo-Cyritis.

Genus I.

VELLA L. The Vella. Lin. Syst. Tetradynamea Sulcicolosa.

Derivation. The word Vella is Latinised from the word velar, the Celtic name of the cress.

Gen. Char. Stamens the 4 longer in 2 pairs, the 2 of each pair grown together. Style ovate, flat, tongue-shaped, at the tip of the silicle. Silicle ovate, compressed, its valves concave. Partition elliptic. Cotylédonis folded, the embryo root disposed in the sinus of the fold. (Dec. Syst.)

Leaves simple, alternate, exstipulate, sub-evergreen; toothed or serrated, glaucous. Flowers in axillary spikes, yellow, seldom succeeded by seed pods in the climate of London.—Shrub low, suffruticose, native of Spain.
1. \textit{Vella Pseudo-Cytisus} L. False-Cytisus, or shrubby, Cress-Rocket.


\textbf{Synonym.} \textit{Vella integrifolia} Sol.; Faux-cytise, Fr.; strauchartige (shrubby) Velle, Ger.

\textbf{Engravings.} Cav. 1c., I. 42.; and our fig. 76.

\textbf{Spec. Char., &c.} Petals yellow, with long dark purple claws. Larger stamens perfectly connate by pairs. (\textit{Don's Mill.}) A low sub-evergreen shrub. Spain, on calcareous hills. Height 2 ft. to 4 ft. 

\textbf{Intro.} in 1759. Flowers yellow; April and May. Silique greenish yellow; ripe in July. Decaying leaves yellow.

Branches arched, spreading, somewhat decumbent. Leaves glaucous green. Somewhat tender, but requires no protection in the climate of London, when planted on dry soil. It is a short-lived plant, like all the suffruticose Cruciferae, but it may readily be renewed by cuttings or seeds.

---

\textbf{Order VIII. CISTACEÆ.}

\textbf{Ord. Char.} Sepals 5, two of them being exterior. Petals 5, very fugitive. 

\textbf{Stamen} numerous. Fruit capsular, 3—5-valved, 5—10-celled, with parietal placenta. Embryo inverted. Properties balsamic. (Lindl.)

\textbf{Leaves} simple, opposite or alternate (the lowest leaves always opposite), stipulate or exstipulate, deciduous or sub-evergreen; generally pubescent, pubescence simple or stellate. Flowers large, showy, white, red, or purple. — Shrubs low, suffrutescent, many subherbaceous; natives of Europe and Africa.

The Cistaceae have no medical properties; but the resinous balsamic substance called ladanum or labdanum is produced from \textit{C. creticus}, \textit{C. ladaniferus}, \textit{C. laurifolius}, and one or two other species. Their use in gardens is for ornamenting rockwork, or for keeping in pits during the winter, and planting out in flower-borders in spring; as, from the tenderness of the finer species, they are unfit for a permanent place in a shrubbery or arboretum. Most of even the larger-growing kinds require some protection during winter: but they will all grow freely in any soil that is dry; and they are readily propagated by seeds, which, in fine seasons, they produce in abundance, or by cuttings; the plants, in both cases, flowering the second year. Though easily propagated, the Cistaceae do not readily bear transplanting, having very few fibres, and these rambling to a great distance from the main root. Plants for sale ought, therefore, to be always kept in pots; and, in the winter season, they should be protected by some slight covering during severe weather. The hardy ligneous species are included in two genera; which are thus contradistinguished by De Candolle and G. Don:—

\textit{Cistus} L. Capsule 10—5-celled.

\textit{Helianthemum} Tourne. Capsule 1-celled, 3-valved.

\textbf{Genus 1.}


\textbf{Derivation.} From the Greek word \textit{kistē}, a box or capsule, or the Anglo-Saxon, \textit{cist}, a hollow
vessel; on account of the shape of its capsules. In Martyn’s Mill, the name is said to be derived from that of the youth Cistus, whose story is to be found in Casimine Basus. Others derive it from kis, a worm or weevil.


Synonyms. Holly Rose, Gerard; Gum Cistus; Ciste, Fr.; Cisten Rose, Ger.; Cisto Ital.

Gen. Chir. Calyx of 5 sepals. Sepals disposed in a double series; 2 outer ones unequal, sometimes wanting. Petals 5, equal, somewhat cuneated, caducous. Stamens numerous, usually exerted from the glandular disk. Style filiform. Stigma capitate. Capsule covered by the calyx, 5- or 10-valved, with a seminiferous partition in the middle of each valve, therefore 5- or 10-celled. Seeds ovate, angular. Embryo filiform, spiral. Leaves simple, opposite, exstipulate, sub-evergreen, entire or toothed; the petioles embracing the stem. Flowers axillary, or many flowered peduncles; large, beautiful, resembling a rose, red or white. —Shrubs or subshrubs, natives of the South of Europe and North of Africa. Only two or three species or subspecies, and their varieties, are hardy in the climate of London.

n. 1. Cistus purpur’reus Lam. The purple-flowered Cistus, or Rock Rose.


Synonyms. C. ericifolius Hort. Kew.; the purple Gum Cistus; the purple shrubby Cistus; Ciste purpure, Fr.; purpurrothe Cisten Rose, Ger.


Spec. Chir., &c. Leaves oblong-lanceolate, obuse, or acute, and more or less rugose; reticulately veined, with undulated margins. Petioles short, hairy, sometimes connected, and sheathing the stem. Flowers terminal, from 1 to 6, on short peduncles. Bracteas sessile, leaf-like, pubescent, broad and concave at the base, where they are connected, and terminating in acute points. Pedicels short, and with the calyx hairy. Calyx of 5 sepals. Petals 5 or 6, obovate or wedge-shaped; very much imbricate, more or less crumpled. Stamens numerous, filaments smooth. Style very short; and stigma large, capitate, 5-lobed, papillose. (Swt. Cist.) A sub-evergreen low bush. Levant. Height 3 ft. to 4 ft. Introduced in 1659. Flowers large, bright reddish purple, with a yellow spot at the base. June and July. Capsule brown; ripe in Sept. Decaying leaves brown.

Branches numerous, erect, and clothed with a brownish pubescence. The flowers are very large and handsome, of a bright reddish purple, with a yellow spot at the base, above which is a large dark purple velvet mark, surrounded with red, and slightly branched. The petals are imbricate, and much crumpled. It flowers abundantly in June and July; grows very fast, is easily propagated by cuttings, and is very ornamental.

n. 2. C. inca’nus L. The hoary Cistus, or Rock Rose.


Synonyms. C. albidus Hort.; C. cymosus Dec.; Ciste cotonneux, Fr.; bestamante Cisten Rose, Ger.

Engravings. Bot. Mag., t. 43.; Swt. Cist., t. 44.; and our fig. 78.


Quite hardy in dry soil.


*Engravings.* Swt. Cist., t. 8.; and our fig. 79.

*Spec. Char., &c.* Leaves stalked, somewhat cordate, ovate, acuminate, with fringed margins, wrinkled on both surfaces, and very glutinous. Peduncles long, 1–3-flowered. (Don’s Mill.) A sub-evergreen shrub. South of France, on the mountains of Corbières; and also in Spain. Height 2 ft. to 3 ft. Introduced in 1636. Flowers white; May and June. Capsule brown; ripe in August.

A handsome plant, and, according to Sweet, one of the hardest species of the genus, thriving well in common garden soil, and in any situation where it is not too moist. It continues in bloom for about two months; and every day during that period the plant is covered with a profusion of handsome white flowers, the margins of which are tinged with rose colour. The rose-coloured buds are also very pretty before the flowers expand.

4. *C. populifolius* L. The Poplar-leaved Cistus, or Rock Rose.


*Synonymes.* Cistus populifolius Cav. Ion.; Ciste à Feuilles de Peuplier, Fr.; Pappel-blaättrige Cisten Rose, Ger.

*Engravings.* Swt. Cist., t. 23.; and our fig. 80.


Leaves dark green, cordate, clann'y, with undulate margins. One of the most robust species of the genus, and also one of the hardest. A plant 7 ft. high, in the grounds at Syon, stood through the winter of 1837–8 uninjured, without the slightest protection.

5. *C. laurifolius* L. The Laurel-leaved Cistus, or Rock Rose.


*Synonymes.* Ciste à Feuilles de Laurier, Fr.; Lorbeer-blaättrige Cisten Rose, Ger.

*Engravings.* Claus. Hist., I. p. 78, f. 1.; Swt. Cist., t. 52.; and our fig. 81.


A very robust species, with large green laurel-like leaves. It produces an abundance of flowers, which, with their light red bracteas, are very ornamental before they expand, resembling, at a distance, the bursting buds of roses. It requires no protection; and may be raised from seeds, which it ripens in abundance; and also by cuttings, which, however, do not strike so freely as in some of the other species.
6. C. LADANIFERUS L. The Ladanum-bearing Gum Cistus, or Rock Rose.


Spec. Char., 5c. Leaves almost sessile, connate at the base, linear-lanceolate, 3-nerved, upper surface glabrous, under surface tomentose. Capsule 10-celled. Petals imbricate. (Don's Mill.) A sub-evergreen shrub. Spain and Portugal, on hills. Height 4 ft. to 5 ft. Introduced in 1629. Flowers large, white, 1 in. to 2 in. broad; June and July. Capsule brown; ripe in September.


The leaves are lanceolate, and nearly sessile, of a deep green; the flowers terminating the branches, solitary, white, and large. The variety C. ladaniferus maculatus, which our fig. 82. represents, is a plant of very great beauty, and no collection should be without it.

7. C. (v.) CYPRICUS Lam. The Gum Cistus, or Cyprus Rock Rose.


Engravings. Swt. Cist., t. 39.; and our fig. 83.


One of the handsomest species of the genus, and so closely resembling C. ladaniferus, as, in our opinion, to be nothing more than a variety of that species. Young cuttings, Sweet observes, planted under hand-glasses in autumn, will strike root; but the best way is to raise them from layers or from seed. There was, in 1834, a plant of this species at Minard, in Argyllshire. 7 ft. 9 in. high, with a head 12 ft. in diameter, which is clothed with flowers every year.

Other Species of Cistus are described in Sweet's Cistineae, as nearly equally hardy with the above; but the experience of the winter of 1837-8 has induced us to omit them. Those who intend to treat them as garden plants, and can afford them a little protection during winter, will find 36 species, besides varieties, described in the first edition of this work, and several of them figured. Those who intend only to have a collection of showy species, without much regard to their names, will have recourse to the mode recommended in the concluding paragraph on the Helianthemum, (p. 61.) The following species or subspecies were found tolerably hardy in the Canterbury Nursery: C. heterophyllus, C. creticus, C. crispus, C. Cupanius, C. hiuns, C. laxus, C. villosus, C. oblongifolius, C. undulatus, C. salviifolius, C. longifolius, C. psilosépalus.
HELIA'NTHEMUM. The Helianthemum, or Sun Rose. Lin. Syst. Polyándriá Monogénía.

Derivation. From helios, the sun, and anthemé, a flower; because the flowers open with the rising of the sun in the morning, and the petals fall off with the setting of the sun in the evening. The flowers of Helianthemum, as well as of Cistus, only last for a few hours when the sun shines; and if the weather is dull, and the sun does not make its appearance, the flowers do not open, but remain unexpanded. Should this continue for several days together, they will decay in the bud.


Leaves simple, opposite or alternate, stipulate or exstipulate, sub-evergreen; 3-nerved or feather-nerved. Flowers axillary or terminal. Pedícels usually furnished with bracteas at the base. — Shrubs or subshrubs, low, prostrate, resembling herbaceous plants; natives of Europe; and of the easiest culture in any common soil.

1. H. vulgāre Gaért. The common Helianthemum, or Sun Rose.

Engravings Eng. Bot., t. 1521.; and our fig. 84.


Varieties. There is a very handsome double-flowered variety, with pale yellow flowers; and another, called Lee's new double yellow, with dark yellow flowers; both of which are in general cultivation in the nurseries. De Candolle also notices two forms of the species: one with tomentose pubescent branches, and stipules scarcely longer than the footstalks of the leaves; and another with branches glabrous at the base, but pubescent upwards, and the stipules twice or thrice the length of the petioles of the leaves.

The stamens, if touched during sunshine, spread slowly, and lie down upon the petals. (Smith.) "A very variable species," even in a wild state; and, in gardens, many beautiful varieties, single and double, have been originated from it by cross fertilization with Continental helianthems, and perhaps with cistuses.

2. H. (v.) surreja'nûm Mill. The Surrey Helianthemum, or Sun Rose.


tals narrow, lanceolate, jagged. (Don's Mill.) A procumbent, sub-evergreen, suffruti-cose, undershrub. Britain, in Surrey, near Croydon. Height 6 in. to 1 ft. Flowers yellow, with the petals distinct, and the calyces pilose; July to October.


Engravings. Swt. Cist., t. 60.; and our fig. 86.

Spec. Char., &c. Stem suffruti-cose. Branches ascend-ent, glabrous at the base, and pilose at the apex. Leaves oblong-elliptical, with revolute margins; under surface hoary-tomentose; upper surface intensely green, shining, at first rather pilose, afterwards almost smooth. Stipules and bracteas green, ciliated. Ca-lyxes canescent, with inconspicuous down, and with the nerves sparingly pilose. (Don's Mill.) A trailing, sub-evergreen, suffruti-cose undershrub. Alps of Styria and Austria, and in Britain, in Somersetshire. Height 6 in. to 1 ft. Introduced in 1731; discovered in England in 1826. Flowers large, yellow, with the petals distinct; May to September.

4. H. (v.) grandiflo'rum Dec. The large-flowered Helianthemum, or Sun Rose.


5. H. (v.) tau'ricum Fisch. The Taurian Helianthemum, or Sun Rose.

Identification. Fisch. MSS.; Don's Mill., 1 p. 312.
Engravings. Swt. Cist., 105.; and our fig. 88.


Engravings. Swt. Cist., t. 62.; and our fig. 89.
Spec. Char., &c. Stem suffrutescent, branched. Branches spreading, hoary tomentose. Leaves stalked, oblong-linear, with the margins scarcely revolute; under surface tomentose, upper surface glaucous, but at length becoming smooth. Stipules awl-shaped, longer than the footstalks of the leaves. Calyxes covered with very short hairs, striated, cinerously glaucous, bluish. (Don's Mill.) A procumbent, sub-evergreen, suffrutescent undershrub. Germany and Italy, on dry hills and places exposed to the sun. Height 6 in. to 1 ft. Introduced in 1731. Flowers white, with the petals distinct, and marked with yellow at their base; May to August.

7. H. (v.) macranthum Swt. The large-flowered Helianthemum, or Sun Rose.

Engravings. Swt. Cist., t. 103; and our fig. 99.

Spec. Char., &c. Stem suffrutescent. Branches procumbent, rather tomentose. Leaves flat, ovate oblong, acutish; smooth above, and densely tomentose beneath; pale cinerous. Stipules rather pilose; about equal to, or longer than, the petioles. Calyx striated, pilose. Petals distinct. (Don's Mill.) A procumbent, sub-evergreen, suffrutescent undershrub. Originated in gardens. Height 6 in. to 1 ft. Cultivated in 1826. Flowers larger than in any other species; cream-coloured white, with the petals distinct, spreading, and very slender at the base, where they are marked with yellow; May to August.

Variety.

H. m. 2 multiplicé (Swt. Cist., t. 104.; and our fig. 91.) is a beautiful plant, not only on account of its fine double flowers, but of its habit of growth. It ought to be in every cistacætum.

8. H. (v.) canescens Swt. The canescent-leaved Helianthemum, or Sun Rose.

Engravings. Swt. Cist., t. 51.; and our fig. 92.


A splendid plant, with reddish crimson flowers; the petals imbricated, and having a small orange spot at the base of each. Sweet considers it as having the darkest-coloured, if not the handsomest, flowers of the genus. The flowers are also, he says, very large for the size of the plant. It is nearly related to H. rhodanthum, but is readily distinguished from it by its canescent leaves, and stronger habit of growth.


Varieties.

1. H. h. 1 croceum (Swt. Cist., t. 92.) has flowers saffron-coloured, with more or less of a ferrugineous tint, and may represent the species.
2. H. h. 2 cipreum (Swt. Cist., t. 58.) has flowers of a reddish copper-colour.
3. H. h. 3 multiplex (Swt. Cist., t. 72.; and our fig. 93.) has double flowers, of a reddish copper-colour.

All the three forms of this variety are splendid plants; they are hardy, of luxuriant growth, flowering freely, and of the easiest culture, either in pots or on banks of light sandy soil, covered with flints or stones. The flowers of the copper-coloured variety, and also the leaves, are larger than those of the two other kinds. The double-flowered variety appears to be of a more upright habit of growth, and not quite so robust as the others.

20. H. scabro'sum Pers. The rough Helianthemum, or Sun Rose.

Engravings. Swt. Cist., t. 81.; and our fig. 94.


Many other Kinds of Helianthemums described in Sweet's Cisticeae are, perhaps, as hardy as those we have selected; but it would be of little use giving them here, the greater part having been lost during the winter of 1837–8. In the first edition of this Arboretum 99 species are described, besides varieties. Supposing a cultivator about to form a collection of Cistaceae, we should attach much less importance to his being able to procure all the sorts of Cistus and Helianthemum described in Sweet's Cisticeae, than to his obtaining all the sorts easily procurable, whatever names they might pass under, and cross-fecundating them so as to produce new forms. There can be no doubt whatever that the sorts of both the genera Cistus and Helianthemum might, by cross-fecundation, be increased ad infinitum; and, considering their very great beauty as border and rockwork shrubs, we think they merit the attention of cultivators at least as much as many florist's flowers.
Section III.

Ovaryum solitary; Placenta central. (The Column in the Fruit to which the Seeds are attached central, and not adhering to the Side as in Section II.)

Order IX. Malvaceae.

Ord. Char. Calyx with a valvate aestivation, mostly with an involucre. Stamens with the filaments monadelphous, and the anthers 1-celled. Pubescence starry. (Lin.)—Trees or shrubs, deciduous, natives of warm climates.

Leaves simple, alternate, stipulate, deciduous; more or less divided. Hairs stellate, axillary. Flowers on peduncles, large, showy.—The only genus containing hardy species is Hibiscus. The genus Lavatera contains some species which have an arboreous appearance, but which are in fact only suffrutescent biennials or triennials.

Genus I.


Derivation. The word hibiscus is one of the names given by the Greeks to the mallow. The Hibiscus of Pliny appears to be an umbelliferous plant; while that of Virgil is a plant with plant branches, which was made into baskets. The word Hibiscus is supposed by some to be derived from ibis, a stork, which is said to feed on some of the species. Ketmie (Fr.) is derived from Ketmie, the name given to the genus by Tournefort. Eibisch is the German aboriginal word for the mallow.

Gen. Char. Calyx encompassed by a many-leaved, rarely by a few-leaved, involucel, or one with its leaves connate. Petals not auricled. Stigmas 5. Carpels joined into a 5-celled 5-valved capsule, with a disposition in the middle of each valve on the inside. Cells many-seeded, rarely 1-seeded.

Leaves simple, alternate, stipulate, deciduous; variously lobed and toothed, generally ovate-wedge-shaped. Flowers pedunculate, large, showy.—The only hardy ligneous species is H. syriacus.

2. H. syriacus L. The Syrian Hibiscus, or Althaea Frutex.


Derivation. It is called Althaea from the resemblance of its flowers to those of the Althea's rosea.

Engravings. Cav. Diss., 3. t. 69. f. 1. ; Bot. Mag., t. 83. ; and our fig. 95.


One of our most ornamental hardy shrubs, of which there are the following varieties:

2. H. s. 2 foliis variegatis.—Leaves variegated.
2. H. s. 3 flore variegato.—Flowers variegated.
2. H. s. 4 flore purpureo.—Flowers purple.
2. H. s. 5 flore purpureo pleno.—Flowers double, purple.
2. H. s. 6 flore rubro.—Flowers red.
2. H. s. 7 flore albo.—Flowers white.
2. H. s. 8 flore albo pleno.—Flowers double, white.
Branches numerous, upright, white-barked; their general character being rather fastigiate than spreading. Leaves variously lobed; flowers axillary, large, and bell-shaped. Conspicuously ornamental; and the more valuable, because it produces its flowers at a time when few shrubs are in bloom. It forms beautiful garden hedges; more especially when the different sorts are planted in a harmonious order of succession, according to their colours; and when the plants are not clipped, but carefully pruned with the knife. In the colder parts of Britain, and in the north of Germany, few ornamental shrubs better deserve being planted against a wall. It will grow in almost any soil not too wet; but, like all the Malvaceae, seems to prefer one which is sandy, deep, and rich, rather than poor. An open airy situation, where it will ripen its wood, is essential. The single-flowered varieties are propagated by seed, which come up true to their respective colours; and the double-flowered varieties are propagated by layers, by grafting on the common sorts, and sometimes by cuttings of the ripened wood, planted in sand in autumn, and covered with a hand-glass during the winter.

**ORDER X. TILIA'CEÆ.**

**ORD. CHAR.** Sepals 4 or 5, with a valvate aestivation, mostly without an involucre. Petals 4 or 5, or rarely not any. Stamens hypogynous, generally numerous, with filaments separate, and anthers 2-celled. Mostly glands between the petals and ovarium. Ovary and fruit single, of 4—10 carpels grown together; cells in the fruit, at least in some, not so many as the carpels. (Lindley.) — Trees and shrubs chiefly from warm climates.

Leaves simple, alternate, stipulate, deciduous; cordate. Flowers panicked, yellowish, fragrant, with an oblong bractea united to the common stalk. Capsule downy.—The only genus which is perfectly hardy is Tilia; native of Europe and North America.

**GENUS I.**

**TILIA L. THE LIME TREE. Lin. Syst. Polyándria Monogýnia.**


**Synonymes.** Lime Tree, Gerard; Lind, Anglo-Saz.; Tilleul, Fr.; Bast-holtz, Ger.; Linde, Ger.; and Dutch; Tiglia, Ital.; Tilo, Span.; Lípa Russ.

**Derivation.** In London and Wise's Retired Gardener the name of Tilia is derived from the Greek word *ptilion*, a feather, from the feathery appearance of the bracteas; but others derive it from the Greek word *tialai*, light bodies floating in the air like wool or feathers. Tilleul is from *tailler*, either because the tree bears pruning well, or the wood may be easily carved. Bast-holtz is literally bark wood, in allusion to the use of the bark, in forming mats.


Leaves simple, alternate, stipulate, deciduous; cordate.—The species are three, according to some; and more than twice that number, according to others. Our opinion is, that they may be all included under two, *T. europæa* and *T. americana*.

**ι 1. T. europa'æa L. The European, or common, Lime Tree.**


96. Tilia europaea.

Spec. Char., §e. Petals without scales. Leaves cordate, acuminate, serrated, smooth, except a tuft of hair at the origin of the veins beneath, twice the length of the petioles. Cymes many-flowered. Fruit coriaceous, downy. (Don's Mill.) A large deciduous tree, Europe, and Britain in some aboriginal woods. Height 60 ft. to 90 ft. Flowers yellowish white; August and September. Fruit yellow; ripe in October. Decaying leaves yellow, or yellowish brown. Naked young wood reddish, or yellowish brown.

Varieties. The extensive distribution and long cultivation of this tree in Europe have given rise to the following varieties, or races, described by most botanists as species:

A. Varieties differing in respect to Foliage.

♀ T. e. 1 parvifolia. T. microphylla Vent., Willd., Dec., and G. Don; T. e. var. γ L.; T. ulmifolia Scop.; T. sylvestris Desf.; T. parvifolia Ehrh., Hayne, Dec.; T. cordata Mill.; Tilleul à petites Feuilles Fr.; kleinblättrige Linde, or Winterlinde, Ger. (Wild. Holzart, t. 106.; Engl. Bot., t. 1705.; and our fig. 97.) — Leaves cordate, roundish, acuminate, sharply serrated; smooth above, glaucous and bearded beneath on the axils of the veins, as well as in hairy blotches. Fruit rather globose, hardly ribbed, very thin and brittle. Native of Europe, in sub-mountainous woods; in England, frequent in Essex and Sussex. This variety is distinguishable, at first sight, from all the others, by the smallness of its leaves, which are only about 2 in. broad, and sometimes scarcely longer than their slender footstalks. The flowers are also much smaller than in any of the other varieties; they expand later; and they are very fragrant, having a scent like those of the honeysuckle. There was, in 1834, a subvariety of this in the garden of the Hort Soc., under the name of T. parvifolia glauca.

♂ T. e. 2 grandifolia. T. platyphylla Scop.; T. cordifolia Bess.; T. europaea Desf.; T. grandifolia Ehrh. and Smith; broad-leaved downy Lime Tree; Tilleul à grandes Feuilles, or Tilleul de Hol-
lande, Fr. (Vent. Diss., p. 6, t. 1. f. 2.; the plate in Arb. Brit., 1st edit., vol. v.; and our fig. 98.) — Leaves cordate, roundish, acuminate, sharply serrated, downy beneath; origin of their veins woolly. Branches hairy. Cymes 3-flowered. Fruit woody, downy, turbinate, with 5 prominent angles. This tree is readily distinguished from T. e. parvifolia by its much larger and rougher leaves, and, also, by its rougher bark and hispid branches.

T. e. 3 intermédia, T. intermédia Hayne; T. platyphyl·la minor Hort. (The plate of this variety in Arb. Brit., 1st edit., vol. v.; and our fig. 99.) — Leaves intermediate between T. e. grandifolia and T. e. parvifolia. This variety is the most common in Britain; T. e. grandifolia in the South of Europe; and T. e. parvifolia in the North of Europe, and especially in Sweden.

T. e. 4 laciniata, T. platyphyl·la laciniata Hort.; T. asplenifolia nova Hort. (The plate in Arb. Brit., 1st edition, vol. v.; and our fig. 100.) — Leaves deeply and irregularly cut and twisted, scarcely two on the tree being alike. Apparently a subvariety of T. e. parvifolia. Height 20 or 30 feet.
B. Varieties differing in the Colour of the young Shoots.

Each of the varieties included in Division A may have subvarieties differing in the colour of the young wood; but we shall only notice those in general cultivation.


‡ T. e. 6 parvifolia aurea. (The plate in Arb. Brit., 1st edit. vol. v.; and our fig. 101.) — Young shoots of a rich yellow. Height 15 ft. to 20 ft.

† T. e. 7 grandifolia aurea.— Twigs of a fine yellow. Leaves large. Tree 60 ft. to 80 ft.

Other Varieties. There is a variety with variegated leaves, but it is such a
X. Tiliaceæ: Tilia.

67

ragged ill-looking plant that we deem it altogether unworthy of culture. Host, in his Flora Austriaca, has the following names, which he considers as species: *T. viifolía;* coriifolia; grandifolia *Sm.;* coriiflora, syn. europæa *Hook. Lond.;* mutabilis; late bracteata; precox; pyramidalis; intermedia; tenuifolia; obliqua; europæa *Sm.;* argentea, syn. alba Waldst. et Kit. Icon. t. 3. (Fl. Ase., vol. ii. p. 59—63.)

The wood of the lime tree is of a pale yellow or white, close-grained, soft, light, and smooth, and not attacked by insects. It weighs, per cubic foot, when green, 55 lb.; half-dry, 45 lb.; and dry, 37 lb.; and it loses a third part of its weight, and a fourth part of its bulk, by drying. (Baudrill.) It is used by pianoforte-makers for sounding-boards, and by cabinet-makers for a variety of purposes. It is carved into toys, and turned into domestic utensils of various kinds, and into small boxes for the apothecaries. The most elegant use to which it is applied is for ornamental carving, for which it is superior to every other wood. This wood is said to make excellent charcoal for gunpowder; even better than alder, and nearly as good as hazel. Baskets and cradles were formerly made from the twigs; and shoemakers and glovers are said to prefer planks of lime tree for cutting the finer kinds of leather upon. The leaves of the lime tree, in common with those of the elm and the poplar, were used, both in a dried and in a green state, for feeding cattle, by the Romans; and they are still collected for the same purpose in Sweden, Norway, Carniola, and Switzerland. One of the most important uses of the lime tree, in the North of Europe, is that of supplying material for ropes and bast mats; the latter of which enter extensively into European commerce. The Russian peasants weave the bark of the young shoots for the upper parts of their shoes, the outer bark serves for the soles; and they also make of it, tied together with strips of the inner bark, baskets and boxes for domestic purposes. The outer bark of old trees supplies them, like that of the birch, with tiles for covering their cottages. Ropes are still made from the bark of the tree in Cornwall, and in some parts of Devonshire. The fishermen of Sweden make nets for catching fish of the fibres of the inner bark, separated, by maceration, so as to form a kind of flax; and the shepherds of Carniola weave a coarse cloth of it, which serves them for their ordinary clothing. The sap of the lime tree, drawn off in spring, and evaporated, affords a considerable quantity of sugar. The honey produced by the flowers is considered superior to all other kinds for its delicacy. London and Wise recommended the lime tree, as preferable to the elm, for sheltering gardens or orchards; because the roots do not, like those of the elm, spread out and impoverish all around them. A deep and rather light soil is recommended; but the largest trees are generally found in a good loamy soil. In dry situations, the lime never attains a large size, and it loses its leaves earlier than any other tree. Being a tree of the plains, rather than of the mountains, it does not appear suitable for exposed surfaces; but it requires a pure air rather than otherwise; for, though, it is found in towns on the Continent, and sparingly so in Britain, the smoke of mineral coal seems more injurious to it than it is to the platanus, the elm or some other trees. It is seldom propagated otherwise than by layers, which are made in the nurseries in autumn and winter; and which become rooted, so as to admit of being taken off, in a year. The tree in Britain appears seldom to ripen its seeds.

2. *T. (Eur.) a'luva Waldst. & Kit. The white-leaved European Lime Tree.*


Spec. Char., &c. Petals each with a scale at the base inside. Leaves cordate, somewhat acuminated, and rather unequal at the base, serrated, clothed with white down beneath, but smooth above, 4 times longer than the petioles. Fruit ovate, with 5 obscure ribs. (Don's Mill.) Fruit evidently ribbed.
(Steven.) Host says that he has always found the calyx 6-sepaled, and the corolla 12-petaled. A large tree. Hungary. Height 30 ft. to 50 ft. Introduced in 1767. Flowers yellowish white, very fragrant; June to August. Fruit yellow; ripe in October.

Our own opinion is, that this is nothing more than a very distinct race of the common lime; notwithstanding the circumstance of its having scales to its petals, which no one of the other varieties of T. europaea is said to possess. Even allowing this structure to be permanent in the Hungarian lime, the tree bears such a general resemblance to T. europaea in all its main features, that it seems to us impossible to doubt the identity of their origin. We are strengthened in this opinion by the circumstance of its being found only in isolated stations in the Hungarian forests. We have, however, placed this lime by itself, rather than among the other varieties; because, from the whiteness of its foliage, it is far more obviously distinct than T. e. grandifolia or T. e. parvifolia. The tree is at once distinguishable from all the other species and varieties by this white appearance, even at a considerable distance, and by the strikingly snowy hue of its leaves when they are ruffled by the wind. Its wood and shoots resemble those of the common lime; but it does not attain the same height as that tree.

**3. T. America'na L.** The American Lime Tree.


*Synonyms.* T. glabra Vent.; T. caroliniana Wangenh.; T. canadensis Michaux; T. glabra Dec.; Hayne's Dendr.; and Don's Mill; the smooth-leaved, or black, Lime Tree, and Bass Wood, Amer.


*Spec. Char., &c.* Petals each with a scale at the base, inside. Leaves profoundly cordate, abruptly acuminate, sharply serrated, somewhat coriaceous, smooth. Petals truncate and crenate at the apex, equal in length to the style. Fruit ovate, somewhat ribbed. (Don's Mol.) A large tree. Canada, Virginia, and Georgia. Height 70 ft. to 80 ft. in America; in England 60 ft. to 70 ft. Introduced in 1752. Flowers yellowish white; July and August. Fruit the size of a large pea, yellow; ripe in October. Decaying leaves yellowish brown. Naked young wood dark brown.
Varieties. Those which we shall give as such are described in the *Flora* of Torrey and Gray as species; but with the following remark, which we think fully justifies us in not considering them more specifically distinct than the different alleged species of the European line. "There is great uncertainty respecting the synonyms. Indeed, nearly all the characters which have been employed for distinguishing them are either inconstant, or are common to them all. A careful examination of the flowers in the living plants may afford more certain marks of discrimination."

† *T. a. 2* heterophylla. *T. heterophylla Vent., Pursh, Dec. Prod., Tor. & Gray.*—A tree of 30 ft. to 50 ft. high, found on the banks of the Ohio and Mississippi, and introduced in 1811. Leaves glabrous and deep green above, very white and velvety tomentose beneath; the veins dark-coloured, and nearly glabrous, with coarse mucronate serratures. Petals obtuse, crenulate. Staminodia spatulate, entire. Style hairy at the base. (*Tor. and Gray,* i. p. 240.) Leaves 4 in. to 8 in. in diameter, very oblique, and more or less cordate, with a short abrupt acumination; somewhat shining above; the veins on the under surface very conspicuous, in contrast with the white pubescence. Cyme few-flowered, loose. Style longer than the petals. (*Ibid.*)

† *T. a. 3* álba. *T. álba Michx., Tor. & Gray; T. laxiflora Pursh.* (The plate of this tree in Arb. Brit., 1st ed., vol. v.; and our fig. 103.)—A large tree in Pennsylvania and Maryland. Height 30 ft. to 50 ft. Introduced in 1820. Flowers yellowish white, very pale; June. Leaves 3 in. to 4 in. in diameter, with a short abrupt acumination, cordate, somewhat unequal at the base; the under surface rather thinly pubescent, very pale, but scarcely white. Staminodia (scales) two thirds the length of the petals. Filaments slightly pentadephous. (*Tor. and Gray,* i. p. 240.) We have only seen this tree in the H. S., where, 10 years planted, it was about 10 ft. high in 1837.

† *T. a. 4* pubéscent. *T. pubéscentis Ait., Vent., Tor. & Gray.* (The plate of this tree in Arb. Brit., 1st ed., vol. v.; and our fig. 104.)—A large tree found in Carolina and Florida, along the sea coast. Height 50 ft. to 70 ft. Introduced in 1726. Flowers pale yellow; June. Leaves 3 in. to 4 in. in diameter; the under surface, when young, rather paler than the upper, but at length nearly the same colour; serratures broad and short. (*Tor. and Gray,* i. p. 240.)
On a general view of the trees, the most obvious external differential characteristics of the European and American limes appear to us to be, that the former have regularly cordate, and the latter obliquely cordate, leaves. The other American limes we consider to be nothing more than varieties of this species. Layers. These trees only thrive in warm sheltered situations. The American lime is readily distinguished from the European limes by the largeness of its leaves, which are 3 in. to 4 in. wide, heart-shaped, acutely pointed, coarsely and mucronately serrated, deep green and glabrous on their upper sides, and pale green beneath. Some of them have a tendency to be slightly pubescent; but they are generally smooth and shining. In winter, this species is readily recognised by the robust appearance of the trunk and branches, and by the dark-brown colour of the bark on the young shoots. This circumstance alone is a very marked distinction; and has, no doubt, procured for the species the name of the black lime tree.
Other American Limes.—T. p. leptophylla Vent. is mentioned by Torrey and Gray as having the leaves very thin and papyraceous. There were in 1834 other varieties in the H. S. G., but the plants had not attained sufficient size to enable us to state any thing with certainty respecting them. All the species and varieties of American limes are delicate in this country; they are readily injured by spring frosts, but, where they thrive, are readily distinguished from other limes by their very large cordate leaves, and rough bark, even on the young wood. Some of the oldest and largest American limes in England are in Gatton Park, Surrey, near the lake; and at Croome, near Upton upon Severn. There is an old tree, also, at Purser’s Cross, Fulham; and a remarkably handsome young tree at White Knights.

Order XI. TERNSTRÖMIAE.

Ord. Char. Calyx with an imbricate aestivation. Stamens with filaments monadelphous or polyadelphous, and anthers 2-celled to 4-celled.—Trees and shrubs of warm climates.

Leaves simple, alternate, exstipulate, deciduous or evergreen; mostly coriaceous, now and then with pellucid dots. Flowers axillary, large, showy.—The hardy genera in British gardens are Malachodendron, Stu- ártia, and Gordonia; which are thus contradistinguished:—


Genus I.


Synonymes. Stuártia L’Hér.; Stewártia L.

Derivation. From malakos, soft, and dendron, a tree; in allusion, perhaps, to the quality of the timber; or, possibly, from the flowers resembling those of the mallow, the Greek name for which is malakhē.


Leaves simple, alternate, exstipulate, deciduous. Flowers axillary, solitary, large, showy.

\[ 1 \] Malachodendron ovatum Cav. The ovate-leaved Malachodendron.


Synonymes. Stuártia pentagynia L’Hér.; Stewártia Malachodendron Mill.; Stewártia à cinq Styles, Fr.


7 ft. to 12 ft. Introduced in 1795. Flowers large, white; July and August. Capsules brownish; ripe in September. Decaying leaves purplish brown. Naked young wood dark brown.

The soil in which it is generally grown is a mixture of loam and peat, in which the latter prevails; but, in the Mile End Nursery, it shoots vigorously, and flowers freely, in deep sandy loam. The situation should be sheltered; and shaded rather than otherwise. The usual mode of propagation is by layers; and the stools are sometimes protected, during winter, by mats.

Genus II.


Description. Named in honour of John Stuart, Marquess of Bute, the patron of Sir John Hill, and a distinguished promoter of botanical science.

Gen. Char. Calyx permanent, 5-cleft, rarely 5-parted, furnished with two bracteas at the base. Petals 5. Ovary roundish. Style 1, filiform, crowned by a capitulate 5-lobed stigma. Capsule woody, 5-celled, 5-valved; cells 1—2-seeded. Seeds wingless, ovate, even. (Don's Mill.)

Leaves simple, alternate, exstipulate, deciduous; ovate, acute. Flowers axillary, solitary, large. — A deciduous shrub, or low tree, native of North America.

1. STUARTIA VIRGINICA Cav. The Virginian Stuartia.


Engravings. Lam. Ill., t. 993.; Bot. Rep., t. 397.; and our fig. 108. of a plant in flower, and fig. 109. of a shoot from a stool.

Spec. Char., &c. Flowers large, white, with purple filaments and blue anthers, usually in pairs. Leaves ovate, acute. Petals entire. (Don's Mill.) A deciduous shrub Virginia to Carolina, in swamps. Height 6 ft. to 8 ft.
Introduced in 1742. Flowers large, white; July to September. Capsules brownish; ripe in October. Decaying leaves reddish brown. Naked young wood dark brown.

The general appearance of the plant is the same as that of the preceding genus; but it forms a smaller bush, and the foliage has a redder hue. The flowers are of the same size, white, with crisped petals, purple filaments, and blue anthers. This plant is not so extensively cultivated as the other, from its being more tender, and of somewhat slower growth; but its beauty, and the circumstance of its flowering from July to September, when but few trees or shrubs are in blossom, render it desirable for every collection. It thrives best in a peat soil, kept moist; but it will also grow in deep moist sand. Layers.

**Genus III.**


**Derivation.** Named in honour of James Gordon, a celebrated nurseryman at Mile End, near London, who corresponded with Linnaeus.

**Gen. Char.** Calyx of 5 rounded coriaceous sepals. Petals 5, somewhat adnate to the urceolus of the stamens. Style crowned by a peltate 5-lobed stigma. Capsules 5-celled, 5-valved; cells 2-4-seeded. Seeds ending in a leafy wing fixed to the central column, filiform. (Don's Mill.)

Leaves simple, alternate, exstipulate, sub-evergreen or deciduous; serrated or nearly entire. Flowers axillary (or terminal), solitary, large. — Trees or shrubs, sub-evergreen or deciduous; natives of North America.

**1. Gordonia Lasianthus L.** The woolly-flowered Gordonia, or Loblolly Bay.


**Engravings.** Cav. Diss., 6. t. 171; Bot. Mag., t. 668.; and our fig. 110.


Trunk straight. This most beautifully flowering plant well deserves to have a suitable soil prepared for it, and to be treated with more care after it is planted than it appears to have hitherto received in England. The soil ought to be peat, or leaf-mould and sand; and it should be so circumstanced as always to be kept moist.

**2. G. Pubescens L'Her.** The pubescent Gordonia.


**Synonymes.** Lasæthæa florída Sal. Par. Lond. t. 56; Franklinia americana Marsh.; the Franklinia, Amer.; behaarte Gordonie, Ger.

**Engravings.** Sal. Flor. Lond., t. 56; Michx., t. 59; and our fig. 111. 110. Gordonia Lasianthus. Layers or American seeds.
Spec. Char., &c. Flowers almost sessile. Leaves obovate-lanceolate, pubescent beneath, somewhat serrated, membranaceous. Petals and sepals rather silky on the outside. (Don's Mill.) A deciduous tree in America, in Britain a shrub. Georgia and Florida. Height in America 30 ft. to 50 ft.; in England 4 ft. to 6 ft. Introduced in 1774. Flowers large, white, fragrant, 3 in. across, with yellow filaments; May to August. Capsule globose, brownish; ripe in October.

Somewhat harder than the preceding species, but requiring the same general treatment.

Order XII. HYPERICA'CEÆ.

Ord. Char. Sepals 4 or 5, unequal, with an imbricate asstivation. Stamens, in nearly all, numerous, and in 3 or more parcels. Fruit, a capsule or berry of many valves and many cells; the edges of the valves curved inwards. Seeds attached to a placenta in the axis, or on the inner edge of the dissepiments. Leaves simple, opposite, exstipulate, deciduous or evergreen; entire, copiously dotted with immersed, pellucid, resinous glands. Flowers terminal or axillary, generally yellow. Sap yellow, resinous. — Shrubs, natives of Europe, North America, and Asia. The genera in British gardens are two, which are thus contradistinguished: —

Hypericum L. Capsule membranous. Stamens polyadelphous.


Genus I.


Synonyme. Fuga Daemonium; Mille Pertulis, Fr.; Johanniskraut, Ger.; Iperico, Ital.

Derivation. The name of Hypericum is as old as the time of Dioscorides; but its origin and meaning are uncertain. Some derive it from the Greek words huper, under, and eikon, an image; and suppose it to signify that the upper part of the flower represents a figure. Others state that huper signifies through, and that the name alludes to the pellucid dots in the leaves, which form small lenses, through which, when held up to the light, images might be seen. The French name of the plant, Mille Pertuis, a thousand pores, is evidently derived from the same source. The English name, St. John's Wort, and the German one, Johanniskraut, are taken from the country people formerly, both in England and Germany, being in the habit of gathering this plant on St. John's day, to use it to protect themselves from evil spirits. This plant, with some others, was employed to make what was called John's fire, which was supposed to be a security, for those who kindled it, against witchcraft and all attacks of demons. For this reason, also, the Hypericum received the name of Fuga Daemonium.

Gen. Char. Capsules membranous. Stamens numerous, free or joined at the bases into 3 or 5 bundles. Petals 5. Sepals 5, more or less connected at the base, unequal, rarely equal. Styles 3 to 5, rarely connate in one, permanent. Capsule 1- or many-celled, many-seeded, 3—5-valved. Integument of seed double. Embryo with the radicle situated at the umbilicus, and with semicylindrical cotyledons. (Don's Mill.)

Leaves simple, opposite, exstipulate, sub-evergreen or deciduous; ovate-oblong or lanceolate, sessile or subsessile, usually full of pellucid dots on their disks, and some dark ones on their edges, lodging an essential oil. Flowers terminal, racemose, yellow. — Low sub-evergreen shrubs; natives of Europe, North America, and Asia; of easy culture in common soil; and propagated by division, suckers, cuttings, or seeds.

Derivation. From a, not, and skuros, hard; that is to say, plants soft to the touch.

Sect. Clar. Sepals connected at the base, and unequal. Stamens numerous. Styles 3 to 5. Flowers terminal, large, few, sub-corymbose. (Don's Mill., i. p. 601.)

A. Styles commonly 3.


Engravings. Wats. Dend. Brit., t. 85.; and our fig. 112.


Synonymes. Trágium Clus.; Androsee'mum fortiditum Bauh., Park., and Ray.; Mille Périus à Odeur de Bouc, Fr.

Engravings. Schkuhr Hands. 3. t. 213. f. 3.; Wats. Dend. Brit., t. 6.; and our fig. 113.

Spec. Clar., &c. Branches winged. Leaves somewhat emarginate at the base, dilated, sessile, acute at the apex, ovate-lanceolate, with glandular margins. Peduncles bibracteate. Stamens exceeding the corolla in length. Seeds 2, appendiculated. (Don's Mill.) A deciduous or sub-evergreen undershrub. Sea coast of Spain. Height 3 ft. to 4 ft. Introduced in 1640. Flowers yellow; July to September. Capsule reddish brown; ripe in October. The leaves of this species, when bruised, have a very disagreeable smell, resembling that of a goat, whence its name.

Varieties.

1. H. h. 2 obtusifolium Dec.—Leaves blunter than the species. Found on the mountains of Corsica, on humid rocks.

2. H. h. 3 minus Dec. is a smaller plant than the others, figured in Dend. Brit. t. 87.

B. Styles commonly 5.

1. H. Kalmia'num L. Kalm's St. John's Wort.


Engravings. Our fig. 114.

A neat compact bush, one of the most ornamental of the hardy species of the genus. The general hue of the entire plant is yellow, and the calyxes and the capsule, before they are ripe, particularly so. Flowers very numerous, in upright raceme-like corymbs.

4. **II. URA'LEM** Ham. The Urala St. John's Wort.


**Description.** Bt. Mag., t. 2975.; and our fig. 115.


In mild situations, and on a dry soil, it may safely be left through the winter without any protection; but this should not be the case where the situation is cold, and the soil tenacious or humid.

5. **H. CALYCI'NUM** L. The large-calyxed St. John's Wort.


**Synonymes.** Androsa num constantinopolitanum flore maximo, Wheeler's Journey, 205.; the large-flowering St. John's Wort; the large-flowering Tutsan; the terrestrial Sun; Aaron's Beard; Mille Pertuis à grandes Fleurs, Fr.; grossblünder Johanniskraut, Ger.; Asicro Ital. •

**Derivation.** This species was called Androsa num by the old writers on botany, on account of the tinge of red in different places on the stems, and the redness of the anthers, which were supposed to give it the appearance of being spotted with blood. It was called Constantinopolitan from its having been found near that city, in 1576, by Sir George Wheeler, Bart. The large size of its flowers is remarkable, and has given rise to most of its other names. The name of the Terrestrial Sun is very appropriate to the large golden flowers, with their long ray-like stamens, lying glittering on a bed of dark green shining leaves, which spread over the surface of the ground. The number and length of the stamens are, doubtless, also the origin of the name of Aaron's Beard.


**Spec. Char.** &c. Stem tetragonal, dwarf. Leaves ovate, coriaceous, broad, full of pellucid dots. Flowers large, terminal, solitary. Sepals large, obovate, spreading; capsule nodding. (Don's Mill.) A beautiful little evergreen undershrub, with dark green shining leaves. Levant, Olympus, Britain, on the western coast of Scotland, and in Ireland near Cork, in woods. Height 1 ft. to 1½ ft. Flowers of a bright golden yellow, with innumerable reddish tremulous anthers; June to September. Capsule reddish brown; ripe in October.

Valuable for covering banks, rockwork, or the surface of the ground in old shrubberies or picturesque woods, especially for the latter purpose, as it thrives perfectly well under the drip and shade of trees. The root creeps, and a small plant will soon extend itself in every direction, especially if the soil be light, so as to cover a great many square yards in a very short space of time. It is an excellent shelter for game. It may be readily increased to any extent by division.

§ ii. **Perforària** Chois.


**Derivation.** From perforatus, perforated; because the leaves are full of pellucid dots, which gives them the appearance of being perforated.
Sect. Char. Calyx of 5 equal sepals, toothed in some with glandular teeth, but entire in others, connected at the base. Stamens numerous, free or disposed in 5 sets. Styles commonly 3. Herbs or undershrubs. Flowers axillary, or in terminal panicked corymbbs. Leaves rarely linear. (Don's Mill) Undershubs, from 1 ft. to 3 ft. in height.

A. Sepals entire.

\[ \text{H. prolificum} \] The prolific St. John's Wort.


Synonymes. H. foliosum Jacq., Hort. Schönbr. 3. p. 27.; H. Kalmiümum

D. Royle Harbk. I. p. 310.


Frequent in gardens, and forming a dense leafy bush, covered with flowers great part of the summer, and with seed-pods in the autumn. Readily distinguished from H. Kalmiümum, by the leaves, bracts, and sepals being much smoother and shining.

B. Sepals toothed, usually with the Teeth glandular.

\[ \text{H. empetrifolium} \] The Empetrum-leaved St. John's Wort.


Engravings. Dend. Brit., t. 141.; and our fig. 118.

Spec. Char., &c. Stems suffruticose, round, with subulate branchlets. Leaves linear, ternary, with revolute margins. Calyx small, obtuse. Petals without glands. (Don's Mill.) A neat little evergreen shrub. South of Europe, near the Mediterranean; and in Greece. Height 1 ft. to 2 ft. Introduced in 1820. Flowers yellow; May to August.

One of the newest species of the genus, but somewhat tender.

Other Species of Hypéricum. — The only truly hardy shrubby species of Hypéricum are, H. elatum, H. hircinum, H. calycinum, H. Kalmiümum, and H. prolifícum. The other hardy species are of such low growth, that they may be considered, for all practical purposes, as herbaceous plants. H. nepalense Royle appeared to be hardy in the Hort. Soc. Garden, but it was destroyed by the winter of 1837-8. H. adpréssum Bartr., H. rosmarinifólium Lam., H. galiióides Lam., H. jácícelóatum Lam., and some other shrubby or frutescent species, are described by Torrey and Gray, but we are not aware of their having been yet introduced.

**Genus II.**

**ANDROSÆ'MUM** Choix. _The Androsæmum, or Tutsan. LIN. Syst._

Polyadélphia Polyandria.


Leaves simple, opposite, exstipulate, sub-evergreen. Flowers terminal. The whole plant closely resembling a Hypéricum. — Suffruticose. Indigenous in Britain.

1. A. officinale Allioni. The officinal Androssemum, or common Tuison.


Synonymes. Clymenon Italbrum L'Obel; Hypéricum Androsb'mum Lin., Willk., Smith, and Hooker; Park Leaves (because it is frequently found wild in parks); Androsmné officinale, Fr.; breit-blättriges (broad-leaved) Johanniskraut, Ger.; Cielliana Ital.

Engravings. Blackw., t. 94; Eng. Bot., t. 1225; and our fig. 119. In flower, and fig. 120. showing the fruit.

Spec. Char., &c. Leaves ovate, and somewhat heart-shaped, sessile, widely spreading. A sub-evergreen, suffruticose shrub, forming a dense bush, with many stems. Europe; and in England in moist shady woods. Height 2 ft. to 3 ft. Flowers yellow, 1 in. across; July to September. Capsule brownish purple, and lastly, almost black; ripe in October.

The fruit is an ovate capsule, assuming the appearance of a berry: it is at first yellowish green, then red or brownish purple; and, lastly, almost black when ripe. The juice of the capsules, and also that of the leaves, is claret-coloured. The latter, when bruised, have an aromatic scent, and were formerly applied to fresh wounds; and hence the French name of la toute saine. In gardening, the plant is valuable as growing under the drip of trees, and thriving and flowering freely in almost any soil or situation. It is readily propagated by division of the root.

Order XIII. ACERA'CEAE.

Ord. Char. Flowers either unisexual or bisexual. Calyx and corolla equal in the number of their parts, with an imbricated revestiment; the corolla sometimes absent. Petals without appendages. Stamens inserted upon a disk, which arises from below the pistillum, not agreeing in number with the divisions of the calyx and corolla. Pistillum 2-lobed, each lobe having a wing at its back. Style 1. Stigmas 2. Fruit formed of two samarre, or keys, each containing 1 cell and 1 erect seed. Embryo curved, with leafy shriveled cotyledons, and no albumen. (Lindl.) — Deciduous trees or shrubs, natives of the temperate climates of Europe, North America, and Asia.

Leaves simple, opposite, exstipulate, deciduous, rarely evergreen; variously lobed, rarely pinnate. — The species in British gardens are included in the genera A'cer and Negundo, which are thus contradistinguished: —

A'cer L. Flowers polygamous. Leaves lobed.

Negundo Mænch. Flowers dioecious. Leaves pinnate.
Genus 1.


Synonymes. Frabl, Fr.; Ahorn, Ger.; Acero, Ital.; and Acer, Spanish.

Description. From Acer, hard or sharp, derived from ae, Celtic, a point. The name is supposed to be applied to this genus because the wood of some species is extremely hard, and was formerly much sought after for the purpose of making pikes and lances.

Gen. Char. Sexes hermaphrodite, or monœciously polygamous. Flowers with a calyx and corolla. Calyx divided into 5 parts, or some number between 4 and 9. Petals the same in number. Stamens 8, or some number between 5 and 12. Anthers 2-lobed. Carpels 2, very rarely 3, each a samara; that is, a fruit which is called in Britain, vernacularly, a key. — Deciduous trees, natives of Europe, North America, and Asia.

Leaves simple, opposite, exstipulate, deciduous, rarely evergreen; variously lobed, toothed. Flowers axillary, corymbose. Fruit a samara. Decaying leaves rich yellow in some, and red or brown in others.

Several of the species produce useful timber; and sugar is one of the constituent parts of the sap of all of them. They all prefer a situation sheltered rather than exposed; a free, deep, loamy soil, rich rather than sterile, and neither very wet, nor very dry. They are propagated by seeds and layers, or by grafting. The maturity of the seed may be proved by opening the key, and observing if the cotyledons are green, succulent, and fresh; if the green colour of the cotyledons is wanting, the seeds are good for nothing. The seeds of all the species may either be sown in autumn, after they are gathered, or in spring; and the latter method is preferable where moles abound, as they are very fond of the seeds. Sown in spring, they come up in five or six weeks afterwards; with the exception of those of the A. campestre, which never come up till the second or third year. The seeds should not be covered with more than a quarter to half an inch of soil. The surface of the ground in which they are sown may be advantageously shaded with leaves, fronds of ferns, heath, or straw.

A. Leaves simple, or only slightly or occasionally lobed.

† ≡ 1. A. oblo'ngum Wall. The oblong-leaved Maple.


Engravings. Our figs. 121, 122., reduced to our usual scale; and the figures of the leaves, of the natural size, as given in the plate, p. 95.


This species is rather tender, and somewhat difficult to keep in the open ground, unless when planted against a wall. Though the leaves are generally entire, yet they are sometimes lobed, or show a tendency to become so.
2. A. tataricum L. The Tartarian Maple.


**Synonymes.** E'rable de Tartarie, Fr.; Tartarische Ahorn, Ger.; Zaraza-modon, or Locust Tree, Rus.


**Spec. Char., &c.** Leaves cordate, undivided, serrated, with obsolete lobes. Racemes compound, crowded, erect; wings of fruit parallel, young ones puberulous. (Don's Mill.) A low deciduous tree, native of Tartary. Height 20 ft. to 30 ft. Introduced in 1759. Flowers pale greenish yellow, sometimes slightly tinged with red; May and June. Keys brown; ripe in August. Decaying leaves reddish yellow, or brown. Naked young wood brown.

When raised from seed, the plant will come into flower in 5 or 6 years; and, in good soil, it will attain the height of 15 ft. in 10 years. According to some, it will thrive in a moister soil than most others. In ornamental plantations, it is valuable on account of the early expansion of its leaves, which appear before those of almost every other kind of Aecer.

**B. Leaves 3-lobed, or trifid; rarely 5-lobed.**

3. A. spicatum Lam. The spiked-flowereed Maple.


**Engravings.** Trat. Arch., No. 13.; the plate of this species in Arb. Brit., 1st edit., vol. v.; our fig. 124.; and the figure of the leaves, of the natural size, in the plate forming p. 97.

**Spec. Char., &c.** Leaves cordate, 3- or slightly 5-lobed, acuminate, pubescent beneath, unequally and coarsely serrated. Racemes compound, erect. Petals linear. Fruit smooth, with the wings rather diverging. (Don's Mill.) A deciduous shrub, or small tree. Canada to Georgia. Height 6 ft. to 10 ft. in America; 18 ft. to 20 ft. in England. Introduced in 1750. Flowers small, greenish, raceme many-flowered; May and June. Keys often reddish; ripe in August. Decaying leaves yellowish red. Naked young wood brown.
Very ornamental in autumn, from its small keys, which are fixed upon slender pendulous spikes, and have their membranous wings beautifully tinged with red when ripe. Michaux states that this species, grafted upon the sycamore, is, like the *Acer striatum*, augmented to twice its natural dimensions: a fact which we have never had an opportunity of seeing verified.


**Spec. Char., &c.** Leaves cordate, 3-lobed, acuminate, finely and acutely serrated. Racemes pendulous, simple. Petals oval. Fruit smooth, with the wings rather diverging. (Don’s Mill.) A deciduous tree, with green bark, striped with white. Canada to Georgia; 10 ft. to 20 ft. in England. Introduced in 1755. Flowers yellowish green, on long peduncles; May. Keys brown, and remarkable for a cavity on one side of the capsules; ripe in August. Decaying leaves yellowish green. Naked young wood green, striped with white and black.

The buds and leaves, when beginning to unfold, are rose-coloured; and the leaves, when fully expanded, are of a thick texture, and finely serrated. From the great beauty of its bark, this tree deserves a place in every collection.

It is propagated by seeds, which are received from America; or by grafting on *A. Pseudo-Platanus.*

**C. Leaves 5-lobed.**

† 5. *A. macrophyllum* Pursh. The long, or large, leaved Maple.


**Engravings.** Hook. Fl. Bor. Amer., 1. t. 38.; the plate of this species in Arb. Brit., 1st edit., vol. v.; our fig. 123.; and figs. 147. and 148. of the leaves, of the natural size, forming p. 100, 101. and 102, 103.

Leaves nearly 1 ft. broad. Carpels sometimes 3. Sap as abundant as in any species, except in *A. saccharinum*; the wood soft, whitish, but beautifully veined. (*Tor. and Gray.*) This species is quite hardy in the climate of London, and promises to form a most valuable addition to our ornamental, and, possibly, to our timber, trees. The tree in the Hort. Soc. Garden is between 40 ft. and 50 ft. high, after having been thirteen years planted; and it has flowered, and ripened some seeds.

**6. *A. Platanoides* L.** The Platanus-like, or *Norway, Maple.*


*Synonymes.* E'rable plane, or E'rable de Norvège, Fr.; spitz Ahorn, or spitzblättriger Ahorn, Ger.; Acero riccio, Ital.

*Engravings.* Duh. Arb., 1, t. 10, f. 1.; the plate of this species in Arb. Brit., 1st edit., vol. v.; our fig. 125.; and, fig. 145, of the leaves, of the natural size, forming p. 104, 105.

*Spec. Char., &c.* Leaves cordate, smooth, 5-lobed. Lobes acuminate, with a few coarse acute teeth. Corymbs stalked, erectish, and, as well as the fruit, smooth. Fruit with divaricated wings (*Don's Mill.*) A deciduous tree, above the middle size. Norway to Switzerland, but not in Britain. Height 30 ft. to 60 ft. Introduced in 1683. Flowers rich yellow; April and May. Keys brown; ripe in September and October. Opening foliage and flowers, in spring, of a bright yellow; when decaying, also, of a fine yellow. Naked young wood smooth, brown.

*Varieties.*

† A. p. 2 *Lobeli.* *A. Lobelii* Tenore; *A. platanoïdes Don's Mill.* i, p. 649. (Our fig. 127.; and fig. 150. of the leaves, of the natural size, in the plate forming p. 106.) — The leaves are very slightly heart-shaped, irregularly toothed, 5-lobed, with the lobes more or less abruptly pointed. The bark of the young wood striped, somewhat in the manner of that of *A. stratum*; by which circumstance the plant, in a young state, is readily distinguished from *A. platanoïdes*. A large tree, native of the kingdom of Naples, and found on mountains. One of the most beautiful acers in cultivation; but very little known, though it was introduced about 1683. There is a tree of it at Croome, above 20 ft. high, which has ripened seeds.


§ A. p. 4 *albo variegatum* Hort. — Leaves variegated with yellow.

¶ A. p. 5 *laciniatum* Dec. *A. p. cispum Lauth*; Eagle's Claw, or Hawk's Foot Maple. (The plate of this variety in Arb. Brit., 1st edit., vol. v.; our fig. 128.; and, fig. 151. of the leaves, of the natural size, in the plate forming p. 107.) — Leaves deeply and variously cut.
It is frequently produced from seed, being found by nurserymen among seedlings of the species.

The tree, in general appearance, at a distance, is like the common sycamore; but, on a nearer approach, the leaves are found of a smoother and finer texture. The roots extend considerably, both downwards and laterally. The bark is green on the young shoots, but it afterwards becomes of a reddish brown, dotted with white points: that of the trunk is brown, and rather cracked. The buds are large and red in autumn, becoming of a still darker red in the course of the winter: those on the points of the shoots are always the largest. The leaves are thin, green on both sides, and shining. When the petiole is broken, an acrid milky sap issues from it, which coagulates with the air. The leaves are about 5 in. long, and nearly the same in width. The petioles are longer than the
leaves. About the end of October, the leaves become either of a clear, or a yellowish, red, and then drop off. The flowers appear just before the leaves, near the end of April: they form a short raceme, somewhat corymbose. The fruits, or keys, have their wings yellow. It is not till the tree has attained the age of nearly 40 years that it produces fertile seeds, though it will flower many years before that period. The rate of growth of this species, when once established, is from 18 in. to 3 ft. long every year, till it attains the height of 20 or 30 feet; which, in favourable situations, it does in ten years. The wood weighs, when dry, 43 lb. + oz. per cubic foot; is easily worked, takes a fine polish, and absorbs and retains all kinds of colours. It may be used for all the various purposes of the wood of the common sycamore. Sugar is made from the sap in Norway, Sweden, and Lithuania. Seeds are ripened in England in abundance.

7. A. saccharinum L. The Sugar Maple.


Variety.

A. s. 2. nigrum. A. s. β nigrum Tor. & Gray; A. nigrum Michx; the black Sugar Tree, or Rock Maple, Michx. Arb. 2. t. 16 — Leaves pale green beneath, the veins of the lower surface and petioles minutely villous, pubescent; wings of the fruit a little more diverging. (Tor. and Gray, i. p. 248.) Michaux, who considered this variety a species, says the leaves resemble those of the species in every respect, except that they are of a darker green, and of a thicker texture, and somewhat more bluntly lobed. The tree is indiscernibly mixed with the common sugar maple, through extensive ranges of country in New Hampshire, Vermont, and Connecticut; but is readily distinguished from it by the smaller size which it attains, and the darker colour of its leaves. The soil in which it flourishes best is a rich, strong, sandy loam; and there it usually grows to the height of 40 or 50 feet.

Closely resembling A. platanoides in foliage, except in being somewhat
glaucoiis beneath, and in the fruit being much more divergent. Bark of the trunk white. Leaves 3 in. to 5 in. in length, generally wider than long. The buds have a fine ruddy tint, especially in spring before they expand. The tree in England is rather tender, and never attains a large size; but in America the timber is valuable, and the sap produces sugar. American seeds.

† 8. A. Pseudaju-Platanus L. The Mock Plane Tree, the Sycamore, or Great Maple.


Synonymes. Plane Tree, Scotch; E'rable Sycamore, E'rable blanc de Monitagne, fausse Platane, grand E'rable, Fr.; Ehrenbaum, weisser Ahorn, genuine Ahorn, Ger.; Acer Pisum, Brit., 1st edit., vol. IV.; our fig. 132.; and fig. 153. of the leaves, of the natural size, in the plate forming p. 110, 111.

Spec. Char., Sc. Leaves cordate, smooth, with 5 acuminate, unequally toothed lobes. Racemes pendulous, rather compound; with the racis, as well as the filaments of stamens, hairy. Fruit smooth, with the wings rather diverging. (Don's Mill) A deciduous tree of the first rank. Europe and Britain, in wooded mountainous situations. Height 80 ft. to 80 ft. Flowers greenish yellow, mostly hermaphrodite; May and June. Keys reddish brown; ripe in October. Decaying leaves brown, with large blotches. Naked young wood reddish brown. Buds large, green, or tinged with red.

Varieties.

† A. P. 2 opulifolia. A. opulifolium Hort.; A. trilobatum Hort.; A. barbatum Hort. (Our fig. 132.)—Leaves and fruit smaller than in the species, as shown in fig. 155. of the leaves, in the plate forming p. 114. We have no doubt of this being the A. opulifolium of Thuillier and Villars, L'E'rable duret, and L'E'rable ayart, Fr., which is said by these authors to resemble A. Pseudaju-Platanus, but to be much smaller. It is a native of the Alps and Pyrenees. Introduced in 1812. Height 15 ft. to 20 ft.

† A. P. 3 longifolia. A. longifolium Booth.—Leaves more deeply cut, and the petioles much longer than in the species. Altogether a tree of very remarkable aspect.

† A. P. 4 flavo variegata. A. lutescens Hort.; the Corstorphine Plane. Leaves variegated with yellow. The original tree stands near an old pigeon-house in the grounds of Sir Thomas Dick Lauder, Bart., in the parish of Corstorphine, near Edinburgh. Seeds of this variety, sown, have produced plants with the character of the parent to a certain extent.

† A. P. 5 albo variegata Hayne.—Of all the variegated varieties of A'eer, it must be acknowledged that this is the most ornamental; especially in spring, when the leaves first expand.

† A. P. 6 purpurea Hort.—Leaves of a fine purple underneath. This variety was found in a bed of seedlings, in Saunders's Nursery, Jersey, about 1828, and is now to be met with in all the principal nurseries. The tree has a very singular effect when the leaves are slightly ruffled by the wind, alternately appearing clothed in purple and in pale green. In spring, when the leaves first expand, the purple bloom is less obvious than when they become matured, at which time it is very distinct.

Other Varieties. In the garden of the Hort. Soc. there is a variety called Hodgkins's Seedling, with yellow-blotted leaves; and another, called Leslie's
Seedling. In Hayne’s Dendrologische Flora there are, also, the following varieties: A. P. stenoptera, A. P. macroptera, and A. P. microptera, which differ in the proportions of the wings of the keys, and do not appear worth farther notice. In all seed beds and young plantations some of the plants will be found with the petioles and the buds red, and others with the petioles and the buds greenish yellow: such trees, when of considerable size, are very distinct in their general aspect, when in bud, and when they have newly come into leaf; but after midsummer, when the leaves are fully matured, and begin to get rusty, the trees are scarcely distinguishable. Different plants also differ much in the time of their coming into leaf, and of dropping their leaves; and some of the more remarkable of these it might be worth while to propagate by extension.

The growth of the common sycamore is very rapid compared with that of most other species of Acer, particularly when it is in a deep, free, rich soil, and in a mild climate. It arrives at its full growth in 50 or 60 years; but it requires to be 80 or 100 years old before its wood arrives at perfection. In marshy soil, or in dry sand, and even on chalk, the tree never attains any size. It produces fertile seeds at the age of 20 years, but flowers several years sooner; sometimes even perfecting its seeds sooner also. The longevity of the tree is from 140 to 200 years, though it has been known of a much greater age. The wood weighs per cubic foot, newly cut, 64 lb.; half-dry, 56 lb.; dry, 48 lb. It loses, in drying, about a twelfth part of its bulk. When the tree is young, it is white; but, as the tree gets older, the wood becomes a little yellow, and often brown, especially towards the heart. It is compact and firm, without being very hard; of a fine grain, sometimes veined, susceptible of a high polish, and easily worked, either on the bench, or in the turning-lathe. It does not warp, and is not likely to be attacked by worms. It is used in joinery and turnery, and cabinet-making; by musical instrument makers; for cider-presses; and, sometimes, for gun-stocks. Formerly, when wooden dishes and spoons were more used than they are at present, it was much in demand, especially in Scotland, by the manufacturers of these articles. As underwood, the sycamore shoots freely from the stool, to the age of 80 or 100 years. As a timber tree, it is most advantageously cut down at the age of 80 years, or from that age to 100. As an ornamental tree, it produces the best effect, either singly, or in groups of two or three, placed sufficiently near to form a whole, but not so as to touch each other; and in rows or avenues. The varieties with variegated leaves are very ornamental in the beginning of.
summer; but their leaves are almost always more or less imperfect, especially on the edges, and fall off much sooner in the autumn than those of the species. The leaves of the purple variety are not liable to the same objection as those of the variegated sorts. Seeds; and the varieties by grafting on the species.

† 9. A. obtusatum Kit. The obtuse-lobed-leaved Maple.


Spec. Char., &c. Leaves cordate, roundish, 5-lobed; lobes bluntish (or pointed), repandly toothed, velvety beneath. Corymbs pendulous. Pedicels hairy. Fruit rather tree, with the wings somewhat diverging. (Don’s Mill.) A deciduous tree of the first rank, of as rapid growth as A. Pseudoplâtanus. Hungary, Croatia, and many parts of Italy, on hills and mountains. Height 40 ft. to 60 ft. Introduced in 1825. Flowers greenish yellow, few in a panicle; May and June. Keys brown; ripe in September. Decaying leaves dark brown. Naked young wood smooth and brown. Buds prominent, green.

Varieties.—In the Neapolitan territory, this tree is probably somewhat different in its habit and aspect from what it is in Hungary; and hence, the A. neapolitanum of Tenore may be considered a variety. The following also appear to belong to this species:

† A. o. 2 coriaceum. A. coriaceum Bosc. (Don’s Mill., 1, p. 649.; and our fig. 134.)—Leaves coriaceous, the same length as breadth, 3-5-lobed, denticulated, smooth. Corymbs loose. Wings of fruit erectly divergent. Native of ?. (Don’s Miller.) There are small plants of this A cer in the collection of Messrs. Loddiges, which appear to us to belong to this species, though it is with considerable doubt that we have placed it here. Possibly it may belong to A. platanoides, as we once thought, or to A. O’palus.

† A. o. 3 ibéricum. A. ibéricum Bieb. Fl. Taur., p. 247.—Leaves shining, glaucous beneath, bluntly three-lobed; lobes furnished with one or two teeth; lateral ones marked with the middle nerve to the insertion of the petiole. Petioles a little shorter than the leaves. Tree 20 ft. in height. A native of Georgia. (Don’s Mill., i. p. 649.) As we have only seen plants a few inches high, we may be mistaken in considering A. ibéricum as a variety of A. obtusatum.
A.  A. o. 4. lobatum, A. lobatum Fisch., has the leaves 7-lobed, according to Don's Miller, but the young plants bearing this name in the Hort. Soc. Garden, which was raised from seeds received from Dr. Fischer of Petersburg, appears obviously to belong to A. obtusatum.

D. Leaves 5-, rarely 7-lobed.

10. A. Opalus Ait. The Opal, or Italian, Maple.


Derivation. The specific appellation of Opalus has been given to this species, probably from the thick opal-like aspect of the leaves.

Engravings. Bandril, Traité, &c., vol. 5. p. 13; the plate of this species in Arb. Brit., 1st edit., vol. v.; our fig. 133; and fig. 136, of the leaves, of the natural size, in the plate forming p. 115.


A branchy tufted tree, covered with smooth leaves, somewhat coriaceous, roundish, indented, with five blunt lobes, deep green on the upper surface, and somewhat glaucous underneath, with long red petioles. Its flowers are whitish, in short racemes; and the small fruits, or keys, which succeed them, are almost round. It is found in forests and on mountains in Corsica; in Spain, on the Sierra Nevada; and in Italy, where, from the denseness of its shade, it is sometimes planted by road sides, and in gardens near houses. The red colour of the petioles of the leaves, of the fruits, and even the red tinge of the leaves themselves, more especially in autumn, give it rather a morbid appearance. It pushes later in the spring than most of the other species.


Engravings. Hook. Amer., t. 39; our fig. 136; and fig. 157, of the leaves, of the natural size, in the plate forming p. 116.

Spec. Char., &c. Leaves orbicular, rather cordate at the base, 7-lobed, smooth on both surfaces; lobes acutely toothed; nerves and veins hairy at their origin. (Don's Mill.) A deciduous tree of the middle size. N. W. coast of North America, between lat. 43° and 49°. Height 20 ft. to 40 ft. Introd. 1826. Flowers with the sepals purple, and the petals white; April and May. Keys purplish brown, with thin straight wings, which are so divaricate as to form right angles with the peduncle; the lower margin scarcely
thickened. (Tor. and Gray). Decaying leaves of a fine reddish yellow. Naked young wood reddish brown.

Branches slender, pendulous, and crooked; often taking root, in the manner of those of many species of Ficus. Bark smooth; green when young, white when fully grown. Leaf the length of the finger, upon rather a short footstalk, membranaceous, heart-shaped, with 7—9 lobes, and 7—9 nerves; smooth above, except hairs in the axils of the nerves; downy beneath, and in the axils of the nerves woolly; lobes ovate, acute, and acutely serrated; the sinuses acute: the nerves radiate from the tip of the petiole, and one extends to the tip of each lobe. Flowers of a middling size, in nodding corymbs, that are on long peduncles. (Hook. Fl. Bor. Amer.) This is a very marked and beautiful species; distinguishable, at sight, by the regular form of its leaves, and their pale reddish green colour. Though this fine tree has been in the country since 1826, it seems to have been comparatively neglected, for there is no good specimen that we know of in the neighbourhood of London. At High Clere, a thriving tree has ripened seeds for some years past; so that there can be no doubt of its hardiness.


Engravings. Tratt. Arch., 1. No. 17.; and fig. 158. of the leaves, of the natural size, in the plate forming p. 117.


This species requires the protection of a wall; having been, like A. oblongum, killed to the ground in the open air, in the Hort. Soc. Garden, in the winter of 1837–8.

13. A. ERIOCÆR'PUM Michx. The hairy-fruited, or white, Maple.


Varieties. There are several names in nurserymen’s catalogues, such as A. coccefnum, A. macrocarpum, A. floridum, A. Pavìa which are only very slight varieties of A. eriocarpum. The last-named variety, introduced by Messrs. Booth, has received the absurd name of Pavìa, from the upper surface of the leaves being slightly wrinkled, somewhat in the manner of those of the horsechestnut. As the species seeds freely, endless varieties may be obtained from seed beds.
Distinguished from *A. rubrum* by the leaves being more decidedly 5-lobed, the lobes deeply cut, and the whole leaf more tomentose. A very desirable species, from the rapidity of its growth, the graceful divergent direction of its branches, the beauty of its leaves, and the profusion of its early flowers. In mild seasons, these flowers begin to burst from their buds in the first week in January; and they are often fully expanded by the end of February or beginning of March. It requires a deep free soil, and more moisture than most of the other species. It ripens its seeds, both in America and Britain, by midsummer, or earlier; and, if these are immediately sown, they come up, and produce plants which are 8 or 10 inches high by the succeeding autumn.

**14. *A. rubrum* L.** The red-flowering, or scarlet, Maple.


*Synonyms.* *A. virginianum* Herb.; *A. coccineum* Ait. & Mich.; *A. glauca* Marsh. Arbist.; *A. carolinianum* Walt.; *A. sanguineum* Spach; soft Maple, Swamp Maple, red Maple; *Erable rouge,* Fr.; *rother Ahorn,* Ger.

*Engravings.* Mich. Arb., 2. t.14; Schmidt Arb., 1. t.6; the plate of the tree in Arb. Brit., 1st edit., vol. v.; our fig. 138; and fig. 160. of the leaves, of the natural size, in the plate forming p.119.

*Spec. Char., &c.* Leaves cordate at the base, glaucous beneath, deeply and unequally toothed, palmately 5-lobed, with acute recesses. Flowers conglomerate, 5-petaled, pentandrous. Ovaries smooth. (*Don’s Mill.*) A
large tree with numerous divergent slender branches. Canada to Florida. Height in America 30 ft. to 80 ft.; in England 30 ft. to 60 ft. Introduced in 1656. Flowers small, dark red, appearing a fortnight before the leaves; March and April. Keys brown; ripe in September.

Variety.

\[ A. \text{r.} \text{r.} \text{2 intermedium} \text{ Lodd. seems intermediate between this species and} A. \text{ericárpum.} \]

In England distinguished at sight from \( A. \text{ericárpum} \) by the leaves being much less cut, and less white beneath, and by the tree being generally less vigorous. The red-flowered maple, whether we regard the beauty of its flowers and opening leaves in early spring, its red fruits in the beginning of summer, or its red foliage in autumn, deserves to be considered one of the most ornamental of hardy trees. Contrary to the general character of the maples, this species is said to thrive best in moist soil, which must, however, at the same time, be rich; and, for the tree to attain a large size, the situation ought to be sheltered. In Britain it is chiefly propagated by layers; but, on the Continent, almost always by seeds, which ripen before midsummer, even sooner than those of \( A. \text{ericárpum} \), and, if sown immediately, come up the same season. The seeds, even when mixed with soil, do not keep well; and, in general, but a small proportion of those sent home from America vegetate in Europe.

\[ A. \text{Monspe} \text{sella} \text{'num} \text{L. The Montpelier Maple.} \]


\text{Synonyms.} A. \text{trilobum} \text{Munich}; A. \text{trilobum} \text{Duh.}; A. \text{trilobum} \text{Lam.}; \text{Erable de Montpellier.}

\text{Engravings.} Schmidt Arb., 1. t. 14.; and Krause, t. 101.; the plate of this species in Arb. Brit., 1st edit., vol. v.; our fig. 139.; and fig. 161. of the leaves, of the natural size, in the plate forming p. 126.

\text{Spec. Char., Scv.} Leaves cordate, 3-lobed; lobes almost entire, and equal. Corymbs few-flowered, pendulous. Fruit smooth, with the wings hardly diverging. A low tree. South of Europe. Height 15 ft. to 40 ft. Introduced in 1739. Flowers pale yellow; May. Keys brown; August.

In general aspect the tree resembles \( A. \text{créticum} \), which has much shorter footstalks, and coriaceous leaves. It also resembles \( A. \text{campéstre} \), which,
however, has the leaves 5-lobed, while in *A. monspessulanum* they are only 3-lobed. See the figures of leaves in p. 120. and 121. The leaves, in mild seasons, remain on through the greater part of the winter. Seeds; which it ripens in great abundance.

**16. A. campestris** L. The common, or Field, Maple.


**Synonymes.** Erable champêtre, Fr.; kleiner Ahorn, Feld Ahorn, Ger.; Galluzzi, or Pioppo, Ital.

**Engravings.** Engl. Bot., t. 304.; Wildl. Abbild., t. 213.; our fig. 141.; and fig. 162. of the leaves, of the natural size, in the plate forming p. 120.


**Varieties.**

**A. c. 2 fóliis variegátis.**—Next to the variegated-leaved variety of *A. Pseúdo-Plátanus*; this seems the handsomest of all the variegated-leaved maples; the leaves preserving, with their variegation, the appearance of health, and the blotches and stripes of white, or whitish yellow, being distinctly marked.

**A. c. 3 hebecárpinum** Dec. Prod. i. p. 598. A. campéstre Wallr. in Litt. Trát. Arch. i. No. 7; A. móle Opiz.—Fruit clothed with velvety pubescence.


**A. c. 5 austriácum** Tratt. Arch. i. No. 6. (The plate of this tree in Arb. Brit., 1st. edit., vol. v.)—Fruit smooth. Lobes of leaves somewhat acuminate. Flowers larger than those of the species. Native of Austria, Podolía, and Tauria. (Don's Mill.) This variety is larger in all its parts than the original species, and is of much freer growth; the main stem rises erect and straight, and sends out its branches regularly on every side, so as to form a sort of cone, almost like a fir. A subvariety of this sort, with variegated leaves, is propagated in the Bollwyller Nursery.

**Other Varieties.** *A. c. lavigátion*, leaves very smooth and shining; *A. c. nánun*, habit dwarf; and, perhaps, some others, are in the collection of Messrs. Loddiges. *A. taúricum*, leaves larger and less divided than in the species; and *A. hyrcánunm* (fig. 141.) with the leaves variously cut, are also in some collections.

Differing from *A. monspessulanum* in having the flowers produced upon
the young shoots; as well as in the racemes of flowers being erect. The wood weighs 61 lb. 9 oz. a cubic foot in a green state, and 51 lb. 15 oz. when perfectly dry. It makes excellent fuel, and the very best charcoal. It is compact, of a fine grain, sometimes beautifully veined, and takes a high polish. It was celebrated among the ancient Romans for tables. The wood of the roots is frequently knotted; and, when that is the case, it is used for the manufacture of snuffboxes, pipes, and other frugal productions. A dry soil suits this species best, and an open situation. Seeds; which often remain eighteen months in the ground before they vegetate, though a few come up the first spring. The varieties are propagated by layers.

**17. A. creticum L.** The Cretan Maple.


*Engravings.* Flor. Græc., t. 361.; Schmidt Arb., t. 15.; the plate of this species in Arb. Brit., 1st ed., vol. v.; our fig. 142., from the Flora Græcæ; and fig. 163. of the leaves, of the natural size, in the plate forming p. 121.

*Spec. Char., &c.* Leaves permanent, cuneated at the base, acutely 3-lobed at the top. Lobes entire, or toothleted; lateral ones shortest. Corymb few-flowered, erect. Fruit smooth, with the wings hardly diverging. (Don's Mill.) A diminutive, slow-growing, sub-evergreen tree. Candia, and other islands in the Grecian Archipelago. Height 10 ft. to 30 ft. Introd. 1752. Flowers greenish yellow; May and June. Keys brown; ripe in September.

There is a general resemblance between *A. creticum*, *A. monspessulanum*, and *A. campæstræ*; but the first is readily known from both, by its being evergreen, or sub-evergreen, and by its leaves having shorter footstalks, and being less deeply lobed. In a young state, the leaves are often entire or nearly so. It is oftener seen as a shrub than as a tree; and it seems to thrive better in the shade than any other *Acer*. Seeds, layers, or grafting on *A. campæstræ*.

*Other Species of A'eer.*—*A. barbatum* Michx., given in our first edition, has been omitted, because the plant in the Hort. Soc. Garden has always appeared to us nothing more than *A. platanoïdes*, and because Torrey and Gray consider it a doubtful species, and probably described by Michaux from "specimens of *A. saccharinum*; the only species, so far as we know, which has the sepals bearded inside." (Tor. and Gray, i. p. 219.) *A. opulifolium* given in our first edition as a species, we have now satisfied ourselves, from having been able to examine larger plants, is nothing more than a variety of *A. Pseudo-Platanus* diminished in all its parts. There are several names of species of *A'eer* in the works of European botanists, the plants of which would require to be procured and studied in a living state: such as *A. granatæsa* Bois., a native of Spain; *A. parvifolium* Tausch; also some natives of the Himalayas; and the following in North America as given by Torrey and Gray; *A. glâbrum* Torr., a shrub of the Rocky Mountains; *A. trîparîtîsum* Nutt. M.SS., a shrub of the Rocky Mountains allied to *A. glâbrum*; *A. grandîdentâtûm* Nutt. M.SS., a shrub or low tree from the Rocky Mountains, supposed to be the same as *A. barbatum* Douglas, mentioned in Hooker's *Flor. Bor. Amer.*, i. p. 112. The names of several other species, not yet introduced, will be found in the first edition of this work.
*Acer* oblongum. The oblong-leaved Maple.
Leaves of the natural size.
Acer tatricum. The Tartarian, or entire-leaved, Maple
Leaves and fruit of the natural size.
Acer spicatum. The spike-flowered, or mountain, Maple.
Leaves and fruit of natural size.
Acer striatum. The striped-leaves of
XIII. ACERA'CEÆ: ACER.

Park, or Pennsylvanian, Maple.

At natural size.
Acer macrophyllum. The part of leaf, and
Five-leaved Maple. Plate I.

It, of the natural size.
Acer macrophyllum. The Smaller leaves, also of the natural size,
Large-leaved Maple. Plate II.
show how much they vary on the same tree.
\textit{Acer platanoides}. The Platanus-
Leaves and fruit of
or Norway, Maple.

149 - at natural size.
Leaves of the natural size.
Acer platanoides laciniatum.
The cut-leaved Platanus-like, or Eagle's claw, Maple.

Leaves of natural size.
Acer saccharinum.

The leaves and fruit
The Sugar Maple.

of the natural size.
Acer Pseudo-Platanus. The Leaves and fruit
False Plane, or Sycamore, Maple.

The natural size.
Acer obtusatum. The obtuse-Leaves of the
XIII. ACERA'CEÆ: ACER.

...leaved, or Neapolitan, Maple.

Full size.
Acer Pseudo-Platanus opulifolia.
The Opulus-leaved False Plane, or Sycamore.
Leaves and fruit of the natural size.
A°cer O'palus. The Opal, or Italian, Maple.
Leaves of the natural size.
Arbor et Fruticetum Britannicum.

Acer circinatum. The round-leaved Maple.
Leaves of the natural size.
Acer palmatum. The palmate-leaved Maple.

Leaves of the natural size.
Acer eriocarpum. The woolly-fruited Maple.
Leaves and fruit of the natural size.
Acer rubrum. The red-flowered Maple.
Leaves and fruit of the natural size.
A'cer monspessulânùm, and A. campéstre. The Montpelier Maple, and the common, or field, Maple.

Leaves and fruit of the natural size.
Acer creticum. The Cretan, or various-leaved, Maple.
Leaves and fruit of the natural size.
Genus II.

NEGU'NDO Mænch. The Negundo, or Box Elder. Lin. Syst. Dicæ'cia Pentándria.


**Synonymes.** Acer Lin.; Negundo Lin. Rafinesque.

**Derivation.** This genus was constituted from Acer Negundo L.; but the meaning of the latter word is unknown. Probably, it may be merely the Illinois name of Gigueres (from gigner, to romp, alluding to the tremulous and playful motion of the long pinnated leaves) Latinised.


**Leaves compound, opposite, exstipulate, deciduous; impari-pinnate.**

There is only one species in British gardens.

† 1. *N. fraxinifo'lium* Nutt. The Ash-leaved Negundo.


**Synonymes.** Acer Negundo L., Mich. Arb.; N. aceroides Mannch and Torr. & Gray; Negundoium americanum Rafin.; the Ash-leaved Maple, the Black Ash; Frêle à Feuilles de Frêne, Fr.; Prable à Glauderes, Illinois; Eschenblättriger Ahorn, Ger.; Acero americano, Itat.


**Spec. Char., &c.** Leaves of from 3 to 5 leaflets, the opposite ones coarsely and sparingly toothed, the odd one often 3-lobed than simple. (Dec. Prod.) A deciduous tree, of the middle size, Canada to Carolina. Height 15 ft. to 30 ft.; in England 30 ft. to 40 ft. Introduced in 1688. Flowers yellowish green, appearing with the leaves; April. Keys brown; ripe in August. Decaying leaves of a rich yellow. Naked young wood smooth, and of a fine pea green. The tree in the Hort. Soc. Garden is a male; but there is a female plant in the collection of W. Borrer, Esq., Henfield.

**Varieties.**

† N. f. 2 *crispum* G. Don. (The plate in Arb. Brit., 1st edit., vol. v.; and our fig. 163.) — Leaves variously cut and curled. The plant of this variety in the arboretum of the Hort. Soc. is a male: the inflorescence consists of pendulous panicles of flowers, that are green, with some redness from the colour of the anthers; and each is placed upon a slender peduncle of about 1 in. long.

† N. f. 3 *violaceum* Booth. — Young shoots covered with a violet bloom. This appearance is not uncommon in the young shoots of different species of *Acer* as well as in *Negundo*. 
A rapid-growing tree; very ornamental, from its compound leaves, and the fine pea-green of its young shoots; arriving at maturity in 15—20 years. American seeds, which ought to be sown as soon as possible, or layers, in any common soil.

Other Species of Negundo.—N californicum Tor. & Gray, found by Douglas, is supposed to be a new species; but neither fruit, nor full-grown leaves, are described.

**Order XIV. **\AE scrula\'ce\AE.

*Synonyms.* Castaneae Link; Hippocastanæ Dec.


Leaves compound, opposite, extipulate, deciduous; leaflets 5—7, serrated. Flowers terminal, in racemes, somewhat paniced. — All the known plants of this order cross-fecundate freely, and by most botanists they are included in one genus; but so numerous are the garden varieties, that we have thought it more convenient to follow those authors who separate the species into two genera. These are \AE sculus and Pavia, which are thus contradistinguished:

\AE scrulus L. Capsule echinated.

Pavia Boerh. Capsule smooth.
ANSCULUS L. THE HORSECHESTNUT. LIN. SYST. HEPTANDRIA MONOGYNIA.


Synonyms. Hippocastanum Tour. ; Marronier d’Inde, Fr.; Rosskastanie, Ger.

Derivation. The word Anculus, derived from escus, nourishment, is applied by Pliny to a species of oak, which had an edible acorn. The word Hippocastanum, from hippos a horse, and castanea, a chestnut, is said by some to have been given to this tree ironically, the nuts, though they have the appearance of sweet chestnuts, being only fit for horses; and by others, because it is said the nuts are used in Turkey, for curing horses of pulmonary diseases.


Leaves palmately divided, with stalked leaflets, generally rough. Capsule rough. Buds generally covered with resin.—Two species and several varieties are in British gardens.

The common horsechestnut is invariably propagated by the nuts, which are sown when newly gathered, or in the following spring; and in either case they will come up the succeeding summer. All the other sorts, as being varieties of the species, are propagated by budding or grafting. Soil deep sandy loam. Only the first three sorts described below can be considered as true horsechestnuts; the remainder, to which some other names might be added, we consider as hybrids between Anculus and some kind of Pavia, most probably P. flavus.

† 1. An. Hippocastanum L. The common Horsechestnut.


Synonyms. Hippocastanum Vulgare Tour.; Marronier d'Inde, Fr.; gemeine Rosskastanie, Ger.; Marrone d'India, Ital.


Varieties.

† An. H. 2 flore pleno.—Recorded in nurserymen's catalogues, but not common.

† An. H. 3 aureo-variegatum. — The leaves are blotched with yellow, but they have a ragged and unhealthy appearance, and are by no means ornamental.

† An. H. 4 argenteo-variegatum. — Leaves blotched with white.


Other Varieties. In Booth’s Catalogue are the names An. H. crispum, nigrum, praecox, striatum, tortiossum, &c., but none of these, nor any other variety which we have seen, is worth culture.

A tree of the largest size, with an erect trunk, and a pyramidal head. The leaves are large, of a deep green colour, and singularly interesting and beautiful when they are first developed. When enfolded in the bud, they are covered with pubescence, which falls off as the leaves expand. The growth, both of the tree and of the leaves, is very rapid; both shoots and leaves being sometimes perfected in three weeks from the time of foliation. The wood weighs, when newly cut, 60 lb. 4 oz. per cubic foot; and, when dry, 35 lb. 7 oz.; losing, by drying, a sixteenth part of its bulk. It is soft, and
unfit for use where great strength, and durability in the open air, are required; nevertheless, there are many purposes for which it is applicable when sawn up into boards; such as for flooring, linings to carts, packing-cases, &c. The nuts may be used when burned as a kind of ley, or substitute for soap. The nuts, if wanted for seed, should be gathered up as soon as they drop, and either sown or mixed with earth; because, if they are left exposed to the air, they will lose their germinating properties in a month. Some nurserymen cause the nuts to germinate before sowing them, in order to have an opportunity of pinching off the extremity of the radicle; by which means the plants are prevented from forming a taproot; or, at least, if a taproot be formed, it is of a much weaker description than it otherwise would be, and the number of lateral fibres is increased; all which is favourable for transplanting. When the tree is intended to attain the largest size, in the shortest time, the nut ought to be sown where the tree is finally to remain; because the use of the taproot is mainly to descend deep into the soil, to procure a supply of water, which, in dry soils and seasons, can never be obtained in sufficient quantities by the lateral roots, which extend themselves near the surface in search of nourishment and air.

**2. **E. (H.) **ohioensis** Michx. The Ohio Esculus, or Horsechestnut.


*Synonyms.* E. ohioensis Lindl.; E. pallida Wild.; E. echinata Michx.; E. glabra Tor. & Gray; Pavia ohioensis Michx.; Pavia glabra Spach; Ohio Buckeye, fetid Buckeye, Amcr.

All these synonyms appear to us very doubtful, when we compare them with the tree bearing this name in the Hort. Soc. Gardens, and with Dr. Lindley's description of it in Bot. Reg. for 1838, t. 51.


*Spec. Char., &c.* Stamens nearly twice the length of the (yellowish white) corolla; petals 4, spreading, a little unequal, the claw scarcely the length of the campanulate calyx; thyrsus racemose, loosely flowered; leaflets 5, oval or oblong, acuminate, fine and unequally serrate, glabrous. (Tor. and Gray, 1. p. 251.) A deciduous tree of the middle size. Pennsylvania and Virginia. Height in America 10 ft. to 30 ft.; in the climate of London apparently the same as the common horsechestnut. Introduced in 1820. Flowers white, yellow, and red; May and June. Fruit brown; ripe in October. Bark rough, fetid. Branches of the thyrsus of flowers short, 4—-6-flowered; the flowers mostly unilateral, small (not half the size of those of the common horsechestnut). Fruit prickly, resembling that of the cultivated horsechestnut, but scarcely half the size. (Tor. and Gray, 1. p. 251.)
According to Michaux, the American horsechestnut is commonly a bush or low tree, from 10 ft. to 12 ft. in height; but it is sometimes 30 or 35 feet high, trunk 12 or 15 inches in diameter. He found it only on the banks of the Ohio; but Torrey and Gray give as its habitats the western parts of Pennsylvania, Virginia, Ohio, Kentucky. The tree in the Hort. Soc. Garden is of equally vigorous growth with the common horsechestnut; the leaves are larger, and of a bright green; on the supposition that this is the \( E \). ohioensis of Michx. and Tor. & Gray, we have no doubt in our own mind that it is only a variety of the common horsechestnut, Dr. Lindley, however, is of a different opinion, considering it as a distinct species. (See Bot. Reg., 1838, t. 51.)

3. \( E. \) (H.) \textit{rubicunda} Lois. The reddish-flowered \( E \)esculus, or Horse chestnut.


\textbf{Synonymes.} \( E \). \textit{carnea} Hort., and Lindl. Bot. Reg.; \( E \). \textit{rosea} Hort.; \( E \). \textit{coccinea} Hort.; \( E \). \textit{Hippocastanum} var. \textit{rubicunda} Schubert.; \( E \). \textit{Watsündna} Spach; Marroner rubicund, Fr.; scharlachrothe Rosskastanie, Ger.; Whitley's fine scarlet.


\textbf{Spec. Char., &c.} Petals 4, with the claws shorter than the calyx. The flowers are scarlet, and very ornamental; the leaves of a deeper green than those of any other sort, and they have a red spot at the base of the petioles of the leaflets on the under side. The flowers come out of a dark red, and die off still darker. Fruit prickly. A deciduous tree, below the middle size. ? Hybrid from North America, Height 20 ft. to 30 ft. Cultivated in 1820. Flowers red; May and June. Fruit brown; ripe in October.

It is doubtful whether this tree is a native of North America, or originated in British gardens. It passes under different names in different nurseries,

as will be seen by our list of synonymes, and may be considered as differing little, if at all, from \( E \). \textit{carnea} Lindl. It is distinguished from \textit{Pavia rubra} by its larger and rougher leaves; and from \( E \). \textit{Hippocastanum} by the leaves.
being fuller and more uneven on the surface, and of a deeper green. The tree is also smaller, and of much less vigorous growth than the common horsechestnut. It is, without doubt, the most ornamental sort of the genus.

Variety.

Æ. (H.) 2 r. Æ. 'sculus ròseà Hort. — This variety differs from Æ. (H.) rubicunda, in having the leaflets without a red spot at the base of the petioles. The flowers come out of a pale red, and die off about the same shade as the flowers of Æ. (H.) rubicunda are when they first appear.

Other Varieties. There are several names in gardens, and in nurserymen's catalogues, which appear to belong to Æ. (H.) rubicunda, but how far they are worth keeping distinct, we are very doubtful. Whitley's new scarlet, of which there is an imported tree in the Fulham Nursery, is said to have flowers of a darker scarlet than any of the above-named varieties; and, if so, it may be recorded as Æ. (H.) r. 3 Whitley. Æ. (H.) americàna of the same nursery belongs also to Æ. rubicunda.

Æ. (g.) palîldà Willd. The pale-flowed Æsculus, or Horsechestnut.

Engravings. Hayne Abbild., t. 24.; and our fig. 159, 170.

Spec. Char., &c. Petals with the claws shorter than the calyx. Stamens twice as long as the corolla. A deciduous low tree. Originated in gardens. Height 20 ft. to 30 ft. Cultivated in 1812. Flowers pale yellow; May and June. Fruit brown; ripe in October.

This sort is very distinct; but it is evidently not the Æ.'s-culus glabra of Torrey and Gray, but probably a variety of the Æ.'sculus flavà of these authors, with rough fruit. The whole plant is comparatively glabrous, and even the fruit partakes of that quality. The tree is of less vigorous growth than Æ. rubicunda; and the shoots take a more upright direction. It appears to lose its leaves sooner than most of the other sorts.

Æ. (g.) pa'llîlda Willd. The pale-flowed Æsculus, or Horsechestnut.

Synonyme. Gelbliche Roskastanie, Ger.
Engravings. Hayne Abbild., t. 25.; and our fig. 171.

Spec. Char., &c. Petals with the claws shorter than the calyx. Stamens twice as long as the corolla. A deciduous low tree. Originated in gardens. Height 20 ft. to 30 ft. Cultivated in 1812. Flowers pale yellow; May and June. Fruit brown; ripe in October.

This sort so closely resembles Æ. glabra, as to leave no doubt in our mind of its being a variety of that species. It is of somewhat more robust growth, and the leaves are, perhaps, not quite so smooth.
Other Kinds of *Aesculus* are enumerated in some nurserymen's catalogues; but we know of none worth notice, except those already recorded.

**Genus II.**


**Derivation.** In honour of Peter Pav, a Dutch botanist, once professor of botany at Leyden. Buckeye has reference to the conspicuousness of the hilum of the seed, when taken out of the husk.


Leaves palmate, with 5-7 leaflets, smooth. Flowers small, with erect and narrow petals. Buds blunt, not covered with resin.—There are three species, and several varieties or hybrids, in British gardens.

Distinguished from the common horsechestnuts, by being smaller and smoother in all their parts. There are probably only three aboriginal species; but there are several beautiful garden varieties, or hybrids. Culture the same as for the common horsechestnut.

**† I. P. RUBRA Lam.** The red-flowered Pavia.


**Synonyms.** *Aesculus Pavia* Lin. and Tor. & Gray; *A. Pavia var. a rubra* Hayne Decid, p. 44.; *Pavia parviflora* Hort.; small Buckeye, Amer.; Marronnier Pavie, or Pavie à Fleurs rouges, Fr.; rothe Rosskastanie, Ger.; Marrone di Pav, Ital.


**Spec. Char., &c.** Corolla of 4 petals, that are longer than the stamens. Leaflets 5, elliptic-oblong, tapered to both ends, and smooth, as is the petiole; axils of the nerves hairy on the under surface of the leaf. (Dec. Prod.) A slender-growing tree. Virginia and Carolina, on mountains. Height 10 ft. to 20 ft. Introduced in 1711. Flowers brownish scarlet; May and June. Fruit brown; ripe in October. Decaying leaves brown. Naked young wood reddish brown.
Varieties.

1 P. r. 2 *arguta* G. Don.
   (B. Reg., t. 993.; our fig. 172.) — A handsome small tree, with dark brownish red flowers, differing little from those of *P. rubra*. Introduced in 1820.

2 P. r. 3 *subalarinata* Wats.
   Dend. Brit. t. 120. *Æ*. P. serrata *Hort.*
   — Leaflets acutely serrated; in other respects it differs little from the species.

3 P. r. 4 *húmilis*. *P. hámilis* G. Don; and *Æ’sculus hámilis* Lodd. (Bot. Reg., t. 1018; and our fig. 173.) — A diminutive, weak, straggling form of the species, probably obtained from some sport, and which, on its own root, is only a cumbent bush, from 2 ft. to 3 ft. in height; but which, when grafted
on the common horsechestnut, forms the very beautiful pendulous low tree of which there is a plate in the Arb. Brit., 1st edit., vol. v. In addition to these varieties, there are the three forms which are enumerated below.

In its native country this species varies in magnitude from a low rambling shrub to a tree of 20 ft. or more in height. In England P. rubra is in cultivation in various forms: as a tree, in which character it has, at Syon (see our plate in the Arb. Brit., 1st edit., vol. v.), attained the height of 26 ft.; as a pendulous tree of 12 or 14 feet in height (see our plate in the Arb. Brit., 1st edit., vol. v., under the name of P. r. |.endula); and as a trailing shrub, under the name of P. humilis, in the London Hort. Soc. Garden, and in the arboretum of Messrs. Loddiges.

2. P. flava Dec. The yellow-flowered Pavia.

Synonymes. Eschscholtz flava Ait., Hayne, and Tor. & Gray; Æ. lutea Wanghi; Pavia lutea Poir.; the sweet Buckeye, big Buckeye, Amer.; the yellow Pavia; the yellow Horsechestnut.
Spec. Char., &c. Petioles pubescent, flattish towards the tip. Leaflets 5—7, pubescent beneath, and above upon the nerves. (Dec. Prod.) A deciduous tree of the middle size. Virginia and Georgia, in fertile valleys. Height 30 ft. to 80 ft. in America; 30 ft. to 40 ft. in England. Introduced in 1764. Flowers yellow; April and May. Fruit brown; ripe in October. Decaying leaves yellow, tinged with brown. Naked young wood yellowish brown. A more vigorous and rigid-growing tree than P. rubra, with the branches
upright; whereas in P. rubra they are spreading, slender, and pendulous.
Leaves paler than in P. rubra. To thrive, it, like all the other Aesculaceae,
requires a deep rich soil. Propagated by budding, because the colour of the
flowers is found to vary much in plants raised from seed.

1. P. (fla.) neglecta G. Don. The neglected Pavia.


A tree resembling Pavia flava but smaller. The plant in the Hort. Soc. Garden was purchased from M. Catros of Bordeaux, under the name of AE. ohioënsis. In the Bot Reg, it is said to be most nearly related to AE. (Pavia) flava, but to differ from it in the flowers appearing a week or 10 days earlier, and in the leaflets being more glabrous, with rufous down on the veins on the upper side, and with hairs in the axils of the veins on the under surface.

† 4. P. macrocarpa Hort. The long-fruited Pavia.

Synonyme. Aesculus Pavia macrocarpa Lodd. Cat., 1830.

Engravings. The plate in Arb. Brit., vol. v. 8 and our fig. 177.

Spec. Char., &c. Leaves glabrous on both sides. Leaflets ovate-lanceolate. A deciduous tree under the middle size. A garden hybrid between

Aesculus and Pavia rubra. Height 20 ft. to 30 ft. Cultivated in 1820. Flowers pale red and yellow, nearly as large as the common horsechestnut; May and June. Fruit brown; ripe in October.
The leaves are large, glabrous on the upper surface, and shining. The branches are spreading and loose; and the whole tree has an open graceful appearance, quite different from that compactness of form and rigidity of branches which belong to most of the tree species and varieties both of \AE'sculus and \Pavia.

\[5. \text{P. discolor Sut.} \text{ The two-coloured-flowered Pavia.}\]

Synonymes. \AE'sculus discolor Ph. and Bot. Reg.; \AE'sculus \Pavia \AE discolor Tor. & Gray.
Engravings Bot. Reg., t. 310.; and our fig. 178.

Spec. Char., &c. Leaflets 5, acuminate at both ends, tomentose beneath, unequally serrulated. Raceme thyrsoid, many-flowered. Corolla of four convolving petals, with their claws the length of the calyx. Stamens 7, shorter than the corolla. (Don's Mill.) A deciduous tree-like shrub, Virginia and Georgia, in fertile valleys and on mountains. Height 3 ft. to 10 ft. Introduced in 1812. Flowers variegated with white, yellow, and purple; May and June. Fruit brown; ripe in October. Decaying leaves yellowish brown. Naked young wood of a brownish stone-colour.

The whole plant, including the young wood, is covered with pubescence. The flowers are large, showy, continuing a long time expanding, and numerous though they are but sparingly succeeded by fruit. When the plant is raised from seed, it is remarkable for its thick, fleshy, carrot-like roots, which, in free soil, penetrate perpendicularly to the depth of 8 or 10 feet before they branch. Unless when grafted on \AE, Hippocastanum, it is seldom seen above 4 or 5 feet in height; but it is a very free flowerer, and, considered as a shrub, is in May, when it is in flower, one of the most ornamental that the British arborcetum affords.

\[6. \text{P. macrostachya Lois.} \text{ The long-racemous Pavia.}\]

Synonymes. \AE'sculus parviflorus Wall.; and Torr. & Gray.; \AE macrostachya Mr. and Hayne; \Pavia alba Poir.; \Pavia edulis Pott. Arb. Fr. t. 82.; Macrothyrsus discolor Spach; Pavier à longs Épis, Pavier même, Fr.; langjährige Rosakastanie, Ger.
Engravings Lois. Herb. Amat., t. 212.; Hayne Abbild., t. 26.; and our fig. 179.

Spec. Char., &c. Stamens much longer than the corolla. Racemes very long. Root stoloniferous. Flowers white. (Dec. Prod.) A deciduous shrub, with numerous radicled shoots. South Carolina and Georgia, Height in America 2 ft. to 4 ft.; in the climate of London 10 ft. to 15 ft. Introduced in 1820. Flowers white, with long projecting stamens, which give the spike a fine fringed appearance; July and August. Fruit brown; ripe in October.

The shoots are slender, spreading, and rooting at the joints where they happen to rest on the soil, with ascendent extremities. The tree comes into flower about a month or six weeks later than the other \AE'sculaceae, and continues flowering.
in the case of large plants on moist soil, for three months or longer, forming one of the greatest floral ornaments of the shrubbery, at a season when very few trees or shrubs are in flower. The fruit, which is small, seldom ripens in England; but in America it is said to be eaten, boiled or roasted; and M. Poiteau, accordingly, has included this species of Pavia in his list of fruit trees. Layers; or seeds, when they can be procured, and which ought to be sown as soon as possible after they are ripe.

Other Kinds of Pavia.— Pavia californica (Æ. californica Nutt.) has been described by Torrey and Gray, but is not yet introduced. P. Lyonii is in the Hort. Soc. Garden, but has not yet flowered there. We have omitted in this edition P. hybrida, described by De Candolle as a truly intermediate plant between P. rubra and P. flava, with yellow, white, and purple flowers; because the only plant which we have seen bearing this name, that in the Hort. Soc. Garden, has the flowers yellow, and appears merely a very slight variety of P. flava. In nurserymen’s catalogues there are several names which we have not noticed; for the truth is, that the different kinds of P. secundus and Pavia cross-fecundate so freely, and seedlings vary so much, that there is no limit to the number of varieties that might be produced. The great error (because it creates so much confusion in the nomenclature) consists in giving these varieties to the world as species.

It is almost unnecessary to observe, that all the most valuable varieties, of both P. secundus and Pavia, are best perpetuated by budding or grafting, and that collectors ought always to see that the plants they purchase have been worked. Pavia rubra as a tree, P. discolor either as a shrub or grafted standard high, and P. macrostachya as a shrub, ought to be in every collection, whether small or large. Pavia hümilis, when grafted standard high on the common horsechestnut, forms an ornament at once singular and beautiful. As the horsechestnut is to be found in most plantations, those who are curious in the species and varieties might graft them on the upper branches of old trees; or young trees might be headed down, and one kind grafted on each.

Order XV. Sapindaceae.


Leaves compound, alternate, stipulate, deciduous. Flowers terminal, in racemose panicles, small, white or yellow. — There is only one hardy species belonging to this order in British gardens, namely, Köreutéría paniculáta Laxm.

Genus I.


Derivation. In honour of John ThoPhilius Köreuter, once professor of natural history at Carlsruhe, and celebrated for his researches on the pollen of plants.
Gen. Char., &c. Calyx of 5 sepals. Petals 4, each with 2 scales at the base. Capsule 3-celled, inflated. Seeds ovate-globose, the seed-coat penetrating into the seed, and occupying in the place of an axis the centre of the embryo, which is spirally convoluted. (Dec. Prod.)

Leaves impari-pinnate, of many pairs of leaflets, that are ovate and coarsely toothed. Flowers yellow, in panicles. — A deciduous tree.


It is very hardy; the hermaphrodite plants not unfrequently ripening seeds in the neighbourhood of London. It has not only a very fine appearance when in flower, but also in autumn, when the tree is covered with its large bladdery capsules, and the leaves change to a deep yellow, which they do before they fall off. It is of the easiest culture in any common soil, and is readily propagated either by seeds or cuttings of the root or branches. In the London nurseries it is generally propagated by seed.

Order XVI. VITACEÆ.

abortion; embryo erect; albumen hard.—Climbing shrubs, with tumid separable joints.

Leaves simple or compound, opposite or alternate, stipulate, deciduous; the lower ones opposite, the upper alternate. Flowers axillary, racemose, sometimes by abortion changing to tendrils, which are generally opposite to the leaves; small, green.—Shrubs, trailing and climbing, deciduous, and including the grape vine, which may be considered as the type of the order. The genera which contain hardy species are three, which are thus contradistinguished:


Genus I.


Synonymes. Ginn, Celtí; Vid, Span.; Vigne, Fr.; Vite, Ital.; Weinstock, Ger.


Leaves simple, alternate, stipulate, lobed or serrated. Flowers in thyrsoid racemes, small, and of a greenish yellow.—There are several species in British gardens, the principal of which is the grape vine.

1. V. vinifera L. The wine-bearing Vine.

Engravings. Duah. Arb. Fr., 2. t. 16; Jacq. 1c., 1. p. 93; and our fig. 181

Spec. Char., &c. Leaves lobed, toothed, sinuated, or serrated, naked or downy. (Dec. Prod.) A deciduous tendriled climber. Syria. Stem 20 ft. to 50 ft. Cultivated in 1648, or probably from the time of the Romans. Flowers greenish yellow, scented; June and July. Fruit green, red, or black; ripe in October. Decaying leaves yellow or red. Naked young wood yellowish brown.

Varieties. The grape vine has been in cultivation from the remotest period of history, in the warmest parts of the temperate zones of the Old World. The varieties have been described at length by Du Hamel in France, Don Roxas de Clementi in Spain, and Sickler in Germany. The varieties of the vine as a fruit shrub, and all that relates to their propagation and culture, will be found treated of in our Encyclopædia of Gardening; and we shall
here only notice those which we think deserving of cultivation, as ornamental and fragrant-flowered climbers.

\[V. \textit{v. 2 foliis incinis} \] Miller’s Grape, or Miller’s black Cluster Grape.  
— Leaves almost entire, small, woolly, and whitish. Fruit round, small, in compact bunches, black. This variety is selected on account of the whiteness of its leaves.

\[V. \textit{v. 3 foliis rubescéntibus} \] The Claret Grape; Tenturier, Fr. (\textit{V. Du Ham.}, var. 75., not Clairette \textit{Du Ham.}, var. 12.) — The leaves are larger than those of the preceding variety, and more lobed and notched : in the autumn, before they die off, they change to a deep claret colour, in which state they are highly ornamental.

\[V. \textit{v. 4 apiífolia laciniósa} \] L. The Parsley-leaved Grape Vine; Ciotat, Fr.; Vite d’Egitto, \textit{Ital.} (fig. 182.) — The leaves are beautifully laciniated, middle-sized, and the fruit black. A very handsome climbing shrub which has been in cultivation for its fruit since 1648.

\[2. \textit{Lappu'sca} \] L. The wild Vine, or Fox Grape.  


**Synonymes.** \textit{V. taurina} \textit{Walt.}; \textit{fitziger Wein}, \textit{Ger.}; Abrostine, \textit{Ital.}

**Engravings.** Plum. Icon., t. 250. fig. 1.; Jacq. Schern., t. 426.; and our fig. 183.

**Spec. Char., &c.** Sexes diœcius or polygamus. Leaves heart-shaped, rather 3-lobed, acutely toothed beneath, and the peduncles tomentose and rather rusty. (Dec. Prod.) Canada to Georgia. Climbing stem 10 ft. to 30 ft. Introduced in 1656. Flowers greenish yellow; June and July. Fruit red or black; ripe in October. Decaying leaves brown or black.

**Varieties.** Several varieties, with red, white, or black fruit, are known in the gardens of North America, from which wine is made; such as the Isabella, Schuykill or Alexander’s, the Catawba, and Bland’s Grape, which have doubtless been produced from seeds of this species. (Tor. and Gray.)

Leaves 4 in. to 6 in. or more in diameter, often distinctly 3-lobed, short, mucronate, and densely tomentose beneath. Berries 6—7 lines in diameter, globose, usually very dark purple when ripe, but sometimes amber-coloured or greenish white, of a strong musky flavour, and filled with a tough pulp. (Ibid.)

\[3. \textit{Estiva'lis} \] Michx. The Summer Vine, or Grape Vine.  


**Synonymes.** \textit{V. vinifera americana} Marsh.; \textit{V. interniédia} Muhi.; and \textit{V. palméta} \textit{Vahl.}

**Engravings.** Jacq. Hort. Schern., t. 425.; and our fig. 184.

**Spec. Char., &c.** Sexes diœcius or polygamus.  
Leaves broadly heart-shaped, with from 3 to 5 lobes; the under surface of the young ones invested with a cottony down; of the adult ones, smooth. Racemes fertile, oblong. Berries small. (Dec. Prod.) A tendriled climber. Connecticut to Florida. Stem 20 ft. to 30 ft. Introduced in 1656. Flowers greenish yellow; June. Fruit dark blue; ripe in October.

Leaves 4 in. to 7 in. wide, often deeply lobed, with the sinuses rounded;
the lower surface, particularly in the young state, clothed with a reddish cobweb-like pubescence; when old, somewhat glabrous. Berries 3—4 lines in diameter, deep blue, of a pleasant flavour; ripe in October. (Tor. and Gray.) Perhaps only a variety of the preceding species. V. labruscoides Mull. is also probably a synonyme or a variety of that species.

§ 4. V. cordifolia Michx. The heart-shape-leaved Vine, or Chicken Grape.


*Engravings.* Jacq. Schen., t. 217.; and our fig. 185.


Leaves thin, 3 in. to 6 in. in diameter, often slightly 3-lobed, and rarely sinuated. Berries nearly black when mature, about a quarter of an inch in diameter, ripening late in autumn; acid, but tolerably well flavoured after having been touched by frost. (Tor. and Gray.)

§ 5. V. riparia Michx. The river-side, or sweet-scented, Vine.


Leaves 4 in. to 6 in. in diameter, thin; teeth very coarse, acuminate. Berry 3—4 lines in diameter, dark purple, or amber colour, when ripe. (Tor. and Gray.)

§ 6. V. vulpina L. The Fox Grape, or Bullet Grape.


*Engravings.* Our fig. 187.

*Spec. Char., &c.* Branches minutely verrucose. Leaves cordate, shining on both surfaces, somewhat 3-lobed, coarsely toothed, the teeth not acuminate. Racemes composed of numerous capitulate umbels. Berries large. (Tor. and Gray.) A tendriled climber. Virginia to Florida. Stem 20 ft. to 30 ft. Introduced in 1806. Flowers greenish yellow; June and July. Fruit deep blue; ripe in October.

The stem of this species has a smooth bark, and climbs to the summit of some of the highest trees. Leaves 2—3 in. in diameter; the lower surface more shining than the upper; sinus deep, but rather acute. Fruit 7—8 lines
in diameter, covered with a coriaceous integument, the flower not unpleasant. This, according to Torrey and Gray, appears to be the original V. vulpina of Linnaeus.

Other Species of Vitis. — The American species have been considerably reduced in number by Messrs. Torrey and Gray; but it appears to us, that the reduction might have been carried still farther. Some species are described as natives of the Himalayas, and 130 varieties are noticed by Rafinesque in his Monograph of American Vines (see Gard. Mag., vol. viii. p. 248.); but they are not yet known in this country. Indeed, from the appearance of the above-described species in the Hort. Soc. Garden, we are much inclined to think they are only varieties of the same species. They certainly do not differ more from each other than the known varieties of the common cultivated vine.

**Genus II.**

**AMPELOPSIS Michx. The Ampelopsis. Lin. Syst. Pentandria Monogynia**


*Synonyms.* Vitis sp. and Cissus sp.; Ampelopsis, Ital.

*Derivation.* Ampelos, a vine, and opsis, resemblance; similarity in the habits of the species.


Leaves compound, alternate, exstipulate, deciduous; palmate, pinnate, or bipinnate. Flowers small. — Tendriled climbers, natives of North America. The species in British gardens are two, of the easiest culture in any common soil; and one of them, A. hederacea, is among the most ornamental of hardy climbers.

1. **A. HEDERA'CEA Michx.** The Ivy-like Ampelopsis, or Five-leaved Ivy.


*Engravings.* Cornat. Canad., t. 100.; and our fig. 188.

*Spec. Char., &c.* Leaves digitate, of from 3 to 5 leaflets, that are stalked oblong, toothed with mucronated teeth. Racemes dichotomously corymbose. (Dec. Prod.) A tendriled climber. Canada to Georgia. Stem 30 ft. to 50 ft., or more. Introduced in 1629. Flowers yellowish green; June

and July. Berry black or dark blue; ripe in October. Decaying leaves deep purple or red, or yellowish red.

**Variety.**

\[ A. hirsuta \] Tor. & Gray. \( A. \) hirsuta \( \text{Donn} \); \( Cissus \) \( \text{hederacea} \)

\[ \beta \] hirsuta \( \text{Pursh.} \)—Leaves pubescent on both sides, leaflets ovate. The plants of this variety in British gardens do not die off of so intense a crimson as the species.

Stem attaching itself to trees and walls by expansions of the extremities of the tendrils. Panicle many-flowered. Petals at first somewhat cohering, at length spreading. Berry about as large as a small pea, the peduncles and pedicels bright crimson; and the foliage in autumn, before it dies off, of a deep crimson. The most vigorous-growing and generally ornamental climber in Europe. It thrives in almost every soil and situation from Warsaw to Naples, and in town, as well as in the country.

\[ 2. \text{A. bipinnata Michx.} \] The bipinnate-leaved Ampelopsis.


**Synonymes.** This \( \text{arborea Wild. Spec.} \) 1. p. 1183.; \( Vitis \) \( \text{bipinnata Tor. & Gray} \); \( Cissus \) \( \text{stans Pers. Syn.} \) 1. p. 183., \( Ph. \) \( \text{Fl. Amer. Sept.} \) 1. p. 170.; \( \text{Vite del Carolina, Ital.} \)

**Engravings.** Plak. Mant., p. 412. fig. 2. and our fig. 189.

**Spec. Char., &c.** Leaves bipinnate, smooth; leaflets cut in a lobed manner.


Stem upright, or somewhat twining, glabrous. Panicle short, spreading, and without tendrils. Berry globose, depressed, as large as a small pea, blackish when ripe, slightly hairy. (Tor. and Gray.) A very handsome climber, of easy culture, and much admired for the beauty of its foliage. Compared with \( A. \) \( \text{hederacea} \), it is of slow growth, the shoots in the climate of London being seldom more than 18 in. or 2 ft. in a season.

**Other Species of Ampelopsis.** — \( A. \) \( \text{incisa} \), \( Vitis \) \( \text{incisa Nutt.} \), is described in Torrey and Gray's Flora; but we are not aware of its having been introduced. \( A. \) \( \text{cordata Michx.} \) (the \( Cissus \) \( \text{Ampelopsis of Persoon, and Vitis indivisa of Wilddenow} \)) is described in the first edition of this work; but, as we consider it a very doubtful species, we have omitted it in this abridgement. \( A. \) \( \text{capreolata} \) \( G. \) \( \text{Don} \), \( Vitis \) \( \text{capreolata D. Don} \), and \( A. \) \( \text{bôtrya Dec.} \), are also omitted, as not having been yet introduced.
XVI. VITACEÆ. XVII. XANTHOXYLÆÆ.

Genus III.


Synonyms. Ampelopsis, and Fitis in part.

Derivation. Kissos is the Greek name of the ivy, which these plants in some manner resemble.


Leaves compound, alternate, exstipulate, deciduous; trifoliate. Flowers axillary, small, greenish. Fruit a berry.
—Climbing shrubs, only one of which is hardy in British gardens.

1. C. orientalis. The oriental Cissus, or Ivy Vine.


Engravings. Lam. Ill., t. 84. fig. 2.; and our fig. 190.

Spec. Char., &c. Leaves bipinnate, smooth; leaflets ovate, serrated. (Don's Mill.)

A deciduous climber. Levant. Stem 5 ft. to 10 ft. Introd. in 1818. Flowers yellowish green; June and July. Berry, ?.

We have only seen the plant bearing this name in the collection of Messrs. Loddiges, from which our figure is taken, and which, as it does not agree very well with the specific character, is perhaps not the true plant. At all events, the plant figured is handsome, and as vigorous and hardy as Ampelopsis bipinnata.

Order XVII. Xanthoxylææ.

Ord. Char. Flowers unisexual, regular. Calyx in 3—5 divisions. Petals the same number, longer than the calyx; aestivation generally twisted. Stamens equal in number to the petals; in the female flowers wanting or imperfect. Ovary with as many carpels as there are petals. Fruit either berried or membranous. —Trees or shrubs, chiefly natives of warm climates. (Lindl.)

Leaves compound, alternate or opposite, without stipules; abruptly or unequally pinnate; with pellucid dots. Flowers axillary or terminal; grey, green, or pink. —The species in British gardens are comprised in three genera, which are thus contradistinguished: —

Xanthoxylum L. Flowers bisexual. Carpels 1—5, 2-valved. Leaves abruptly and impari-pinnate.

Ptelea L. Flowers bisexual. Fruit compressed, 2—3-celled; cells winged. Leaves of 3 leaflets, rarely of 5 leaflets.

Genus I.

XANTHOXYLUM L., and H. B. et Kth. The XANTHOXYLUM, or TOOTHACHE TREE. Lin. Syst. Dia'cia Tri-Pentandria.


Synonymes. Zanthoxylum (it is thus spelled in many botanical works); Kampmänna Rafin.; Clavdier, Fr.; Zahnweihola, Ger.; Santossilo, Ital.

Derivation. From xanthos, yellow, and xylon, wood; from the yellowness of the wood, more especially of the roots. The French name means club tree, and the German name, the toothache tree.

Gen. Char. Calyx short, 3—4-parted. Petals equal in number to the lobes of the calyx, but longer, very rarely wanting.—Male flowers. Stamens equal in number with the petals.—Female flowers. Stamens sometimes wanting, or very short. Ovaries 5—1, sometimes equal in number to the petals. Capsules 1—5, 1—2-seeded. Seeds globose, dark, shining. (Don's Mill.)

Leaves compound, alternate, stipulate, deciduous; pinnately 3—13-foliolate. Flowers axillary, small, greenish or whitish. Inflorescence various.—Deciduous low trees or shrubs, natives of North America, with prickles on the branches, petioles, and midrib of the leaflets. The species in British gardens are of easy culture in any common soil, and are easily propagated by seeds, layers, or cuttings of the roots.

1. X. FRAXINEUM Willd. The Ash-leaved Xanthoxylum, or common Toothache Tree.
**XVII. XANTHOXYLACEÆ: PTELEÆ.**


**Engravings.** Du Lamm. Arb., 1. t. 97.; the plate of this species in Arb. Brit., 1st edit., vol. v.; and our fig. 191.

**Spec. Char., &c.** Leaves pinnate, of 4 to 5 pairs of leaflets, and an odd one; the leaflets ovate, obscurely sawed, equal at the base; the petiole round, and devoid of prickles; prickles in the situation of stipules. Flowers in axillary umbels, without petals. (Dec. Prod., i. p. 726, 727.) A low deciduous tree or shrub. Canada to Virginia. Height 10 ft. to 15 ft. Introd. 1740. Flowers yellowish, with red anthers; April and May. Seeds large, black; ripe in September. Decaying leaves yellowish green. Naked young wood ash-coloured and greenish.

**Variety.**

1. **X. f. 2 virginicum**, the X. virginicum of Lodg. Cat., of which there is a plant in the garden of the London Horticultural Society, and several in the arboretum of Messrs. Loddisges, appears to us only a variety of X. fraxineum; probably the same as X. (f.) tricarpum.

2. **X. (F.) tricarpum Michx.** The three-fruited Xanthoxylum, or Tooth-ache Tree.


**Synonymes.** Z. carolinianum Lam., Tor. & Gray, 1. p. 214.; Pagara fraxinifolia Lam. Ill. 1. t. 334.

**Engravings.** Lam. Ill., 1. t. 334.; and our fig. 192.


Leaves and bark very aromatic and pungent. Prickles very sharp. The bark of this and the preceding species is imported from New York, and sold in Covent Garden Market as a cure for the rheumatism. Probably a variety of the preceding species.

**Other Species of Xanthoxylum.**—X. mite Willd., treated as a species by some authors, is made a synonyme of X. fraxineum by Torrey and Gray, and it probably bears the same relation to that species that Gleditschia inernis does to G. tricá nthos. Our opinion is, that there is only one species of the genus in British gardens.

**Genus II.**

**PTELEÁ L. THE PTELEA, or SHRUBBY TREFOIL. Lin. Syst. Monoc'cia Tetra-Pentándria.**


**Synonymes.** Bellecistia Adans.; Orme de Samarine, Fr.; Lederblume, Ger.

**Derivation.** From pétela, the Greek name of the elm, adopted by Linnaeus.

**Gen. Char.** Calyx short, 4—5 parted. Petals 4—5, longer than the calyx.

—Male flowers. Stamens 4—5, longer than the petals.—Female flowers.

Leaves compound, alternate, stipulate, deciduous; pinnate, 3- rarely 5-foliolate, with pellucid dots, the lateral leaflets inequilateral. Flowers whitish, cymose: cymes corymbed or panicled.—Deciduous shrubs or low trees, natives of North America and Asia. There is only one species in British gardens, which is of the easiest culture, and is propagated by seeds and cuttings, put in in autumn, and covered with a hand glass.

\[ \text{T as 1. P. trifoliata L.} \]

The three-leafleted Ptelea, or Shubby Trefoil.


Synonymes. Orme de Samarie à trois Feuilles, Fr.; dreyblattrige Lederblume, Ger.

Engravings. Dill. Elth., t. 122; Schmidt Arb., 2. t. 76; the plate in Arb. Brit., 1st. edit., vol. v; and our fig. 193.

Spec. Char., &c. Leaf of three leaflets that are ovate acute, the middle one much tapered towards its base. Flowers in coryombs, usually tetradrous. (Dec. Proct.) A low tree or shrub. Lake Erie to Florida and Texas. Height 6 ft. to 10 ft. Introd. 1704. Flowers whitish; June and July; Capsules greenish; ripe in October. Decaying leaves of a remarkably clear rich yellow. Naked young wood dark purplish brown.

Varieties.

\[ \text{T as P. t. 2 pentaphylla Munchh. has 5 leaflets, H. S.} \]

\[ \text{T as P. t. 3 pubescens Pursh has the leaflets pubescent.} \]

When this plant is pruned up with a single stem, it forms a handsome low tree with a hemispherical head; but in British gardens it is more frequently found as a large shrub, with numerous stems proceeding from the rootstock. The shoots and leaves pubescent when young. Ovary of the staminate flowers abortive. Odour of the flowers disagreeable. Capsules with flattened wings, somewhat resembling those of the elm.

*Other Species of Ptelea.* — P. Baldwinii is described by Torrey and Gray as a shrub not more than a foot high, but it has not yet been introduced.
Genus III.


**Synonymes.** Rhûs Ehrh., *Ellis*, and *Moench* ; Verne du Japon, *Fr.* ; Götterbaum, *Ger.*

**Description.** Ailanto is the name of *Ailanthus glandulosa* Desf., in the Mohucaus. It was long considered as a species of *Rhûs*, whence the French name; and the meaning of the aboriginal word being, it is said, tree of heaven, hence the German name, Götterbaum, tree of the gods.

**Gen. Char.** Male flowers. Calyx 5 cleft. Petals 5, longer than the calyx. Stamens 10, the 5 opposite the petals shortest. Disk central.—*Hermaphrodite*, or female, flowers. Calyx, petals, and disk as in the male, but with fewer stamens. Ovaries 3–5, distinct. Semaræ 3–5, oblong; 1-seeded, 1-seeded. (Don’s Mill.)

**Leaves compound, alternate, exstipulate, deciduous; impari-pinnate. Flowers terminal, small, greenish. — One species, a deciduous tree from China.**

2. 1. A. Glandulo'sa Desf. The glandulous-leaved Ailanto.


**Engravings.** Wats. *Dund.* Brit., t. 108 ; the plate of the tree in Arb. Brit., 1st edit., vol. v. ; and our fig. 194.

**Spec. Char., &c.** Leaves impari-pinnate; the leaflets coarsely toothed at the base; the teeth glandulous on the under side. (Dec. Prod.) A large tree. North of China. Height 50 ft. to 60 ft. Introd. 1751. Flowers whitish green, exhaling a disagreeable odour; August. Capsules like the keys of the ash, but smaller; ripe in October. Decaying leaves brownish, but dropping with the first frost, without any great change of colour. The leaflets often separating from the petiole of the leaf, and leaving it for some weeks attached to the tree. Naked young wood rusty brown, without buds.

The leaves on vigorous young trees are sometimes 6 ft. in length. The fruit, which has been ripened at White Knights, resembles the keys of the ash, but is smaller. The tree grows with great rapidity for the first 10 or 12 years, producing shoots from 3 ft. to 6 ft. in length at first, and attaining the height of 15 or 20 feet in 5 or 6 years, in favourable situations. Afterwards its growth is much slower. It grows in any soil, though one that is light and somewhat humid, and a sheltered situation, suit it best. In France, it is said to thrive on chalky soils, and attain a large size where scarcely any other tree will grow. It is readily propagated by cuttings of the roots.

---

Section IV.

Fruit gynobasic; that is, inserted into a fleshy Receptacle, with which the *Style* is continuous.

**Order XVIII. CORIACEÆ.**

**Ord. Char.** Flowers either *hermaphrodite*, monœcious, or *dioecious*. Calyx campanulate, 5-parted. Petals 5. Stamens 10. Carpels 5.—Low shrubs, natives of temperate and warm climates.
Leaves simple, opposite or alternate, exstipulate, deciduous; entire. Buds scaly. Flowers in terminal and axillary racemes. Fruit in some poisonous, in others edible. — There is only one hardy genus, Coriaria; the species of which are low shrubs, natives of Europe and Asia.

Genus I.


Derivation. From corium, a hide; C. myrtifolia being used both in tanning leather and in dyeing it black.

Gen. Char. Flowers either hermaphrodite, monoecious, or dioecious. Calyx 5-parted. Petals 5, sepaloid, smaller than the lobes of the calyx. Stamens 10, hypogynous, 5 between the lobes of the calyx and the angles of the ovarium, 5 between the petals and the furrows of the ovarium. Anthers bursting by longitudinal slits. Style none. Stigmas 5, long, awl-shaped. Carpels 5, surrounding a fleshy axis; when ripe, close together, but separate, not opening, 1-seeded, surrounded with glandular lobes. (Lindl.)

Leaves simple, opposite, exstipulate, deciduous; 3-ribbed. Branches square, opposite. — Low suffruticose shrubs, of easy culture in common soil, and propagated by division of the root.

1. C. MYRTIFOLIA L. The Myrtle-leaved Coriaria.

Synonymes. Fustet des Corroyeurs, or Redoul à Feuilles de Myrte, Fr.; Myrtenblättriger Gerberstrauch, Ger.

Found in hedges and waste places, throwing up numerous suckers. An ornamental undershrub, chiefly remarkable for its myrtle-like leaves, and the handsome frond-like form of its branches. Suckers in any common soil.

Other Species of Coriaria.— C. nepalensis Wall. Pl. As. Rav. t. 289., and our fig. 196., from a specimen gathered in the Hort. Soc. Gardens, a native of Nepal, at heights of from 5000 ft. to 7000 ft., appears to be quite hardy, and of robust growth. C. sarmentosa Forst., from New Zealand, is probably hardy also, but has not yet been introduced.
Subclass II. Calyciflorae.

Petals separate, inserted in the Calyx.

Order XIX. Staphyleaceae.


Leaves compound, opposite, stipulate, deciduous. Flowers terminal. Fruit a bladdery capsule. — The only hardly ligneous plants belonging to this order are contained in the genus Staphylea.

Genus 1.

Staphylea L. The Staphylea, or Bladder-nut Tree. Lin. Syst. Pentandria Di-Trigynia.


Derivation. Abridged from Staphylodendron, its name before the days of Linnaeus, derived from staphylus, a bunch or cluster, and dendron, a tree; the flowers and fruits being disposed in clusters, and the plant being ligneous.

Gen. Char. Calyx of 5 coloured sepals, connected at the base, in aestivation imbricate. Petals 5, in aestivation imbricate. Stamens 5, perigynous, alternate with the petals, and opposite the sepals. A large urceolate disk, or nectary, within the corolla. Ovary 2- or 3-celled, superior. Fruit membranous. Seeds with a bony testa, and a large truncate hilum. (Lindl.)

Leaves compound, opposite, stipulate, deciduous; pinnate, with both common and partial stipules. Flowers in terminal stalked racemes. — Two hardy species, low trees or shrubs; natives of Europe and North America, of easy culture in any common soil, and propagated by seeds, which ought to be sown as soon as they are ripe, or by cuttings.

2 * 1. S. trifolia L. The three-leaved Staphylea, or Bladder-nut Tree.


Engravings. Schmidt Baum., t. 81; our fig. 197. in flower, and fig. 198. in fruit.

Spec. Char., &c. The leaf of 3 leaflets, which are ovate, acuminate, regularly sawed, and, when young, pubescent; the style smooth; the capsule bladdery. (Dec. Prod.) A deciduous shrub or low tree. Canada to South Carolina, and west to Arkansas, in moist places. Height 6 ft. to 12 ft. Introduced in 1640. Flowers whitish; May and June. Nuts globose, in a bladdery capsule, white; ripe in October. Decaying leaves greenish yellow.

Branches slender, smooth, and dotted. Petioles pubescent above. Partial stipules mostly none. Petals obovate-spatulate, ciliate at the base. Stamens rather exserted; filaments hairy below; anthers cordate; the lobes somewhat united at the tip. Capsule 2 in. long; the carpels (sometimes 4) distinct at the summit, tipped with the persistent styles, and opening by the inner suture; seeds smooth and polished, all but one often abortive. (Torrey and Gray.) When not trained to a single stem, this shrub throws out abundance of shoots resembling suckers from the collar; but, if
these are removed as they are produced, it will form a very handsome low tree.
Seeds, suckers, layers, or cuttings, in any common soil, kept moist. The
largest plants of this species, in the neighbourhood of London, are at Synon.

**S. S. PINNATA L.** The pinnated-leaved Staphylea, or Bladder-nut Tree.

**Identification.** Lin. Sp., 386; Dec. Prod., 2, p. 3; Don's Mill., 2, p. 3.

**Synonyms.** Staphylodendron pinnatum Ray; Staphylia à Feuilles ailées, Fr.; gemeine Pimper-
nuss, Ger.; L'acricme di Gioiohe, or Pistachio falsa, Ital.; Job's Tears.

**Engravings.** Eng. Bot., t. 1569; Hayne Abbild., t. 36; and our fig. 199.

**Spec. Char., &c.** Leaves pinnate, of 5—7 oblong, perfectly glabrous, serrate
leaflets; the flowers in racemes; the capsules membranous and bladdery.

*(Dec. Prod.)* Shrub or low tree. South of Europe, and England in
hedges. Height 6 ft. to 12 ft. Flowers whitish; May and June. Nuts
globose white, in a bladdery capsule; ripe in October. Decaying leaves
yellowish green. Naked young wood greenish, with green buds.

A smooth branching shrub, throwing up
many side suckers, in gardens often from
6 ft. to 12 ft. high, and exhibiting a much
more luxuriant growth than the preceding
species. The nuts, in some parts of Europe,
are strung for beads by the Roman Catholics.
The kernels taste like those of the pistacia,
and are eaten in Germany by children. The
flowers contain a great deal of honey, and
are very attractive to bees. In the London
nurseries, the plant is generally cultivated by
side suckers, by cuttings put in during the
month of September, or by seeds, which
are ripened in abundance. The seeds ought
to be sown as soon as they are ripe; be-
cause, as they contain an oil, they very soon
become rancid. They will come up the following June, with two large, lance-
shaped, seminal leaves; though sometimes they do not come up for two years.

---

**Order XX. CELASTRACEAE.**

**Ord. Char.** Sepals 4—6; aëstivation imbricate. Petals 4—6. Stamens 4—6,
alternate with the petals, opposite the sepals, indistinctly perigynous. 
**Ovary** superior, free, girdled with a fleshy disk, with 2—4 cells. Ovules erect,
rarely pendulous. **Fruit** capsular, bacate, drupaceous, or samarideous.
**Seeds,** in most, attended with an aril. *(Lindl.)*

Leaves simple, alternate or opposite, generally stipulate, deciduous, or
evergreen. **Flowers** whitish or greenish, in axillary cyymes. — Shrubs or
low trees, generally deciduous; natives of both hemispheres.

The species are chiefly remarkable for the form and colours of their fruits;
their flowers being neither large nor showy, nor their properties valuable in
medicine, or general economy. All the species are readily increased by layers,
by cuttings struck in sand, or by seeds in any common soil. The genera
containing hardy species are Euonymus, Celastrus, and Nemopanthes, which
are thus contradistinguished:

**Eu'onymus Tomn.** Sexes mostly hermaphrodite. Fruit a dehiscent capsule,
of 3—5 cells. Seed with an aril. Leaves mostly opposite.

**Cela'strus L.** Sexes mostly hermaphrodite. Fruit a dehiscent capsule
of 2—3 cells. Seed with an aril. Leaves alternate.

**Nemopa'nthes Rafin.** Sexes polygamous or dioecious. Fruit an indehiscent
berry.
Genus I.

EUONYMUS Tourne. **The Euonymus, or Spindle Tree.** Lin. Syst. Tetra-Hex-andria Monogynia.


**Synonyms.** Fusan, Bonnet de Prêtre, or Bois à Lardoire, Fr.; Spindelbaum, Ger.; Evonimo, Itat.

**Derivation.** The word Euonymus is formed from the Greek, and signifies good repute. The French word Fusan means a spindle, alluding to the use of the wood for making spindles. Bonnet de Prêtre alludes to the form of the capsules, which, when opened, bear some resemblance to a priest's cap; and it is called Bois à Lardoire from the use made of the wood for skewers or larding pins. The German name is literally spindle tree.

**Gen. Char.** Calyx 4—5-lobed, flat, covered by the peltate disk at the base. Petals 4—6, spreading, inserted in the disk. Stamens 4—6, inserted above the disk in rather prominent glands. Capsule 3—5-celled, 3—5-angled. Seeds 1—4 in each cell, and wrapped in pulp or aril. (Don's Mill.)

Leaves simple, opposite, serrate. Stipules mostly none. Peduncles axillary, 1—many-flowered. Inflorescence cymose. — Deciduous shrubs or low trees; sometimes trailing, or climbing by rootlets.

**E. europaeus L.** The European Euonymus, or Spindle Tree.


**Synonyms.** E. vulgäris Mill. Dict.; Prick-timber Gerard; Louise Berry, Dogwood, Gatteridge Tree; Fusan d'Europe, Fr.; Bonnet de Prêtre commun, Fr.; gemeine Spindelbaum, Ger.; Berette di Prete, Itat.

**Derivation.** The English name Prick-timber, or Prick-wood, alludes to the employment of the wood in making toothpicks and skewers, which were formerly called pricks; and it is called Dogwood, because the wood of Cornus sanguinea and that of the Euonymus europaeus is used indiscriminately for the same purposes, both being called Gatteridge Tree; the meaning of which we do not know. It is called Louise-wood, because the powdered leaves were formerly put on the heads of children to chase away lice.


**Spec. Char., &c.** Branches smooth. Leaves lanceolate-ovate, very finely sawed. Flowers about 3 upon one peduncle; the petals oblong, rather acute. Lobes of the capsule obtuse. (Dec. Prod.) A deciduous shrub, or low tree. Europe and Britain, in hedges and copse woods. Height 6 ft. to 12 ft. Flowers greenish white; May. Fruit scarlet, produced in great abundance, l. 3
and very showy; ripe in September. Decaying leaves reddish. Naked young wood green or reddish green.

**Varieties.**

- **E. c. 2 latifolius** Lodd. Cat. has rather broader leaves than the species.
- **E. c. 3 folius variegatus** Lodd. Cat. has variegated leaves, but never looks healthy.
- **E. c. 4 fructu albo** Lodd. Cat. has white capsules.
- **E. c. 5 minus** Lodd. Cat. is a dwarf-growing plant.

Nos. 2. and 4. of these varieties are, in our opinion, alone worth cultivating.

Roots numerous and whitish, forming a dense mass of network, and not extending to a great distance from the stem. The branches are numerous and opposite; and the wood hard and fine-grained. The leaves and bark are acrid, poisonous, and feitid when bruised. The capsules are of a fine rose colour, except in the white-capsuled variety, and the seeds are each invested with an aril of a fine orange colour. In a state of cultivation the tree attains the height of 30 ft. or upwards, and, though almost entirely neglected in pleasure-grounds, it forms a singularly handsome object in autumn, when covered with its ripe fruit. Seeds; in any common soil not over moist.

- **E. verruco'sus Scop.** The warded-barked Euonymus, or Spindle Tree.


**Synonyms.** E. europeus lepræsus Lin.; Fusain galeux, ou verrueux, Fr.; warziger Spindelbaum, Ger.

**Engravings.** Nouv. Du Ham., 3. t. 8.; Schmidt Arb., t. 72.; and our fig. 201.


A shrub of somewhat fastigate habit of growth, with rough warty branches. This species is cultivated in collections chiefly for the singularity of its appearance, being among spindle trees what the warded ash is among ash trees. It ripens seeds, and is readily increased by cuttings.

- **E. latifolius** C. Bauh. The broad-leaved Euonymus, or Spindle Tree.


**Synonyms.** E. europeus var. 2. Lin.; Fusain a larges Feuilles, Fr.; breithäutriger Spindelbaum, Ger.


**Spec. Char., &c.** Branches smooth. Leaves broad-ovate, toothleted. Peduncles trichotomous, many-flowered. Petals oval, obtuse. Lobes of capsule acutely angled, wing-formed. (Don's Mill.) A deciduous shrub or low tree. South of France to Tauria, in groves. Height 10 ft. to 20 ft. Introduced in 1730. Flowers white, becoming purplish; June and July. Fruit deep red, and very showy; ripe in September. Decaying leaves purplish red. Naked young wood reddish green, with long pointed green buds, tinged with red.

In British gardens, this forms much the handsomest species of the genus,
from its broad shining leaves, and its large red pendulous fruits, with orange-coloured seeds, which, when the capsules open, are suspended from the cells somewhat in the manner that the seeds of the magnolias hang from their strobiles. Even the wood of this species, during winter, is much handsomer than that of any other, the branches being regularly divaricate, with a clean bark, of a reddish green, and with long pointed dark brown buds; by which alone this species may be distinguished from all the others. Unfortunately for this species, it is generally treated as a shrub, and crowded among other shrubs or trees; so that it is never allowed a chance of attaining either its full size or its proper shape.

4. E. nanus Bieb. The dwarf Euonymus, or Spindle Tree.

Synonyme. E. caucasicum Lodd.
Engraving. Our fig. 203. from Messrs. Lodige's plant.


A very neat little plant, apparently quite hardy, and well adapted for rock-work.

5. E. atropurpureus Jacq. The dark-purple-flowered Euonymus, or Spindle Tree.

Engravings. Jacq. Hort. Vind., 2 t. 150; Schmidt Arb., t. 73.; and our fig. 204.
Flowers many upon a peduncle; the peduncle compressed. Petals orbiculate. Capsules angulately furrowed, smooth. (Dec. Prod.)

A shrub or low tree. Canada to Florida. Height 4 ft. to 12 ft. Introduced in 1756. Flowers dark purple; June and July. Capsule crimson. Seeds white, with a red aril; ripe in October. Decaying leaves purplish red. Naked young wood purplish green

Branches slightly 4-sided. Leaves 2 in. to 5 in. long. Parts of the flower usually in fours; petals roundish obovate. Capsules smooth, deeply lobed. This and the other American species of Euonymus are rarely found in a thriving state in Britain; as it appears to us, from not being planted in moist shady situations, and in peat or sandy soil.

Varieties.

2. E. a. 2 angustifolius. Var. β Tor. & Gray. (Our fig. 207.) — Leaves narrowly elliptical or oblong, slightly falcate, the margin minutely serrated. Possibly the E. angustifolius of Pursh, which Torrey and Gray had only seen in a herbarium.

2. E. a. 3 sargentius Nutt. Var. γ Tor. & Gray. — Shoots trailing and often rooting; leaves ovate-lanceolate.

2. E. a. 4 obovatus Nutt. Var. δ Tor. & Gray; E. obovatus Dec. Prod. 2. p. 4., Don's Mill. 2. p. 5. (Our fig. 208.) — Trailing and rooting; leaves obovate, or oval-ovobvate, obtuse or slightly acuminate, acute at the base.
Erect. Leaves oval or elliptical lanceolate, the uppermost often slightly fal- 
cate, mostly acuminate, acute or obtuse (rarely subcordate) at the base. (Tor.
and Gray, var. a.) Branches slender, green. Leaves 1 in. to 2 in. long, cori-
aceous, nearly evergreen in the southern states. Seeds smaller than in E.
atropurpureus. The scarlet fruits, according to Pursh, resemble, at a dis-
tance, those of A’rbutus U’nedo. They form a great ornament, he says, to 
this almost evergreen shrub, and have given rise, in America, to its common
name, the burning bush. Of easy culture in moist soil, and a shady situation.
Cuttings or seeds.

**E. Hamiltonianus** Wall. Hamilton’s Euonymus, or Spindle Tree.


**Synonyme.** E. atropurpureus Wall. Fl. Ind. 2. p. 402.

**Engraving.** Our fig. 209., from a vigorous plant in the Hort. Soc. Garden.

**Spec. Char., &c.** Branches smooth, terete. Leaves lanceolate, finely 
serrrated. Peduncles dichotomous, 6-flowered. Flowers tetrandrous.

Petals 4, lanceolate cordate. Ovary 4-lobed, 4-celled, each cell con-
taining 2 ovules. (Don’s Mill.) A 

low tree or shrub. Nepal. Height 

10 ft. to 20 ft. Introduced in 1825. 

Flowers yellowish green; June 

and July. Fruit purple; ripe in 

? October. Decaying leaves and 
naked young wood green.

A free-growing species, with an 
erect stem; the young shoots green; 

the leaves large; bark of the older 

shoots white. Left to itself, as a 

standard, it forms a dense fastigate 

bush, with numerous suckers; but, 

trained to a single stem, it would 

doubtless form a handsome small 

tree. A plant against the wall, in 

the Horticultural Society’s Garden, 

flowers freely every year; but has 

not yet ripened fruit. The plant in 

the open garden was killed to the ground by the winter of 1837-8, but sprang 

up again with vigour. In the Liverpool Botanic Garden it 

was not injured.

**Other Species of Euonymus.** — E. japonicus Thumb. (our 

fig. 210.), and E. japonicus foliis variegatis, E. garciniaefolius 

Roxb., and some other species, are in London gardens; but 

they can only be considered as half-hardy. In the Canter-

bury Nursery, E. j. foliis variegatis has been found harder 

than the species. In the Horticultural Society’s Garden, 

E. japonicus, trained against a wall, was but little injured 

by the winter of 1837-8. The following species, shortly de-

scribed in our first edition, Mr. Don considers as likely to 

prove “truly hardy;” some of them are introduced, and are 

in green-houses: E. grossus Wall., E. mieranthus D. Don, 

E. lucidus D. Don, E. echinatus Wall., E. tingens Wall., 

E. glaber Roxb., E. ambratius Wall., E. indicus Heyne, E. 

vagans Wall., E. subtriflorus Blume, E. Thunbergianus 

Blume, E. pendulus Wall., and E. frigidus Wall.
Genus II.

Celastrus L. The Celastrus, or Staff Tree. Lin. Syst. Pentändria Monogynia.


Synonymes. Euonymöides Moroch; Celastr, Fr.; Celaster, Ger.

Derivation. From késas, the latter season; the fruit remaining on the tree all the winter. The késastrs of the Greeks is supposed to be the Euonymus.


Leaves simple, alternate, stipulate, deciduous; stipules minute. — One hardy species; a climbing shrub, a native of North America.

1. C. scandens L. The climbing-stemmed Celastrus, or Staff Tree.


Synonymes. Boureau des Arbois, Fr.; Baumwörder, Ger.; Bittersweet, Waxwork, Amer.

Engravings. Nouv. Du Ham., 1, t. 95; and our fig. 211.


Canada to Virginia. Height 5 ft. to 20 ft. Introduced in 1736. Flowers small, pale yellowish green; June. Capsules orange; ripe in September. Seed reddish brown, coated with a bright orange aril, changing at last to scarlet.

The stems are woody and flexible, and twist themselves round trees and shrubs, or round each other, to the height of 12 or 15 feet, or upwards, girding trees so closely as, in a few years, to destroy them; whence the French and German names, which signify “tree strangler.” The leaves are about 3 in. long, and nearly 2 in. broad, serrated, of a lively green above, but paler on the under side. The plant prefers a strong loamy soil, rather moist than dry; and is readily propagated by seeds, layers, or cuttings.

Other Species of Celastrus. — C. bullatus, described from a figure of Plukkenet, is, according to Torrey and Gray, a doubtful plant. C. nepalensis and C. pyracanthifolius are in Messrs. Loddiges’s collection, but rather tender.

Genus III.


Synonymes. Illicöides Dum. Cour. 1, vol. 4, p. 27.

Derivation. From nemos, a grove, and anthos, a flower; it being generally found in groves.


Leaves simple, alternate, ovate, extipulate, deciduous; quite entire. — One hardy species.


*Engravings.* Michx. Fl. Bor. Amer. 2. t. 49., as *Ilex canadensis*; and *'eu. fig. 512.*

**Spec. Char., &c.** Leaves ovate, quite entire, or serrated at the apex, smooth Pedicels usually solitary, 1-flowered, very long. Flowers white. Berries large, beautiful crimson, very ornamental. (Don's Mill.) A deciduous shrub. Canada to Carolina, on mountains. Height 3 ft. to 5 ft. Introduced in 1802. Flowers small, white; April and May. Berry large, beautiful crimson; ripe in October. Very ornamental.

Plants of this species in the Hort. Soc. Garden, and at Messrs. Loddiges's, under the name of *Prinos luidicus*, form neat fastigate shrubs, rather of slow growth. A few years ago there were some very handsome plants of this species at White Knights. Suckers or layers in loamy soil; or cuttings of the young wood in sand under a glass.

**Other Species of Celastraceae.—** Maytenus chilensis Dec. (our fig. 213.), a handsome evergreen branchy shrub, with twiggy branchlets. The flowers are in axillary clusters, with the corolla of a yellowish green colour, not showy. It is a native of Chile, and stood eight or ten winters against a south wall in the Hort. Soc. Garden, and was thought to be tolerably hardy, but was killed to the ground in the winter of 1837–8, and did not spring up again. It also stood several winters in the open garden, as a standard, and promised to be a valuable addition to our hardy evergreen shrubs, which it may possibly yet prove.

---

**Order XXI. AQUIFOLIA'CEÆ.**

*Identification.* Lindley's Key, p. 63.


**Ord. Char.** Calyx and corolla with an imbricate aestivation. Sepals 4–6. Corolla hypogynous, with 4–6 lobes, and as many stamens inserted into it alternately to its lobes. Ovary 2–6-celled; a pendulous ovule in each cell. Fruit fleshy, indehiscent, with 2–6 stones, each containing a pendulous seed, which has large fleshy albumen. (Lindl.)—Low trees or shrubs, chiefly evergreen. Natives of Europe and North America.

Leaves simple, alternate or opposite, exstipulate, evergreen or deciduous; coriaceous. Flowers small, axillary, solitary or fascicled.—The genera containing hardy species are three, and are thus contradistinguished: —

**Mygï'nda Jacq.** Sexes hermaphrodite. Stamens 4. Fruit 1-celled, 1-seeded. Shrubs with square branchlets; leaves opposite, subcoriaceous, and flowers upon trifidly or trichotomously branched peduncles.

**Ilex L.** Sexes hermaphrodite, dioecious, or polygamous. Stamens 4–5. Fruit including 4 or 5 nuts. Evergreen shrubs with, mostly, coriaceous leaves. Flowers many on a peduncle.

**Pâ'nos L.** Sexes mostly dioecious or polygamous. Stamens 6. Fruit including 6 nuts. Shrubs with leaves deciduous or persistent, and flowers 1 upon a peduncle.
Genus I.


Synonymes. Ilex Pursh.; Oreóphila Nutt. in Tor. and Gray.

Derivation. So named by Jacquin in honour of Francis von Mygind, a German botanist.

Gen. Char. Calyx small, 4-cleft. Corolla deeply 4-cleft, subrotate. Stamens 4, alternating with the segments of the corolla, and shorter than them, and inserted in its throat. Ovary roundish. Stigmas 4. Drupe ovate, i-celled. (Don's Mill.)

Leaves simple, mostly opposite, exstipulate, evergreen; entire or remotely serrulate. Flowers axillary, subsolitary, minute. - One species is hardy.


Synonymes. Ilex Mertshutes Pursh.; Oreóphila myrtifóllia Nutt.

Engravings. Hook Fl. Bor. Amer., t. 41.; and our fig. 24.


Plants of this species are in the arboretum of Messrs. Loddiges; where it is increased by cuttings, and grows in common soil.

Genus II.


Derivation. Theophrastus, and other Greek authors, named the holly Agria; that is, wild, or of the fields; and the Romans formed from this the word Agrifoliun; and called it also, Aquifolium, from acutum, sharp, and fólium, a leaf. C. Bæhlin and Loureiro first named it Ilex, on account of the resemblance of its leaves to those of the Quercus Tlex, the true Ilex of Virgil. Linnaeus adopted the name of Ilex for the genus, and preserved the name of Aquifolium for the most anciently known species. The name of Holly is, probably, a corruption of the word holly, as Turner in his Herbal calls it Holy, and Holy Tree; probably from its being used to commemorate the holy time of Christmas, not only in houses, but in churches. The German name Christdorn, the Danish name Christorn, and the Swedish name Christornern, seem to justify this conjecture.


Leaves simple, alternate, exstipulate, mostly evergreen; ovate, oval, or ovate-lanceolate, coriaceous, serrated, toothed, or quite entire. Flowers axillary, aggregate, small, generally white. Fruit a drupe, mostly red. - Low trees and shrubs, chiefly evergreen, natives of Europe, North America, and the Himalayas, generally of slow growth, and of long duration. Loamy soil, rather dry than moist.
A. Leaves spiny-toothed.

1. 1. AQUIFOLIUM L. The prickly-leaved, or common, Holly.


Synonyms. The holly, being a native of most parts of Europe, and being everywhere much admired, has several names in most living European languages: Hulver, Hulfe, and Holme, Eng.; Le Houx, Fr.; Stechpalme, Stechlaub, Hulse, Christdorn, Mausdorn, Kiezebusch, Ger.; Schubigzhardikul, Dutch; Stikpalme, Dansk; Jerzak, Christorn, Swedish; Wieloscheld, Ostrokof, Padof, Rus.; Agrifolio, Ital.; Acuba, Span.; Azevinho, Port.


Spec. Char., &c. Leaves oblong, shining, wavy, spiny-toothed. Peduncles axillary. Flowers nearly umbellate. A handsome, conical, evergreen tree. Europe and Britain. Height 20 ft. to 30 ft. in a wild state; and twice that height, or upwards, in a state of cultivation. Flowers white; May. Fruit red; ripe in September, and remaining on the tree all the winter. The lower leaves are very spinous; while the upper ones, especially on old trees, are entire. Decaying leaves yellow, dropping in June or July.

Varieties. In general the variegation of plants, more especially of trees and shrubs, is accompanied by a ragged, or otherwise unhealthy, appearance in the leaves; but the holly is one of the very few exceptions to this rule. The variegations of the holly are chiefly confined to the modification of white and yellow in the leaves; but there are some sorts in which the variation results from the state of the leaves with reference to prickles, to magnitude, and to form; and others consist of differences in the colour of the fruit, which is red, yellow, or white, and black. These varieties are, for the most part, without names, and those in the following groups appear to us to be all that are truly distinct; but the shades of difference under each name in these groups are almost innumerable.
a. Varieties designated from the Form, Magnitude, Thickness, Surface or Margin of the Leaf.

† I. A. 2 heterophylrum Hort. — Leaves variously shaped.
† I. A. 3 angustifolium Hort. — Leaves narrow.
† I. A. 4 latifolium Hort. — Leaves broad. Shoots dark purple. There is a fine specimen at Elvaston Castle, where it is called the Water Holly.
† I. A. 5 altaclerense Hort. The High Clere Holly. — Leaves broad, thin, and flat.
† I. A. 6 marginatum Hort. (fig. 216.) — Leaves without prickles, coriaceous, nearly as broad as long, and with a thickened margin.

† I. A. 7 laurifolium Hort. (fig. 217.) — Leaves small, oval-lanceolate without prickles, about the size and shape of those of Laurus nobilis.
† I. A. 8 ciliatum Hort. (fig. 218.) — Leaves oval-acuminate, small; the prickles along the margins like hairs.
A. 9 ciliatum minus Hort. — Leaves thinner and smaller than in the preceding variety.
A. 10 recurvum Hort. (fig. 219.) — Leaves recurved.

† I. A. 11 serratifolium Hort. (fig. 220.) — Leaves serrated.
† I. A. 12 crisptum Hort. — Leaves curled.
† I. A. 13 ferox Hort. Hedgehog Holly; Houx-hérisson, Fr. (fig. 221.) — The disk of the leaf has its edges rolled back; and a somewhat
cylindrical figure is hence given to it; and, as the surface abounds in prominences and prickles, it has a curious appearance, not unaptly compared to that of a hedgehog.

† I. A. 14 *crassifolium* Hort. (fig. 222.) — Leaves thick and fleshy.

† I. A. 15 *senescens* Sweet. — Leaves spineless, thin.

All these varieties may be seen in Messrs. Loddiges’s collection, and it is no small proof of their value for town gardens, that they thrive in the smoky atmosphere of that magnificent establishment.

b. Varieties designated from the Colours of the Leaf.

Under the general name of variegated hollies, twenty or thirty varieties, some of them with, and some of them without, popular names, are obtainable in the principal London nurseries. Having examined and compared the different shades of variegation in the plants in the very complete collection of Messrs. Loddiges, we think they may be all included in the following groups:

† I. A. 16 *álbo-marginátum* Hort. — Leaves with white edges. Of this variety the subvarieties in Loddiges’s arboretum are marked 5, 15, 18, and 24, which have all long and narrow leaves, with edgings of white or pale yellow along their margins; and 4, 6, 7, 12, 17, 22, 23, and 28, which have larger leaves, and a greater breadth of margin variegated; the white or pale yellow forming in some cases one third, or even one half, of the surface of the leaf.

† I. A. 17 *aúreo-marginátum* Hort. — Leaves with yellow edges. The following subvarieties are in Messrs. Loddiges’s arboretum, Nos. 19 and 20 with dark yellow margins; and Nos. 1, 2, 8, 9, 10, 13, and 29, with margins of dark and light yellow. Another subdivision of this group consists of plants with broad leaves, in what may be called a transition state from green to variegated, viz., with greenish yellow or very pale green blotches or margins. When such plants become old, they are generally very distinctly variegated with yellow. Examples in the Hackney arboretum are Nos. 3, 20, and 21.

† I. A. 18 *álbo-pictum* Hort. — Leaves spotted with white. This variety has a considerable portion of the centre of the disk of the leaf white, and of a somewhat transparent appearance; the edges of the disk of the leaf being green.

† I. A. 19 *aúreo-pictum* Hort. — Leaves spotted with yellow. The following subvarieties are in Messrs. Loddiges’s arboretum. Nos. 11, 14, 16, 26, 27, and 30.

† I. A. 20 *férax argénteum* Hort. — The hedgehog holly with leaves blotched with white.

† I. A. 21 *férax-áureum* Hort. — The hedgehog holly with leaves blotched with yellow.

c. Varieties designated from the Colour of the Fruit.

† I. A. 22 *fructu lúteo* Hort. — Fruit yellow.

† I. A. 23 *fructu álbo* Hort. — Fruit white.

† I. A. 24 *fructu nigro* Hort. — Fruit black.

The holly makes the most impenetrable and the most durable of all vege-
table fences; and it has this great advantage over deciduous-leaved trees and shrubs, that it is seldom liable to be attacked by insects; and, if shorn, the outer surface becomes impenetrable even to birds, who cannot build their nests in it. The wood is almost as white as ivory, except in the centre of very old trunks, where it is somewhat brown. It is very hard, with a fine grain, susceptible of a high degree of polish, and is readily stained with black, green, blue, or red. It weighs, when dry, at the rate of 47 lb. 7 oz. per cubic foot. The veins of the wood, and its annual layers, are so small as scarcely to be perceptible. It is applied to a great many purposes, in joinery, cabinet-making, and turnery; in engineering, in mathematical-instrument-making; and it is even used for wood-engraving. The bark affords birdline, which is prepared by boiling and evaporation. The holly attains the largest size in a rich sandy loam; but it will grow, and even thrive, on almost any soil, provided it is not overcharged with moisture. As its seeds, like those of the hawthorn, do not come up the first year, to save ground and the expense of weeding, the berries are commonly buried in the soil, or kept mixed up in a heap of earth for one year; after which, if sown in autumn, they will come up the following June. The varieties are propagated by budding and grafting. These operations are performed at the usual times, and in the usual manner; but it has been observed by Tschonoudi, that cleft-grafting does not succeed nearly so well with the holly as whip-grafting or budding. In England, the stocks budded or grafted on are generally of four or five years' growth; and the grafting is effected in March, and the budding in July. The variegated kinds are also propagated by cuttings, which are made in autumn, of the ripened summer shoots. They are planted in sandy soil, in a shady border, and covered with hand-glasses; and they generally put forth roots the following spring. Holly hedges should never be clipped, because, when the leaves are cut through the middle, they are rendered unsightly; and the shoots should therefore be cut with a knife close to a leaf. The proper season for cutting would appear to be just after the leaves have attained maturity; because at that season, in the holly, as in the box, the wound is comparatively soon obliterated by the healing over produced by the still abundant sap.

† 2. I. (A.) balearia'rica Desf. The Minoreca Holly.


Synonyms. 1. Aquifolium var. b Lam. Dict. 3. p. 145; I. madeve'nsis Wild. Em. Suppl. 8. according to Link.

Engravings. Our fig. 225.


A very distinct variety of the common holly, readily distinguished at sight, by its yellowish green leaves, which are sharply acuminate, but very slightly waved at the edges, and with few prickles. It is propagated by budding or grafting on the common holly.

‡ 3. I. o'pa'ca Ait. The opaque-leaved, or American, Holly.


Spec. Char., &c. Leaves ovate, flat, coriaceous, acute, toothed in a scalloped manner, spiny, and glabrous, but not glossy. Flowers scattered, at the base of only those branches that are a year old. Teeth of the calyx acute. Sexes dioecious. (Dec. Prod.) A beautiful evergreen low tree. Canada
to Carolina. Height in England 10 ft. to 20 ft.; in Carolina 60 ft. to 80 ft. Introduced in 1744. Flowers white; May and June. Drupe scarlet; ripe in December, remaining on the trees all the winter.

Variety.

I. o. 2 laxiflora, I. laxiflora Lam., I. opaca var. Nutt., has the flowers on loosely branched peduncles, and the drupe yellow. Introduced in 1811. Several other varieties are mentioned by Rafinesque.

In America, this species is applied to all the uses which the common holly is in Europe. It forms hedges; is an ornamental tree or shrub in gardens; is employed for making birdlime; and the wood is used in turnery and cabinetmaking. Propagation as in the common holly.

Ilex magellanica (fig. 225.), of which there is a small plant in the Hort. Soc. Garden, promises to be a very handsome species, and tolerably hardy, as it stood the winter of 1837-8 against a wall.

B. Leaves toothed, serrated, or crenate, but not spiny.


Synonyme. I. maderensis Lam. Dict. 3. p. 146.
Engravings. N. Du Ham., v. t. 35.; Bot. Cab., t. 549.; and our fig. 226.

Spec. Char., &c. Leaves ovate, with an entire acumen, or having very few teeth, shining. Umbels short, axillary, few-flowered. (Don's Mill.) An evergreen shrub. Madeira. Height in England 5 ft. to 10 ft. Introduced in 1760. Flowers white or reddish; May and June. Drupe large, red; ripe in October.

Commonly treated as a green-house plant, but quite hardy in the Hort. Soc. Garden; where, and also in several other places, it stood the winter of 1837-8, without any protection, uninjured.

5. I. Cassinae Ait. The Cassine-like, or broad-leaved Dannah, Holly.

Engravings. Catesb. Car., 1. t. 31.; and our fig. 227.

The fruit is rather smaller than that of the common holly; it continues on the trees the most part of the winter, untouched by birds; and, being of a bright red, and large in proportion to the leaves, which are about the size of those of the common arbutus, the plant makes a fine appearance, both in its native country and in England. Commonly propagated by seeds; but it will also strike by cuttings, or it may be grafted on the common holly.


Engravings. N. Du Ham., t. t. 4.; and our fig. 228.


A very handsome species, but not very common. There are plants of it at Messrs. Loddiges, and in the H. S. Garden, under the name of I. myrtifolia.

7. I. vomitoria Ait. The emetic Holly, or South Sea Tea.


Spec. Char., &c. Leaves oblong or elliptic, obtuse at both ends, crenately serrated, and, with the branchlets, glabrous. Flowers in subsessile lateral umbels. (Dec. Prod.) An evergreen low tree. Carolina to Florida, along the sea coast. Height 10 ft. to 12 ft. Introduced in 1700. Flower white; June and July. Drupe red, like that of the common holly; ripe in December.

Not very common in British collections; but there are plants of it in Loddiges's arboretum, and in the garden of the Hort. Soc.

C. Leaves quite entire, or nearly so.

8. I. Dahoon Wall. The Dahoon Holly.

Synonyme. I. Cassine Willd. Hort. Berol. 1. t. 31
Engravings. Wild. Hort. Berol., t. 31, under the name of I. Cassine; our fig. 230. from a plant in Loddiges’s arboretum, and fig. 231. from the Hort. Berolin.

**Spec. Char., &c.** Leaves lanceolately elliptical, nearly entire, almost revolute in the margin; the midrib, petiole, and branchlets villous. Flowers disposed in corymbose panicules, that are upon lateral and terminal peduncles. (Dec. Prod.) A beautiful evergreen shrub or low tree. Carolina to Florida, in swamps. Height 8 ft. to 10 ft. Introduced in 1726. Flowers white; May and June. Drupe red; ripe in December.

The leaves of this species are very numerous, and resemble those of Laurus Borbonica. The plant is rare in British gardens, and seldom ripens fruit. It is most commonly kept in green-houses or pits; but there was a plant in 1836 in the open air, in the Mile End Nursery, which was 20 ft. high, with a head 30 ft. in diameter; and which had stood there many years, without the slightest protection.

**Other Species of Phlex** are described by authors as natives of North America and Nepal, some of which are introduced, and may probably be found hardy, but we can state nothing with certainty respecting them. In this genus, as in most others containing numerous species which are not in general cultivation, there is a great deal of uncertainty. I. Cassine, I. vomitóra and I. Dahoön are probably the same species.

**Genus III.**

**PRINOS L. THE PRINOS, or WINTER BERRY. Lin. Syst. Hexándria Monogýnia, or Polygáma Diécia.**


**Synonymes.** Agéria Adams. Fam. 2. p. 166.; Apalanche, Fr.; Winterbeere, Ger.

**Derivation.** From prínos, the Greek name for the holly, which the present genus much resembles; or, according to others, from príon, a saw, on account of the serrated leaves of the species.

**Gen. Char.** Flowers 6-cleft, hexandrous; usually dioecious, or polygamous from abortion. Fruit with 6 nuts. In other respects the character is the same as that of Phlex. (Don’s Mill.)

Leaves simple, axillary, extipulate, deciduous or evergreen; oval or lanceolate, entire or serrated; dying off of a greenish yellow. Flowers on axillary pedicels, usually single, small, mostly white. — Shrubs, evergreen and deciduous; natives of North America.

In habit of growth the species are all more or less fastigiate, and send up numerous suckers from the collar; but, if these were removed, the plants...
would form neat miniature trees. Propagated by suckers, or by cuttings of the young wood in sand under a glass, or by seeds. Common soil, kept moist. There is a close general resemblance among all the deciduous species, which leads us to doubt whether they are any thing more than varieties.

§ i. Prinoïdes Dec.


Spec. Char., &c. Leaves deciduous, elliptic-lanceolate, tapered to the petiole, shallowly serrated; the midrib villous beneath. Peduncles axillary; those of the male flowers several together; of the female ones, singly. Berries red. (Dec. Prod.) A deciduous shrub. Virginia to Georgia, on rocky shady banks of rivers. Height 3 ft. to 5 ft. Introduced in 1736. Flowers white; June and July. Berries large, crimson; ripe in December.

Plants of this species are in Loddigés's nursery, under the name of Flex prinoïdes.

2 2. P. ambíguus Michx. The ambiguous Winter Berry.


Spec. Char., &c. Leaves deciduous, oval, acuminate at both ends; both adult ones and young ones glabrous in every part. Peduncles of the male flowers crowded together in the lower parts of the branchlets; of the female ones, singly. (Dec. Prod.) A deciduous shrub. New Jersey to Carolina, in wet sandy woods. Height 4 ft. to 5 ft. Introduced in 1812. Flowers white; June to August. Berries red; ripe in November.

The leaves are subimbricate, serrated, acute at the apex, and the berries small, round, smooth, and red. There is a handsome plant of this species in the arboretum of Messrs. Loddiges, which, in 1835, was 5 ft. high. It is of easy culture in any free soil; and is propagated by seeds, cuttings, or layers.

§ ii. Agèria Dec.


3 3. P. vertícilla'tus L. The whorled Winter Berry.


Engravings. Wats. Dend. Brit., t. 30; Duh. Arb., t. 23; our fig. 234. in flower, and fig. 235. from the Hort. Soc. Garden.

Spec. Char., &c. Leaves deciduous, oval, acuminate, serrate, pubescent beneath. Male flowers in axillary umbel-shaped fascicles; the female ones aggregate, the flowers of both sexes 6-parted. (Dec. Prod.) A deciduous shrub. Canada to Virginia, in wet woods. Height 6 ft. to 8 ft. Introduced in 1736. Flowers white; June to August. Berries red or crimson, turning purple; ripe in November.

There are two handsome plants of this species in Loddiges's arboretum, 7 ft. high, one of which is under the name of _P. prunifolius._


Spec. Char., &c. Leaves deciduous, lanceolate, serrate, the teeth directed forwards, acuminate; glabrous on both surfaces, except on the nerves beneath, where they are slightly pubescent; upper surface glossy. Flowers 6-cleft; the male ones scattered; the female ones axillary, solitary, almost sessile. (Dec. Prod.) A deciduous shrub. New York to Virginia, on the Alleghany Mountains. Height 6 ft. to 8 ft. Introduced in 1812. Flowers white; July. Berries large, dark red; ripe in November.

The plant of this species in Loddiges's arboretum was 4 ft. high in 1835. Readily distinguished by its somewhat more succulent leaves and shoots, the latter, when young, tinged with dark purple.

ё 5. _P. lanceolatus_ Pursh. The lanceolate-leaved Winter Berry.


The plant in Loddiges's arboretum is 8 ft. high.

§ iii. _Winterlia_ Moench.

Sect. Char. Flowers, for the most part, 6-cleft. Leaves permanent. (Dec. Prod., ii. p. 17.)


**Synonyme.** Ink berry, *Amer.*

**Engraving.** Our fig. 238, from nature. The figure under this name in Wats. Dend., t. 27., is that of *P. coriaceus Pursh.*


A low but very handsome evergreen shrub, which, in its native country, makes a fine show, when covered with its black berries. In Loddiges's arbo-retum it has attained the height of 4 ft., with a regular ovate shape, densely clothed with shining foliage.


**Synonyme.** *P. glaber* Wats.

**Engraving.** Wats. Dend. Brit., t. 27., and Bot.; Cab., 450., under the name of *P. glaber*; and our fig. 239.


**Varieties.** This species varies, with leaves broader, obovate-lanceolate, and acuminate; and narrower, lanceolate, and acute. (Dec. Prod.) The broad-leaved variety appears to be that figured in Lodd. Bot. Cab., t. 450.

The general aspect of this plant is that of *Plex Dahoon.* It is a handsome shrub, well deserving a place in collections.

Other Species of *Prinos.* — *P. dubius* G. Don, and *P. atomarius* Nutt. have been introduced, and, probably, some others; but we have only noticed those of which we have seen living plants, and which we consider to be tolerably distinct, though there are probably only three species of *Prinos,* two of which are deciduous, and the other evergreen.

---

**Order XXII. Rhhamnaeae.**

**Ord. Char.** Calyx 4—5-cleft; aestivation valvate. Corolla of 4—5 petals; in some absent. Petals cuculate, or convolute, inserted into the orifice of the calyx. Stamens 4—5, opposite the petals, perigonous. Ovary superior, or half-superior, 2-, 3-, or 4-celled, surrounded by a fleshy disk. Ovules one in a cell, erect, as are the seeds. Fruit fleshy and indehiscent, or dry and separating into 3 divisions. — Trees or shrubs, often spiny, and generally deciduous. (Lindl.)

Leaves simple, alternate, very seldom opposite, with minute stipules,
deciduous or evergreen. Flowers axillary or terminal. — Chiefly natives of Europe or North America.

They are ornamental in British gardens and shrubberies, chiefly from the variety of their foliage, and from their berries; but some of them, as Ceanothus, from their flowers. They are all of easy culture; and they are propagated by seeds, cuttings, or layers. The hardy genera in British gardens are six; which are characterised as follows:—


- Nuts 1—3-celled. Seed compressed. A deciduous low tree or shrub.


**Rhamnus** Lam. Petals in some absent. Style 2—4-cleft. Fruit nearly dry, or berried, 2—4-celled. Seed oblong. Shrubs or small trees, deciduous or evergreen; chiefly natives of Europe, but some of N. America and Asia.

**Ceanothus** Comm. Corolla none. Style ending in 3 teeth. Fruit a 3-celled capsule. Spiny shrubs; natives of Peru or Chile.

**Zizyphus** L. Petals 5. Styles 2—3, united. Fruit a dry berry, 3-celled, rarely 2—4-celled. Seed ovate. Shrubs, evergreen or deciduous, from North America.

### Genus I.

**Zizyphus** Tourn. The **jujube**. Lin. Syst. Pentándria Di-Trigýnia.


**Synonymes.** Juüber, Fr.; Judendorn, Ger.; Giuggiolo, Ital.

**Derivation.** From **zizyphus**, the Arabic name of the lotus.


Leaves simple, alternate, stipulate, deciduous; 3-nerved. Flowers axillary. — Only one hardy species. A low tree or shrub from Syria.

**I. Z. Vulgaris** Lam. The common, or cultivated, Jujube.


**Engravings.** Lam. Ill., t. 185. f. 1.; N. Du Ham., 3, t. 16.; and our fig. 240.

**Spec. Char., &c.** Branchlets glabrous. Leaves ovate, retuse, dentilicate, glabrous; or, beneath, pubescent along the nerves. Prickles not any, or twin, one of them recurved. Drupe ovate-oblong. (Dec. Prod.) A deciduous tree. The South of Europe and Syria. Height in the South of Europe 20 ft. to 30 ft.; and in England 5 ft. to 10 ft. Introduced in 1640. Flowers greenish yellow; August and September. Fruit blood-red or saffron; rarely seen in England.

Stem thick, cylindrical, somewhat twisted. The bark is brown, and rather chapped. The branches are numerous, pliant, armed with prickles, zigzag in their direction; the prickles at the joints being two of unequal size, of which one is almost straight, and the other shorter and quite straight. The leaves are alternate and oval-oblong, somewhat hard and coriaceous. The flowers are small, axillary, of a pale yellow colour, with short peduncles. The fruit
is oval-oblong, resembling that of the olive; at first green, afterwards yellow, and entirely red when ripe. The juice of the fruit is used for making the jujube lozenges. The plant is tolerably hardy; having stood the winter of 1837-8 in the Hort. Soc. Garden. It is easily increased by cuttings of the roots, whether of young or old trees; or by suckers, which it throws up in the greatest abundance. Seeds of it may also be procured from Italy.

Other Species of *Zizyphus.* — *Z. sinensis* Lam. has been cultivated in the Hort. Soc. Garden, but it is only half-hardy; and the same may be said of *Z. spinosa Christii,* Z. *flexuosa,* and *Z. incisa,* which are marked in some catalogues as hardy.

**Genus II.**


*Derivation.* From pallio, to move, and óuron, urine; in allusion to its diuretic qualities; or from Paliurus, the name of a town in Africa, now called Nabul.


Leaves simple, alternate, stipulate, deciduous; nerved with spines in the axis. Flowers axillary, greenish yellow.

Two species are hardy, and very ornamental from their shining leaves, and abundance of rich greenish yellow flowers, which are succeeded by fruit of rather a singular form. Propagated by seeds, which they produce in England, in abundance.

♀ = 1. *P. aculeatus* Lam. The prickly Paliurus, or Christ's Thorn.


*Spec. Char.* &c. Branchlets pubescent. Leaves ovate, serrulated, quite smooth, 3-nerved, with two spines at the base, one straight, the other recurved. Flowers in axillary crowded umbellules; few in an umbellule. Wing of capsule crenated. (Don's Mill.) A branching deciduous shrub, or low tree. South of Europe, and North and West of Asia. Height 15 ft. to 30 ft. Introduced in 1596. Flowers greenish yellow; June and July. Fruit yellow; ripe in September.

The fruit is buckler-shaped, flat and thin, but coriaceous. From the singular appearance of this fruit, which has the footstalk attached to the middle, which is raised like the crown of a hat; and the flattened disk, which re-
sematex its brim; the French have given this tree the name of porte-chapeau. On both shores of the Mediterranean, it grows to about the same height as the common hawthorn, on rocky sterile places. In many parts of Italy the hedges are formed of this plant, as they are of the hawthorn in Britain; it is also the common hedge plant in Asia. Any common soil; seeds, or cuttings of the root.

*2. P. (A.) virgatus D. Don.* The twiggy Christ's Thorn.


**Spec. Char., &c.** Branches smooth. Leaves obliquely cordate, or elliptical, 3-nerved, shining; wing of fruit entire. (G. Don.) A deciduous shrub. Nepal, on mountains. Height 10 ft. to 15 ft. Introduced in 1819. Flowers greenish yellow, in axillary corymbs; July and August. Fruit yellow; ripe in September.

The only tree which we have seen of this species is in the Chelsea Botanic Garden, where in general aspect it bears a close resemblance to *P. aculeatus*, of which it is in all probability only a variety.

**Genus III.**


**Derivation.** From Berchem, probably the name of some botanist.

**Gen. Char.** Calyx with a hemispherical tube, and 5 erect segments. Petals 5, convolute. Stamens included within the petals. Anthers ovate, 2-celled.
Disk annular, rather flat. Ovary half-immersed in the disk, 2-celled. Style short, bifid at the apex. Fruit dry, indehiscent, 2-celled. (Don's Mill.)

Leaves simple, alternate, exstipulate, deciduous; nerved. Flowers terminal, dioecious by defect; small, greenish yellow. — A twining deciduous shrub; a native of Carolina; of easy culture in any common soil, and propagated by seeds, or cuttings of the root.


Engravings. Jacq. Icon. Rar., t. 336.; our fig. 243. in flower, and fig. 244. in fruit, from nature.


According to Pursh, this species, in Virginia, ascends the highest trees, and is known by the name of Supple Jack. The stems twine round one another, or any object which they may be near. In British gardens, they are seldom seen above 8 or 10 feet high; probably from little attention being paid to place the plant in a deep sandy or peaty soil, and to supply it with abundance of moisture in the growing season. In fine seasons it ripens fruit.

Genus IV.


Synonymes. Nerprun, Fr.; Wegdorn, Ger.; Ramno, Ital.; the Ram, or Hart's, Thorne, Gerard; Box Thorn.

Derivation. From the Celtic word, ram, signifying a tuft of branches; which the Greeks have changed to rhamnos, and the Latins to ramus.


Leaves simple, alternate, stipulate, deciduous, sub-evergreen, or ever-
green; feather-nerved; the stipules never converted into prickles. Flowers axillary, aggregate, often unisexual. Fruit not eatable, generally black, rarely red or yellow.

Deciduous or evergreen shrubs, with the tips of their branches often becoming spines. One or two species have the habit of low trees, and some of them are sub-procumbent or procumbent; all of them, except the latter, being distinguished by an upright stiff mode of growth, and numerous strong thorns in their wild state; whence the name of ram, or buck, thorn. The flowers in all the species are inconspicuous; but *R. Alaternus* and its varieties are most valuable evergreen shrubs, and several of the other species are ornamental, both from their foliage and their fruit; the latter of which is also useful in dyeing. All the species are easily propagated by seeds or layers, and most of them by cuttings; and they will all grow in any soil that is dry. They all vary much in magnitude by culture, in common with most plants which, in a wild state, grow in arid soils.


**Synonymes.** *Rhámnum* and *Alaternus* of Tourn.

**Sect. Char.** Flowers usually dioecious, and 5-cleft. Fruit a berry, with 3 seeds, or, from abortion, 2 seeds. Seeds deeply furrowed, with the raphe in the bottom of the furrow. Leaves usually permanent; coriaceous, and glabrous. *(Dec. Prod., ii. p. 23.)*

**A. ALATÉRNUM Tourn.** Flowers racemose, 5-cleft. Evergreen Shrubs.

---

1. **R. ALATÉRNUM** L. The Alaternus.


**Synonymes.** *Alaternus Phillipaea* Mill. Dict. No. 1.; *Alaterna*, Ital. Derivation. From *alaternus*, a generic name adopted from Dioscorides, designating the alternate position of the leaves.

**Engravings.** Mill. Dict., t. 16. f. 1.; N. Du Ham., 3. p. 42. t. 14.; and our fig. 245.

**Spec. Char., &c.** Leaves ovate-elliptical, or lanceolate, coriaceous, quite smooth, serrated. Flowers dioecious, disposed in short racemes. *(Don's Mill.)*

An evergreen shrub. South of Europe and North of Africa. Height 10 ft. to 20 ft. Introduced in 1629. Flowers green, without any corolla; April to June. Berry black; ripe in October.

**Varieties.**

- **R. A. 2 balérica** Hort. Par. *The Rhámnum* rotundifolius of Dumont. — Leaves roundish. We take this as the first variety, assuming the species to be what is called *R. A. latifolia*, which is the commonest variety in British nurseries.

- **R. A. 3 hispánica** Hort. Par. *(Our fig. 246.)* — Leaves ovate, a little toothed.

- **R. A. 4 angustifolia.** *R. Clásii* Wild. *(Mill. Icon., t. 16. fig. 2.; and our fig. 247.)* Leaves long and narrow.—This variety is so distinct, that it is by many authors considered as a species. It is of remarkably rapid growth. There are two subvarieties of it, the gold-striped, and the silver-striped; both of remarkably free growth.

- **R. A. 5 folis maculátis.** — Leaves blotched with yellow.

- **R. A. 6 folís aüretis.** — Leaves edged with yellow.
— R. A. 7 foliis argenteis.— This variety, which is very conspicuous from
the large proportion of the leaves which is white, is more tender than
some of the others. It generally does best against a wall, and is well
worth a place there, on account of its splendid appearance, especially
in winter.

In British gardens, this shrub is particularly valuable for the rapidity of its
growth in almost any soil and situation, more especially the narrow-leaved
variety. It is less injured by the smoke of coal than most other evergreens.
The species, and all the varieties, are readily pro-
pagated by cuttings, which are taken off in autumn,
and planted in sandy soil, in a shady border, and
covered with a hand-glass. As the roots are not
very productive of fibres, when large plants are
chosen, they should be such as have been reared in
pots, in order that they may receive no check from
removal.

Mill., 2. p. 33.
Synonyme. R. burgundiacus Hort. Par.; R. sempervirens Hort-
tulanus.
Engravings. L’Hérit. Sert., t. 5.; and our fig. 248.
Spec. Char., &c. Leaves oblong, acuminated, ser-
rated, smooth, shining, hardly permanent, rather
coriaceous. Flowers androgynous. (Don’s Mill.)
A garden hybrid, a sub-evergreen shrub, raised
from R. alpinus, fecundated by R. Alaternus, and
forming a very distinct and desirable kind, which,
in British gardens, grows to the height of 10 or
12 feet. The flowers are green, and appear in May
or June.

B. Rhamnus Dec. Flowers 4-cleft, in Fascicles.

a. Branchlets terminating in a Thorn.

Synonyme. The White Thorn of the modern Greeks.
Engravings. Eng. Bot., t. 1022.; N. Du Ham., 2. t. 10.; the
plate of this species in Arb. Brit., 1st edit., vol. v.; and our
fig. 249.
Flowers in fascicles, polygamo-diecuious. Berries
4-seeded, rather globose. (Don’s Mill.) A deci-
duous shrub or low tree. Europe and Britain,
in woods and thickets, on calcareous loamy soil.
Height 10 ft. to 12 ft.; in cultivation, 12 ft. to
15 ft. Flowers yellowish green, with very narrow
petals; May. Berry black; ripe in September.
Decaying leaves yellowish green. Naked young
wood whitish.

The flowers are, for the most part, hennaphro-
dite, and in a wild state abundant and clustered;
but in a state of cultivation they are fewer, and
nearly solitary. The juice of the unripe berries
is of the colour of saffron, and it is used for staining
maps or paper: they are sold under the name of
French berries. The juice of the ripe berries, mixed with alum, forms the sap
green of painters; but, if the berries be gathered late in the autumn, the juice is purple. Plants of this species attain the height of 9 ft. in 10 years.


**Synonyme.** R. cardiospermus Wild. Herb.

**Engravings.** Hayne Abbild., t. 97 and our fig. 250.


A plant of this species, in the garden of the London Horticultural Society, was, in 1834, 3 ft. high, after being 7 years planted.

* 5. R. INFECTO'I R IUS L. The staining Buckthorn, or Avignon Berry.


**Synonymes.** Rhhamnus Lyceum Scop. Carn. ed. 2. n. 290; dioecious, or yellow-berried, Buckthorn; Nerprun des Teinturiers, Graine d'Avignon, Nerprun teignant. Fr.; Farbender Wegdorn, Ger. Engravings. Ard. Mem., 78. t. 14; N. Du Ham., vol. v. t. 73; and our fig. 251.

**Spec. Char., &c.** Leaves ovate-lanceolate, serrulated, smoothish. Flowers dioecious, bearing petals in both sexes. (Don's Mill.) A deciduous, sub-procumbent shrub. South of Europe, in rocky places; common about Avignon and the Vauncluse. Height 2 ft. Introduced in 1683. Flowers greenish yellow; June and July. Berry 3-celled, black; ripe in September.

The root fixes itself so firmly in the fissures of the rocks, that the plant can scarcely be pulled up. The stem divides immediately into branches, that are very much subdivided, and form a very close head, the shoots having numerous spines, both terminating and lateral. The berries are used for dyeing leather yellow; and the Turkey leather, or yellow morocco, is generally supposed to be coloured by them.


**Synonymes.** R. longifolius Mill. Dict.; Stein Wegdorn, Ger.; Lyceo Italiano, Ital.

**Engravings.** Jacq. Austr., t. 43; Hayne Abbild., t. 58; Schmidt, 3. t. 157; and our fig. 252.

**Spec. Char., &c.** Procumbent, or erectish.

Leaves ovate-lanceolate, serrulated, smoothish. Flowers dioecious, female ones destitute of petals. (Don's Mill.) A procumbent deciduous shrub. South of Europe, among rocks, in Austria, Switzerland, Italy, and Greece. Height 1 ft. Introduced in 1752. Flowers greenish yellow; June and July. Berries black, containing three whitish seeds, each enclosed in a dry whitish membrane, which separates, when ripe, into two parts with elastic force; ripe in September.

* 7. R. BUXIFO'LIUS Poir. The Box-leaved Buckthorn.


**Synonymes.** R. boxifolius Brot. Fl. Lus. l. p. 301; Lyceum buxifolium Bach.

**Engravings.** Du Ham., 3. t. 3. No. 12; and our fig. 253.

**Spec. Char., &c.** Diffuse. Leaves ovate, quite entire, mucronate, smooth,
coriaceous, green on both surfaces. (Don’s Mill.) A sub-evergreen shrub. Spain, Italy, and the Levant, on hills. Height 2 ft. to 4 ft. Introd. in 1820. Flowers greenish yellow; June and July. Berry black; ripe?.

A very neat shrub, of which there is a good specimen in the Chelsea Botanic Garden, which is quite hardy.


**Engravings.** Cav. Icon., 2. t. 182.; and our fig. 254.

**Spec. Char., &c.** Erect. Leaves linear, quite entire, obtuse, smooth. Flowers hermaphrodite. (Don’s Mill.) A deciduous shrub. Spain, on the limestone hills of Valencia. Height 3 ft. to 4 ft. Introduced in 1752. Flowers greenish yellow; May and June. Fruit?

255. **R. lycioides**

9. **R. erythro xy lon** Pall. The red-wooded Buckthorn.


**Engravings.** Pall. Fl. Ross., 2. t. 62.; Itin., French edit., t. 90.; and our fig. 255.


**Variety.**

256. **R. erythræxylon**

10. **R. dahur ictus** Pall. The Dahurian Buckthorn.


**Engravings.** Pall. Fl. Ross., 2. t. 61.; and our fig. 257.

b. Branchlets not terminated by Spines.
XXII. RHAMNACEÆ: RHAMNUS.


The general appearance of the plant is that of R. catharticus, but it is without thorns. The wood is red, and is called sandal wood by the Russians.


Engravings. Hayne Abbild., t. 61.; and our fig. 258.


Variety.


with 4-cleft stigmas. (Don's Mill.)

Variety.
\* R.a. 2 grandifolius (fig. 262.) has much larger leaves than the species. It forms, when well grown, a very striking and handsome object, from the large size of its leaves and buds.

This is a very distinct species, and remarkable for its twisted leaves. There are strong plants of both the species and the variety in the arboretum of Messrs. Loddiges, and of the variety in the garden of the Hort. Soc., which, in 10 years, have attained the height of 8 ft., with numerous suberect branches, clothed with a purplish bark.


**Identification.** Lin. Mant., 49; Don's Mill., 2 p. 32.

**Synonymy.** R. rupéstris Scop. Carn., 1 t. 5.; Kanno spacosus, Ital.

**Engravings.** Scop. Carn., 1 t. 5.; Schmidt Arb., 3 t. 155.; and our fig. 253.


The plant bearing this name in the London gardens we have never seen in such a thriving state as to enable us to decide whether or not it is truly distinct.

§ ii. \textit{Frägula} Tourn.


**Sect. Char.** Flowers hermaphrodite, rarely dioecious, 5-cleft, sometimes 4-cleft. Seeds smooth, compressed, with the hilum white and exserted, and with the raphe lateral, on the surface of the inner testa. Embryo flat. Leaves membranous, caducous, quite entire, lined with approximate parallel nerves. (Don's Mill.)


**Engraving.** Our fig. 254.

In America this species, though usually a shrub in North Carolina, is in Georgia a considerable tree. Leaves 3 in. to 6 in. long, and 1 in. to 2 in. wide; sometimes acuminate, irregularly serrated; sometimes the margin is waved. Fruit as large as a small pea, mostly 3-seeded. (Tor. and Gray.)

**† 15. R. FRANGULA L.** The breaking Buckthorn, or Berry-bearing Alder.

**Identification.** Linn. Spec. 280; Don's Mill., 2. p. 32.

**Synonyms.** Nerium Bourg., Aume noir, Fr.; glatter Weegorn, Ger.; Alno nero, Ital.

**Derivation.** The name of Prunus, breaking, is applied to this species, from the brittleness of its branches.


Spec. Char., &c. Leaves oval, quite entire, lineated with 10 or 12 lateral nerves, and, as well as the calyx, smooth. Flowers hermaphrodite. (Don’s Mill.) A deciduous shrub, or low tree. Europe and part of Siberia, in woods and thickets; not uncommon in England, but rare in Scotland. Height 3 ft. to 6 ft., wild; 8 ft. to 10 ft. in British gardens. Flowers whitish, with purple anthers; May. Berries dark purple; ripe in September. Decaying leaves reddish brown. Naked young wood dark brown.

**Variety.**

**† R. F. 2 angustifolia Hort.** has narrower leaves.

The plant of this species in the Horticultural Society's Garden is very distinct; and, in 1835, was 6 ft. high, after being 10 years planted.

Branches numerous, alternate, leafy, round, smooth, and blackish. From a quarter to half an ounce of the inner bark, boiled in small beer, is a sharp purge. The bark dyes yellow, and, with a preparation of iron, black.

The flowers are particularly grateful to bees. The charcoal prepared from the wood is preferred by the makers of gunpowder to any other.

**† 16. R. LATIFOLIUS L'Hér.** The broad-leaved Buckthorn.


**Engravings.** L'Hér. Sert., 5. t. 5; Dec. Brit., t. 11; Wild. Ab. bldt., t. 109; the plate of this tree in Arb. Brit., 1st edit., vol. v.; and our fig. 266.

Spec. Char., &c. Leaves elliptical, acuminate, quite entire, lineated with 12 or 15 lateral nerves; younger leaves and calyxes villous. Flowers hermaphrodite. (Don’s Mill.) A deciduous shrub, with the habit of a low tree. Azores, on the mountains of St. Michael. Height 10 ft. to 15 ft. Introduced in 1778. Flowers greenish; July. Berries black or red, both colours appearing on the same plant at once; ripe in September.

The leaves are larger than those of any other species, except *R. alpinus grandifolius*; and the whole plant is remarkable for its robust appearance, and the conspicuous opposite nerves which proceed from the middle of the leaves. It deserves a place in every collection.
Other Species of Rhámnum. — There are various kinds described by authors, several of which are said to have been introduced, but they are either lost or synonymous with kinds already described. Among those which remain to be introduced are some which promise to be useful additions to this genus; such as:


R. amygdalínus Desf. Atl. 1 p. 198. — A native of the North of Africa, in the fissures of rocks, where it grows to the height of 3 ft., and produces berries used for dyeing yellow, like those of R. saxátîlis.

R. prunífolius Smith Prod. Fl. Græc. 1 p. 157. — A native of Crete, on the highest mountains, and probably only a variety of one of the preceding sorts.


R. oleífolius Hook. Fl. Bor. Am. 1 p. 123. t. 44., Tor. & Gray, 1 p. 200., and fig. 268. from Hooker, is an evergreen shrub, with coriaceous leaves, unarmed shoots, and the flowers small, in axillary crowded panicles.

It is a native of the north-west coast of California, where it forms a handsome shrub from 6 ft. to 12 ft. high.

R. umbellâtus Cav. Icon. 6 p. 2 t. 504. — A shrub, growing 6 ft. high in Mexico; was raised in 1839 in the Hort. Soc. Garden, from seeds sent home by M. Hartweg; but it is probably only half-hardy.

R. lauriífolius Nutt., R. cròceus Nutt., R. lanceolátus Pursh, R. parviífolius Tor. & Gray, R. ferruginèus Nutt., R. caliñorîsus Esch., and R. texínsis Tor. & Gray, are described in Tor. and Gray's Flora of North America; R. pubèscentis Fl. Græc., and several others, are described in Don's Miller, and in the first edition of this work.

Genus V.


Synonyme. Rhámnum in part.

Derivation. Named by Commerson, in honour of Collet, his friend and countryman, who wrote upon the plants of Brazil.

base by the permanent tube of the calyx, tricocccous, dehiscent. (Don's Mill.)

Leaves, when present, simple, opposite, stipulate, deciduous; very minute, and quite entire. Flowers axillary, fascicled, or racemose; and, when the leaves are absent, rising from beneath the base of the spines. — Much-branched shrubs, with divericating, decussately opposite branches, and spiny branchlets.

\[ 1 \]

1. C. Ho\'rrida Lindl. The bristly Colletia.


Engravings. Bot. Reg. t. 1775.; and our fig. 269.


The young branches are furnished with “bright green sawed scales” as leaves; they are placed opposite, and at the base of each is a small stipule. The leaves and stipules speedily fall off, “leaving the branches to act as leaves, by the aid of their soft parenchyma, with which they are clothed in the form of bark.” Hence, plants of any size appear one mass of naked spiny green branches in winter; and, in summer, having leaves and flowers all over the points of the branchlets. It is a most desirable addition to our evergreen shrubs; and, as it escaped the winter of 1837-8, it may be safely recommended as hardy, for climates not much colder than that of London. It grows in common garden soil, in a dry situation, fully exposed to the sun. It has not yet been propagated otherwise than by Chilian seeds, which are frequently received under the name of Retanilla. We have no doubt, however, that it might be increased by layers, or by cuttings in sand under a glass.

Other Species of Colletia. — There are plants in the London gardens, under the name of C. spinosa and C. ulicina, which we consider merely as varieties of C. ho\'rrida; though the former has white flowers, and the latter broader leaves than those which we have described. They are considered more tender than C. ho\'rrida; but this may possibly be owing to the plants having been younger. C. E\'phedra Vent. Choix, t. 16. (the Rhamnus E\'phedra Domb., and the Retanilla E\'phedra Brong.) is said to have survived the criterion winter at Liverpool. In fig. 270, a represents C. ulicina; b, C. E\'phedra (Retanilla E\'phedra Brong.); and c, C. spinosa.
Genus VI.


Synonyms. Phymatum species L.; Juss. Lam.; Ceanothus, Fr.; Säkebaum, GeR.

Derivation. From keanothus, a name employed by Theophrastus to designate a spiny plant, derived from κέαν, to cleave: the modern genus has, however, nothing to do with the plant of Theophrastus. The English name, Red Root, is given to the plant in America, from the red colour of the roots, which are of a large size in proportion to the branches.


Leaves simple, alternate, stipulate, persistent or deciduous; ovate or elliptical, serrated or entire. Flowers terminal or axillary, in elongated racemes. — Shrubs, natives of North America, very ornamental in British gardens, and easily propagated by cuttings of the young wood, planted in sand, and covered with a hand-glass. Most of the species produce seeds freely in British gardens, and they all grow in any common garden soil.

1. C. americanus L. The American Ceanothus, or Red Root; or New Jersey Tea.


Engravings. Bot. Mag., t. 1497.; and our fig. 271.

Spec. Char., &c. Leaves ovate, acuminate, serrated, pubescent beneath. Thyrse elongated, axillary, with a pubescent rachis. (Don's Mill.) A deciduous suffrutescent low shrub. Canada to Florida, in woods and copses. Height 1 ft. to 3 ft.; in British gardens, 2 ft. to 4 ft. Introduced in 1713. Flowers white; June to August. Fruit black; ripe in September.

Varieties. Torrey and Gray describe three varieties, C. a. 2 Pitcher, C. a. 3 herbaceus (C. perennis Pursh, C. ovatus Desf.), and C. a. 4 intermedium (C. intermedium Pursh, fig. 271.); but we scarcely think they are worth keeping apart in collections.

Stems shrubby, or suffrutescent. Leaves 2 in. to 3 in. long. The leaves and stems of the plant are pubescent; and the flowers, being produced in great numbers together, are very ornamental. They are succeeded by bluntly triangular capsules; and, about London, in fine seasons, the seeds ripen. Any soil that is tolerably dry. Seeds or cuttings. The leaves of this plant, dried, were used by the Americans as a substitute for Chinese tea, during the war of independence.

2. C. azurfeus Desf. The azure-flowered Ceanothus, or Red Root.


Variety.

2 C. a. 2 intermèdius, C. intermèdius Hort., has the habit of C. azureus, with pale flowers, like those of C. americanus, varying with different shades of blue. It was raised by Mr. Masters of Canterbury, from seeds of C. azureus fecundated by C. americanus.

A very handsome shrub, profusely covered with brilliant celestial blue flowers in large panicles. In Mexico its bark is considered as a febrifuge. It is the most robust-growing species of the genus, attaining, in 3 or 4 years from seed, the height of 5 or 6 feet, or more, against a wall. It was at first treated as a green-house plant, but lately it has been found to be nearly as hardy as the North American species. In the winter of 1837–8 these plants were greatly injured, but none of them killed. North of London the plant is less vigorous.

3 C. (A.) thyrsiflorus Esch. The Thyrse-flowered Ceanothus.


Engraving. Our fig. 3. in p.


In its native country, in favourable situations, this species becomes a small tree, with a stem sometimes as thick as a man's arm, and strongly angular branches. In British gardens it forms a free-flowering highly ornamental shrub, with much of the habit of C. azureus; from which it chiefly differs in having the flowers in a close, instead of in an elongated, thyrs. Notwithstanding this difference, we consider it as only a variety of that species.

4 C. velutinus Doug. The velvety-leaved Ceanothus.


Engravings. Hook. Flor. Bor. Amer., 1. t. 45; and our fig. 274.

Spec. Char., &c. Branches somewhat pendulous. Leaves orbicular, elliptical or elliptical ovate, obtuse, subcordate, glandularly crenate, serrulate, coriaceous, glabrous, and shining (as if varnished) above, velvety, canescent, and strongly 3-ribbed beneath. Panicles axillary, elongated, on rather long peduncles. (Tor. and Gray.) A shrub, probably sub-evergreen. North-west coast of North America, on subalpine hills. Height 3 ft. to 8 ft. Not introduced. Flowers white. Fruit dry, 2—3-seeded.

This is apparently a very desirable species; and, as it is so abundant as to cover the whole declivities of hills, forming thickets very difficult to penetrate, we have no doubt that it will soon be introduced. Branches nearly glabrous. The leaves abound with an aromatic resin.
5. C. colli’nus Doug. The Hill-side Ceanothus.


Engravings. Fl. Cab., t. 13.; and our fig. 275.


Layers, which root readily, or seeds.

Other Species of Ceanothus. — C. ovatus and C. intermedins, we have seen, on the authority of Torrey and Gray, are only varieties of C. americanus; and we have no doubt that this will be the case with C. ovalis, C. sanguineus, C. oreganus, and other species described by authors. In short, there appears to us no assignable limits to the sports and hybrids that may be produced in this genus.

Order XXIII. Homalina’ceæ.

Ord. Char. Calyx funnel-shaped, its tube usually adnate to the ovary, its limb with 5—15 lobes. Petals inserted into the calyx, as many as its lobes, alternate with them, smaller than they, and deemed by some an inner whorl of lobes of the calyx. Glands present in front of the segments of the petals. Stamens arising from the base of the petals, either singly, or in threes or sixes. Anthers 2-celled, opening longitudinally. Ovary 1-celled, with numerous ovules. Styles 3—5, simple. Fruit berried or capsular. Seeds small. (Lindl.) — Trees or shrubs; natives of South America.

Leaves simple, alternate, with deciduous stipules, sub-evergreen; toothed or entire. Flowers axillary, in spikes, racemes, or panicles. — The species in British gardens belong to the genera Aristotelia and Azara (the latter rather tender), which are thus contradistinguished: —


Genus I.


Derivation. Named in commemoration of Aristotle, the celebrated philosopher and naturalist.

Gen. Char. Calyx campanulate, profoundly 5-cleft. Petals 5, inserted in the
base of the calyx, and alternating with its lobes. Stamens 15—18, generally 3 or 4 in each bundle, placed in front of the lobes of the calyx. Anthers opening by two pores at the apex. Ovary free. Styles 3, somewhat connected at the base. Berry globose, 3-celled. Seeds angular. (Don's Mill.)

Leaves simple, opposite, stipulate, sub-evergreen; stalked and shining. Flowers in axillary racemes.


Variety.

2. A. M. 2 foliis variegatis.—The variegated-leaved Macqui Aristotelia.

In Chili this plant forms an evergreen shrub, with diffuse branches, growing to the height of 6 ft. The flowers are not very showy; but they are succeeded by berries about the size of a pea, very dark purple, and at length becoming black, which are acid and eatable. In British gardens, it forms a sub-ever-
green shrub or low tree, of very vigorous growth; so much so, in a young state, that, from the shoots not being matured, they are frequently killed down to the ground, and the foliage more or less injured. Notwithstanding this, the aristotelia frequently flowers, and even ripens fruit; and, in all probability, if the tree were planted in dry and rather poor soil, so as to grow slowly, and not make more wood every year than it could ripen properly, it would attain a large size, and form a very handsome hardy evergreen shrub or tree. The plant grows vigorously in any common garden soil, producing shoots 3 ft., 4 ft., or 5 ft. in length when young; and it is readily propagated by cuttings or by layers.

Other Species of Aristotelia. — One has been raised in the Chelsea Botanic Garden, from South American seeds, which Mr. Dillwyn found to stand the winter of 1837-8 better than A. Máquei.

*Azôra dentíla R. & P., Don's Mill. i. p. 257. (Bot. Reg. t. 1788, and our fig. 277.) is an evergreen shrub or low tree, growing to the height of 12 ft. in Chili. It stood 8 years in the Hort. Soc. Garden, against a wall, and, though killed by the winter of 1837-8, it may yet ultimately prove tolerably hardy. *A. integrifólia*, if a different species, may possibly be found hardy also.

---

**Order XXIV. ANACARDIACÆÆ.**

*Identification.* Lindley, in Introd. to N. S.

**Ord. Char.** Flowers generally unisexual. Calyx usually 5-parted. Petals equal in number to the divisions of the calyx, cohering at the base when the disk is absent. Stamineus same number, or twice that number. Disk, when present, annual. Ovarium usually solitary. Styles 1—3, sometimes wanting. Fruit indehiscent. (Lindl.) — Low deciduous or evergreen trees, natives of Asia and Africa.

Leaves simple or compound, alternate, exstipulate, deciduous or evergreen; without pellucid dots. Flowers terminal or axillary, in panicles, with bracts. — The hardy species belong to the genera *Pistacia*, *Rhus*, and *Duavaa*, which are thus contradistinguished:


*Rhu's L.* Flowers polygamous. Styles or stigmas 3. Drupe nearly dry, containing a 1-celled, 1—3-seeded nut.


**Genus I.**

*PISTACIÀ L.* THE PISTACHIA TREE. *Lin. Syst.* Dice'cia Pentándria.

*Synonyme.* Terebinthus Juss.
*Derivation.* From the Greek word *Pistacia*, derived from *Psittakion*, the name of a city; or from the Arabic word *Psutak*, the Arabian name of *Pistácia vera*.
*Gen. Char.* Flowers dioecious, and without petals; disposed in amentaceous
racemes, each scale with one flower. Calyx 3—5-cleft. Stamens 5, inserted into a calycine disk, or into the calyx; with 4-cornered, almost sessile, anthers. Ovary 1—3-celled. Stigmas 3, and thickish. Fruit a dry ovate drupe; nut bony, and usually 1-celled, with a single seed affixed to the bottom. Cotyledons thick, fleshy, oily, and bent back upon the radicle.—Small trees, natives of the South of Europe and Asia.

Leaves compound, impari-pinnate, deciduous or evergreen; dying off of a beautiful reddish purple; young shoots tinged with purple.

♀ 1. P. vera L. The true Pistachio Tree.


Spec. Char., &c. Leaves deciduous, impari-pinnate, of 3—5 leaflets, rarely of 1; the leaflets ovate, a little tapered at the base, indistinctly mucronate at the tip. (Dec. Prod.) A deciduous tree. Syria. Height 20 ft. Introduced in 1770. Flowers small, brownish green; April and May. Fruit reddish, an inch long, ovate; ripe in Syria in September, rarely seen in England.

Varieties. The following are considered by some authors as species:—
♀ P. v. 2 trifolia Lin. Spec. 1454., Bocc. Mus. ii. t. 93., has leaves usually of 3 leaflets.
♀ P. v. 3 narbonensis Bocc. Mus. t. ii. 693., P. reticulata Will., has pinnate leaves, the leaflets having prominent veins. H. S.

Cultivated in the South of France, and in Italy, for its fruit; the nut of which is sometimes eaten raw, but more frequently in a dried state, like almonds. In British gardens, the tree is not much planted, from its being generally supposed to require a wall; but, in favourable situations, it will grow as a standard or a bush in any common garden soil, and may be propagated either by nuts procured from abroad, or by cuttings.

♀ 2. P. Terebinthus Lin. The Turpentine Pistachio, or Venetian or Chian Turpentine Tree.


Spec. Char., &c. Leaves deciduous, impari-pinnate, of about 7 leaflets, that are ovate-lanceolate, rounded at the base, and at the tip acute and mucronate. (Dec. Prod.) A deciduous tree. South of Europe and North of Africa. Height 30 ft. Introduced in 1656. Flowers dull yellow and crimson; June and July. Fruit dark blue, hardly bigger than a large pea.

Variety.
♀ P. T. 2 sphaerocarpa Dec.—Fruit larger and rounder than that of the species.

The general appearance of the tree is that of P. vera, but the leaves are larger, and the fruit only a third of the size; the leaflets are, also, lanceolate, instead of being subovate. The red hue of the branches, especially when young, is very beautiful; and the leaves are
also more or less tinged with red. The fruit is round, not succulent, and somewhat furrowed; at first green, and afterwards reddish; but black, or of a very dark blue, when ripe. The leaves and flowers emit a very resinous odour, which spreads to a considerable distance, more especially at sunset, when the dew is falling, after a very warm day. The substance called Venice or Chian turpentine is the resin which exudes from this tree. In British gardens, the tree is not very common, though it is generally considered as the hardiest of the genus; and, with P. vera, may be planted in warm sheltered situations in the open border.

2 3. P. Lentiscus L. The Mastich Tree.


Varieties.

2 P. L. 2 angustifolia Dec., P. massiliensis Mill. Diet., P. angustifolia massiliensis Tourn., has leaflets almost linear, and the tree seldom exceeds 10 ft. in height.

2 P. L. 3 chia N. Du Ham. iv. p. 72; P. chia Desf. Cat. Hort. Par.—A native of Scio, where it produces the mastich.

The species bears a general resemblance to the two preceding ones, in summer, when they are clothed with foliage; but it differs from them in being evergreen, and in having the leaves much smaller. The leaves have sometimes 5 leaflets on each side; and the petioles are so much winged as to appear like pinnae. The tree in the South of Europe, and the North of Africa, is cultivated in gardens, as well as found in a wild state; but in British gardens it is not so hardy as P. Te rebínthus, and north of London should always be planted against a wall.

Other Species of Pistacia.—P. atlántica Desf., a deciduous tree from Mount Atlas, is said to have been introduced in 1790, but it requires the protection of a frame or green-house.

Genus H.


Synonyms. Sumach, Fr. and Ger.; Ru. Ital.

Derivation. From rhous, or rhous, Greek, or from rhūd, or rūd, Celtic, red; in allusion to the colour of the fruit and leaves of some of the species in autumn. Others derive rhús from the Greek verb rhos, I run, from the habit of the roots running and spreading under ground to a considerable distance from the tree. Sumach is derived from Simay, the Arabic name of the plant.

Gen. Chor. Sexes hermaphrodite, dicoccious, or polygamous. Calyx small, 5-parted, persistent. Petals ovate, and inserted into a calycine disk, or into the calyx. Stamens 5, inserted into a calycine disk. Ovary single,
subglobular, of 1 cell. **Styles** 3, short, or wanting. **Stigmas** 3. Fruit an almost dry drupe of 1 cell, with a bony nut, which includes a single seed; and, in some instances, 2—3 seeds. (Dec. Prod.)—Deciduous shrubs. Natives of Europe, Asia, and North and South America.

Leaves simple or unequally pinnate, alternate, stipulate, deciduous. **Flowers** in terminal racemes, or panicles.—The leaves vary much, both in form and magnitude; and they generally die off, in autumn, of a dark red, or a bright scarlet, or yellow, when they are very ornamental. Most of the species are poisonous, some highly so; and they all may be used in tanning, and dyeing yellow or black. They are all easily propagated by cuttings of the root, and some of them by cuttings of the branches.

Some of the hardy species are rambling climbers, and others tree-like bushes.

§ i. *Cótinus* Tourn.

**Sect. Char.** Leaves undivided. Flowers hermaphrodite.

**2 1. *R. Co'tinus* L.** The Cotinus Rhus, or Venetian Sumach.


**Derivation.** The term Cótinus is derived from cotinos, a name under which Pliny speaks of a tree with red wood, which is supposed to grow in the Apennines.

**Engravings.** Jacq. Aust., t. 416.; and our fig. 291.

**Spec. Char., &c.** Leaves obovate. (Dec. Prod.) A deciduous rambling shrub. Spain to Caucasus; and, according to Torrey and Gray, probably of North America. Height 4 ft. to 6 ft. wild; 6 ft. to 8 ft. in a state of culture. Introduced in 1656. Flowers pale purplish, or flesh colour; June and July. Fruit white; ripe in September. Decaying leaves of a fine reddish yellow. Naked young wood smooth brown.

The flowers are disposed in loose panicles, and are hermaphrodite. The drupe is half-heart-shaped, smooth, and veiny; and its nut is triangular. Many of the flowers are abortive; and their pedicels, after flowering, lengthen, and hence hairy. A highly ornamental shrub, more especially when covered with its large loose panicles of elongated hairy pedicels. It is easily known from all the other species by its simple, obovate, smooth, stiff, lucid green leaves, rounded at the points, and supported by long footstalks, which remain on till they are killed by frost, so that the plant is almost a sub-evergreen. A dry loam suits it best; and it is propagated by pegging down the branches flat to the ground, and strewing earth over them, through which young shoots rise up, which root at the base, and may be removed in autumn.


**Sect. Char.** Leaves impari-pinnate; leaflets more than 3 in the leaves of each of the first 6 species of this section. Flowers in panicles, polygamous, diecious, or hermaphrodite.

**2 2. *R. Týphina* L.** The Fever Rhus, or Stag's Horn Sumach.


**Synonymes.** *R. virginiana* Bankh. Pin. p. 517.; Virginian Sumach.

**Engravings.** N. Du H., 2. t. 47.; Watts. Dendr. Brit., t. 17. and t. 18.; and our fig. 292., the male.

**Spec. Char., &c.** Leaf of 8—10 pairs of leaflets, and the odd one, that are lanceolate, acuminate, serrated, hairy beneath. Petiole and branches hairy.
(Dec. Prod.) A shrub, with the habit of a low deciduous tree. Canada to Carolina, in rocky dry situations. Height 20 ft. Introduced in 1629. Flowers, female dark purple, male greenish yellow and purple; July and August. Fruit hairy, purple; ripe in October. Decaying leaves dark purple or red, sometimes mixed with yellow. Naked young wood dark brown, hairy. DeCandolle has characterised two forms of this species as follows:—

istle R. t. 1 arboréscens. — A tree between 10 ft. and 25 ft. high; leaf slightly downy beneath.

istle R. t. 2 frutéscens. — Shrubby, between 2 ft. and 10 ft. high; and its leaf downy and whitish beneath.

istle R. t. 3 viridiflóra. R. viridiflóra Poir. — Flowers green. Possibly nothing more than the male plant.

Rhús typhina, in British gardens, is either a large shrub, or a low tree with a woody stem and a head composed of many irregular branches, generally crooked and deformed. The young shoots are covered with a soft velvet-like down, resembling that of a young stag's horn, both in colour and texture; whence, and probably also from the crookedness of the branches, the common name. The cellular tissue of the wood is of an orange colour, with a strong aromatic odour, and a copious resinous juice. The leaves are 2 ft. to 3 ft. long, and they are very conspicuous in autumn, before they drop off, when they change to a purplish or yellowish red. The flowers are produced in close spikes at the ends of the branches; they are often polygamous or dioecious by abortion, and the female ones are followed by seeds enclosed in woolly, simple, succulent covers. As the plant is of open irregular growth, and not of long duration, it should never be placed where it is intended to act as a screen. Like all objects the chief beauty of which consists in their singularity, it produces the most striking effect when standing alone on a lawn.

istle 3. R. (? t.) glábra Lin. The glabrous Rhus, or Scarlet Sumach.


Spec. Char., &c. Leaf glabrous, of 8—10 pairs of leaflets, and an odd one; leaflets lanceolate-oblong, serrate, whitish beneath. Branches glabrous. (Dec. Prod.) A deciduous shrub or low tree. Canada to Georgia. Height 5 ft. to 18 ft. Introduced in 1726. Flowers, male greenish yellow, female greenish red. Fruit red; ripe in October. DeCandolle has distinguished three forms of this species; namely:—


istle R. g. 2 dioica Lam. Ill. t. 207. f. 1. — Flowers dioecious. greenish.

istle R. g. ? 3 coccínea. R. carolinínum Mill. Diet.; R. élegans Ait., Lodd. Cat., Dend. Brit. t. 16. — Flowers dioecious, red. This variety is dis-
tinguished by a more upright habit of growth, and smoother branches and leaves, than \textit{R. glabra}. The leaves are glaucous underneath; and the fruit is of a rich velvety crimson.

The general appearance of the species is similar to that of \textit{R. typhina}; but the leaves and the entire plant are smaller, the branches more spreading and smooth, and the leaflets wider, less serrated, and of a deeper green.


\textbf{Engravings.} Wats. Dend. Brit., t. 19.; and our fig. 284

\textbf{Spec. Char., &c.} Leaf rather glabrous than pubescent, of 5—6 pairs of leaflets, and the odd one, which are ovate-anceolate, acuminate, entire, and beneath reticulately veined. (Dec. Prod.) A deciduous shrub. Canada to Georgia, and west to Louisiana, in swamps. Height 15 ft. to 20 ft. Introd. 1713. Flowers green; July. Berry smooth, greenish white; ripe in October. Decaying leaves intense red, or purple. Naked young wood purplish green.

The leaves are divided like those of \textit{R. typhina} and \textit{R. glabra}; but they are quite different from those of both kinds, in being smooth, shining, and having the leaflets very entire, narrow, and pointed, and the veins of a purplish red colour. The whole shrub is in a high degree poisonous; and the poison is communicated by touching or smelling any part of it. In British gardens it is not very common; but it well deserves culture, on account of the beauty of its smooth shining foliage at all seasons, and of its almost unparalleled splendour in the autumn, from the time that the leaves begin to change colour, till they ultimately drop off, of an intense purple or scarlet, with the first frost.

5. \textit{R. coriaria} Lin. The hide-tanning \textit{Rhus}, or \textit{the Elm-leaved Sumach}.


\textbf{Derivation.} Coriaria alludes to the use made of this plant by the Romans, and also by the Turks, in tanning leather.


\textbf{Spec. Char., &c.} Leaf villose, of 5—7 pairs of leaflets, and the odd one; leaflets elliptical, and toothed with large and blunt teeth. The petiole smooth at the tip, a little margined. (Dec. Prod.) A deciduous shrub or low tree. Portugal to Tauria, on rocks in exposed situations. Height 15 ft. to 20 ft. Introduced in 1629. Flowers whitish green, in large loose panicles; July and August. Fruit red; ripe in October, rare in England. Decaying leaves purplish red.

The general habit of this plant resembles that of \textit{R. typhina}; but it is
much smaller in all its parts. The leaflets are about 2 in. long, and \(\frac{1}{2}\) in. wide, of a pale green, serrated, and in general appearance resembling the leaves of the common elm. Culture as in \(R\). typhina.

6. \(R\). \textit{copallina} Lin. The Gum Copal Rhus, or Mastich-tree-leaved Sumach.


**Synonymes.** R. toxicoidea, and \(T\). radicans, \(L\), Dec., Don’s Mill., \&c.

**Engravings.** Our fig. 600. in p. 600.


**Varieties.** Three forms are given by Torrey and Gray:—\(a\), Leaflets entire, usually acuminate, which may be considered as the species: \(b\), leaflets coarsely and unequally serrate; and \(c\), leaflets (about 21) small, oblong, acute at the base; obtuse and slightly mucronate at the apex; petiole narrowly winged. Jacquin has

\(\approx\) \(R\). c. 2 \textit{leucanthla} Jac. Hort. Schön., t. 342.—Root not stoloniferous. Panicles more contracted than in the species.

The leaves and general habit of the plant are those of \(R\). typhina, but it seldom grows to the height of more than 4 or 5 feet in British gardens. The branches are smooth, and the leaflets entire with acute points; they are light green on both sides, and in autumn change to a fine purple. The petiole, as in \(R\). Coraria, is somewhat winged towards its tip, which, with other circumstances, induces us to think that they may both be varieties of the same species. The leaves are used as tobacco by the Indians of the Missouri and the Mississippi.

\(\approx\) \(\approx\) 7. \(R\). \textit{Toxicodendron} L. The Poison-Tree Rhus, or Sumach.

**Identification.** Tor. and Gray, 1. p. 218.

**Synonymes.** R. Toxicodendron, and \(R\). radicans, \(L\), Dec., Don’s Mill., \&c.

**Engravings.** Our fig. 600. in p. 600.

**Spec. Char., \&c.** Stem erect, decumbent, or climbing by radicles. Leaves 3-foliate, somewhat pubescent; leaflets (membranaceous) broadly oval or rhomboid, acuminate, entire or toothed, the lateral ones inequilateral. Panicles racemed, axillary, subsessile. Drupe subglobose, smooth. (Torrey and Gray.) A low rambling or climbing shrub. Canada to Georgia, in shady damp places. Stems 10 ft. to 20 ft. as a climber; or 3 ft. to 5 ft. high as a bush. Introduced in 1640. Flowers greenish, mostly dioecious; June and July. Berry pale chestnut; ripe in September. Decaying leaves purplish red.

**Varieties.** The following forms are given by Torrey and Gray:—

\(\approx\) \(R\). T. 1 \textit{quercifolium} Tor. & Gray. \(R\). T. 2 \textit{quercifolium} Michx.—Not climbing; leaves entire, or variously and irregularly sinuated toothed, or lobed. The \(R\). Toxicodendron of the London gardens, readily distinguished from the two following varieties, by its deeply sinuated, or almost pinnatifid, leaflets. It grows to the height of
3 ft. to 4 ft. with several upright stems, forming a small bush, from the base of which proceed many prostrate runners.

R. T. 2 radicans Tor. & Gray. R. T. a vulgare Michx.; R. T. β radicans Tor. (Bot. Mag. t. 1806. and N. Du Ham. 2. t. 48., and our figs. 288. and 289.)—Climbing ; leaves more commonly entire, or nearly so. The Rhús radicans of the London gardens, readily known from the preceding variety by its trailing or climbing stem, and by its entire leaflets.

R. T. 3 microcárpun Tor. & Gray. Rhus Toxicodendron γ microcárpun Michx.—Leaves oval-oblong; fruit smaller.

These varieties, which have been hitherto, for the most part, treated as belonging to two species, R. radicans and R. Toxicodendron, are common in many parts of North America; sometimes covering the surface of the ground to a great extent, and at other times climbing to the top of the highest trees, and penetrating the bark with their fibrous roots. The terrible effects of their poison are frequent, and well authenticated.

§ iii. Lobádium Dec.


Rhus aromática Ait. The aromatic Rhus, or Sumach.


Spec. Char., &c. Leaves pubescent when young (at length coriaceous, and often glabrous); leaflets sessile, rhomboid-ovate, unequally and incisively toothed, the terminal one narrowed at the base. (Tor. and Gray.) A small aromatic shrub. Pennsylvania to Carolina and Georgia. Height 1 ft. to 4 ft. Introd. in 1772. Flowers small, yellow; April and May. Fruit small, light red; ripe in September.

Drupes the size of a small pea, light red, more
or less hispid, slightly compressed, agreeably acid. This species varies greatly in the degree of pubescence of the leaves. *R. suaveolens* Ait. *or* *ag* differs in having the leaves almost glabrous. H. S.

Other Species of *Rhú*is.—Several names are in the London catalogues, which are synonyms of kinds which have been lost, or are not distinctly known by us. *R. puníla* *Michx*, *R. diversíloba* *Tor.* & *Gray* (R. *lobíta* *Hook.*), *R. trílobíta* *Nutt.*, *R. laurína* *Nutt.* are described in Torrey and Gray’s *Floras*, but they have not yet been introduced; or, if they have, they exist only as small plants. Some plants of *Rhú*is have been raised in the Hort. Soc. Garden, from seeds sent from the snowy mountains of Nepal, which will doubtless prove hardy.

**Genus III.**


**Synonymes.** Schíns *sp. Andr.*; *Amýris* *sp. Cav.*

**Derivation.** Called *Duvaüa*, after M. *Duvaü*, a French botanist, known as the editor of the original edition of Richard’s *Analyse du Fruit*; and for some observations on *Verónica.*" (Lindley, in *Bot. Reg.*, t. 1808.)

**Gen. Char.** *Calyx* persistent, with 4—5 segments. *Corolla* of 4—5 concave petals. *Sexes* monàceously polygonous. *Stamens* 8—10, inserted under a pitcher-shaped calyce, which has as many sinuses and as many teeth as there are stamens; these are opposite the sinuses, half of them opposite the petals, and half alternate with them. *Anthers* in the fruit-bearing flowers barren. *Ovary* conical. *Styles* 3—4. *Stigmas* capitate. *Fruit* a globose drupe, with a leathery nut.—Chilian trees and shrubs, becoming spiny as they advance in growth. (Dec. *Prod.*)

**Leaves** simple, alternate, exstipulate, evergreen; generally oblong or ovate, toothed, small. *Flowers* in axillary racemes, greenish yellow.—There are four species in cultivation, which are all very handsome evergreen bushes, with bright shining foliage.

The foliage emits, when bruised, a strong but not unpleasant odor, of the nature of turpentine. The leaves of *D. ováta*, and, doubtless, those of every species of *Duvaüa*, when thrown upon water, move about in a manner which may be compared to a fleet of ships employed in manoeuvring, or to persons engaged in dancing. Seeds have been produced plentifully in the Hort. Soc. Garden by *D. dependéndens*, trained to a south wall; and seeds of *D. latifólia* are often imported from Chili. Cuttings of the ripe wood root in sand, under a bell-glass, in a gentle heat. *D. dependéndens* was but little injured at Kew, in the Chelsea Botanic Garden, and in the Hort. Soc. Garden, by the winter of 1837—8; and *D. ováta* was not injured at all, and may be considered as an evergreen shrub, as hardy in the climate of London as Arístotélia *Máqueí.*


**Synonymes.** *Amýris* *polýzama* *Cav.* *Icon.* 3. p. 20. t. 293.; Schíns *dependency *Ort.* *Decad.* 8. p. 102; *Duvaüa* *dependency* *Hook.* *Bot.* *Misc.* 2. p. 176.

**Engravings.** *Cav.* *I.* t. 283; *Bot. Reg.*, t. 1753; and our fig. 291.

**Spec. Char., &c.** Leaves mostly, especially upon the flower-bearing branches, obovate, and very obtuse, or even emarginate, with scarcely any denti-llations. Racemes scarcely exceeding the leaves in length. *Stamens* mostly 10. *Flowers* smaller than those of *D. ováta*. (Lindley.) An evergreen tree; in British gardens a wall shrub. *Chili.* Height in England 10 ft. to 12 ft.
Introduced in 1790. Flowers yellowish white; June and July. Berries black; ripe in Sept.

There is an old plant in the Botanic Garden at Kew, and a tree in the Chelsea Botanic Garden, which is 12 ft. high, with a trunk 7 in. in circumference. The plant in the Hort. Soc. Garden passed seven winters against a wall with a southern exposure, till the winter of 1837–8, when it was killed down to the ground; but it has sprung up again vigorously.

† 2. D. ovata Lindl. The ovate-leaved Duvaua.

Identification. Lindl. in Bot. Reg., t. 1564; Engravings. Bot. Reg., t. 1568; and our fig. 292

Spec. Char., &c. Leaves ovate, toothed, in most acute at the tip, in some obtuse. Racemes a little longer than the leaves. Stamens mostly 8. (Lindl.) An evergreen tree; in British gardens a shrub. Chili, on mountains. Height in the climate of London 6 ft. to 10 ft. against a wall. Introduced in 1825. Flowers yellowish white; June and July. Berries black; ripe in September.

Probably a variety of the preceding species. It was wholly uninjured by the winter of 1837–8, in the Horticultural Society's Garden.


Spec. Char., &c. Leaves oblong, acute, coarsely toothed, so waved as to seem in some measure plicate. Racemes dense, the length of the leaves. Stamens 8. (Lindl.) An evergreen tree; in British gardens a shrub. Chili, on mountains. Height 6 ft. to 12 ft. against a wall. Introduced in 1826. Flowers greenish white; June and July. Berries black; ripe in October.

"Whatever," observes Dr. Lindley, "may be thought" of the distinctness, as species, "of D. ovata and D. dependens, there can be no doubt that D. latifolia is a totally distinct species; for not only are the leaves, in their outline, surface, and colour, and the whole plant in its habit, very different, but we find it maintain all its peculiarities unchanged when raised from seeds." 

Other Species of Duvaua.—D. dentata Dec., Schinus dentata Bot. Rep., was introduced in 1795, and is doubtless as hardy as any of the above kinds; since all of them are safest when planted against a wall. Duvaua sinuata Lindl. appears equally hardy with D. dependens in the Hort. Soc. Garden. It differs from the others in producing the flowers before the leaves, and in being deciduous. All the species well deserve culture as evergreen bushes, in shrubberies where the soil is dry and sandy, the situation sheltered, and the surface sloping to the south. A concurrence of circumstances of this kind is not unfrequent in country residences, both in England and Scotland; and two examples which occur to us at the moment we are writing are, Bury Hill in Surrey, and Blair Drummond in Stirlingshire.
Order XXV. LEGUMINACEÆ.

Ord. Char. Calyx with 5 divisions, either partitions, teeth, or clefs, the odd one anterior to the axis of inflorescence. Fruit a legume. Seed with the radicle next the hilum. (Lindl.)—Trees and shrubs natives of every climate.

Leaves alternate, stipulate, generally compound; deciduous, or sometimes evergreen; petiole tumid at the base. Stipules 2 at the base of the petiole, and 2 at the base of each leaflet. Pedicels usually articulated, with 2 bractlets under the flower.

The name of Leguminaceæ is applied to this extensive and truly natural order, on account of the seeds of all the species being produced in leguminous pods, bearing more or less resemblance to those of the common pea or bean; and quite different from the siliqueous pods of cruciferous plants.

The ligneous species are trees and shrubs, for the most part deciduous; and they are disposed through almost every part of the world. The order contains some of our finest ornamental shrubs and low trees, such as Robinia, Cytisus, Wistaria, Genista, U'llex, Amórpha, Halinodéndron, Acacia, Gleditschia, Cercis, and various others. It also contains some considerable trees, which belong to the genera Robinia, Gleditschia, Sophora, &c. The genera containing hardy ligneous plants are in number twenty-three, which, after De Candolle and G. Don, we place in characterised sections, and ascribe to them short characters, that are more or less contradistinctive.

Sect. I. SOPHÒ'ReE.E.

Sect. Char. Corolla, in most, papilionaceous. Stamens 10, with the filaments distinct. Legume not jointed. Cotyledons flat, leafy. Embryo with the radicle beside the edges of the cotyledons. Leaves simply pinnate, or simple.

SOPHÒ'RA R. Br. Legume necklace-shaped, including many seeds. Leaf with more than three leaflets.

VIRGÌLÌA Lam. Legume compressed, including many seeds. Leaf with more than three leaflets.

PIPTÁ'NTHUS Swè. Legume compressed, including 6 seeds. Leaf with its leaflets 3.

Sect. II. Lo'tee.E.

Sect. Char. Corolla papilionaceous. Stamens 10, the filaments of all connate, or those of 9 connate, and that of one distinct. Legume not jointed. Embryo with the radicle beside the edges of the cotyledons. The cotyledons flattish; in germination, converted into leaves furnished with stomata. Leaves simply pinnate, or simple.

U'LEX L. Calyx 2-parted, 5-toothed. Legume oval-oblong, turgid, scarcely longer than the calyx, containing but few seeds, though the ovules are many. Habit spiny.


GENÌ'STA Lam. Standard oblong-oval. Keel oblong, not wholly including the stamens and pistils. Leaves with 3 leaflets, or, in some, simple.

CY'TISUS Dec. Standard ovate. Keel very obtuse, including the stamens and pistil. Leaves, in all, with three leaflets.

ADÉNOCÀ'RPUS Dec. Stamens with the filaments connate. Legume bearing stalked glands all over it.

ONÔ'NIS L. Calyx with 5 linear segments. Standard striate. Legume containing few seeds; in most, turgid.

AMÒRPHÀ L. Corolla consisting of the standard only.

EYESNHĀ'RDTIÀ H. & B. Corolla with the standard, and 2 keel petals distinct.

ROBINÀ Dec. Legume flat; that edge to which the seeds are attached marginated. Leaf impari-pinnate.
SOPHORA R. Br. The Sophora. Lin. Syst. Decándria Monogynía

Derivation. Altered from sophero, the Arabic name of a papilionaceous flowering tree.
Gen. Char. Calyx 5-toothed, campanulate at the base, or somewhat attenuated. Petals of the keel usually concrete at the apex. Legume somewhat moniliform, wingless, many-seeded. (Don's Mill.)

Leaves impari-pinnate, with 11—13 leaflets, generally exstipulate. Flowers yellow, white, or blue, in simple racemes, or panicles.—The only hardy species are deciduous trees, natives of Japan or China.

♀ 1. S. Japo'onica L. The Japan Sophora.

Engravings. Red. in N. Du Ham., 3. t. 21; Dec. Légum., t. 4. f. 1; the plate of this species in Arb. Brit. 1st edit., vol. v.; and our fig. 291.


Varieties.

♀ S. j. 2 variegata Hort. has the leaves variegated, but is not worth cultivating as an ornamental plant.

♀ S. j. 3 pendula Hort., and the plate of this tree in our 1st edit. vol. v., has pendulous shoots, and is a very remarkable variety. Grafted near the ground, the shoots run along the surface, like those of a trailing plant, to a very great distance from the main stem; in good soil, a shoot extending itself 6 or 8 feet in one season. Grafted at the height of 10 or 20 feet or upwards, the shoots hang down, and form one of the most ornamental of pendulous trees, both in summer and winter.

A round-headed tree, readily distinguished in winter by the fine, smooth, dark green bark of its young wood and smaller branches; and, in summer, by the dark blue green of its foliage. In deep free soil, it grows with great rapidity, seedlings attaining the height of 10 or 12 feet in 4 or 5 years; and in 20 or 30 years, in the neighbourhood of London, 30 or 40 feet. There are large specimens in England, which flower freely; but they have never yet ripened seeds: indeed, the tree ripens seeds in France only in the very warmest seasons. The wood is very hard and compact, as much so, it is said, as that of the box. The bark exhalces a strong odour, which, it is stated in the "Nouveau Du Hamel", produces colic and purging on those who prune the
tree, or otherwise work with the wood in a green state. Little appears to be known of the uses of the tree in China and Japan: but it is said that the fruit is employed to dye a fine yellow; and the flowers for dyeing a yellow of so superior a hue, that it is exclusively reserved for dyeing stuffs to be worn by the members of the imperial family. None of the arboreous Leguminaceae are equal to this tree in beauty of foliage and bark. Its flowers, when they are produced, are also in large terminal compound spikes, and very conspicuous, though much smaller than those of the Robinia viscosea. One remarkable property in the foliage of the sophora is, that the very hottest and driest seasons do not turn it pale, or cause it to drop off; as heat does that of most of the other pinnated-leaved Leguminaceae. The pendulous variety is well deserving of culture as an object of singularity and beauty; and, where it is desired to cover a surface with intense green foliage during summer, for example, a dry hillock, a plant of this variety, placed on the centre, will accomplish the purpose effectually. The tree will thrive in any free soil; but, in cold climates, it ought to be placed in one rather poor and dry that it may be compelled to make shorter shoots; which, of course, being less succulent, are more easily ripened. It is generally propagated by seeds imported from France; but, where it is desired to have trees that will soon come into flower, seedling plants should be grafted with scions from a flowering tree. It will grow by cuttings, more especially of the roots, and also by layers.

**2. S. HEPTAPHYLIA L.** The 7-leaf-leted Sophora.


*Engravings.* Rumph. Am. 4. p. 50, t. 22.; and our fig. 293.


There are plants of *S. heptaphylia* in the Hort. Soc. Garden, which have flowered and appear to be quite hardy, but as they do not exactly agree with Rumphius's figure, especially in the number of leaflets, we wish our engraving to be considered as of doubtful authenticity. The living plants alluded to are sufficiently distinct, and deserve a place in collections.

**Genus II.**


*Derivation.* Named by Lamarck in honour of the poet Virgil, whose Georgics entitle him to botanic commemoration.


*Leaves* compound, impari-pinnate, deciduous; with 9—11 leaflets. *Flowers* yellow, in racemes. — There is only one hardy species, a deciduous low tree.
1. \textit{V. lutea} Michx. The yellow-wooded Virginia, or Yellow Wood.


The leaves, on young trees, are from 1 ft. to 1½ ft. in length, and on old trees not above half that size. The flowers form white pendulous racemes, a little larger than those of the \textit{Robinia Pseud-Acacia}, but not so odoriferous. The seeds are like those of the robinia, and, in America, ripen about the middle of August. In Britain, the tree has flowered in the Chelsea Botanic Garden, and at Hylands in Essex, but has not yet produced pods. An open airy situation is desirable, in order that the tree may ripen its wood; and, to facilitate the same purpose where the climate is cold, the soil ought to be dry rather than rich. In the London nurseries, it is propagated chiefly by American seeds, but it will doubtless grow by cuttings of the roots.

\textbf{Genus III.}


\textbf{Derivation.} From πίπτει, to fall, and \textit{anthos}, a flower; from the flowers falling off very soon.

Leaves compound, trifoliate, stipulate, sub-evergreen; leaflets elliptical-oblong, acute, broad. Flowers large, yellow.—One species only in British gardens.


The young leaves are silky; and the flowers are of a bright yellow, and are much larger than those of the common laburnum, to which they, and also the leaves and the shoots, bear a general resemblance. In British gardens it may be considered as rather tender, and not of many years’ duration; nevertheless, in fine seasons, it ripens abundance of seeds. It may be propagated by cuttings of the roots, and of the shoots, as well as by seeds or layers. In most of the counties north of London, the safest situation for it will be against a wall; and it well deserves a place there, on account of its luxuriant deep green foliage, and large bright yellow flowers. Anagyrus indica Wall., Mr. Gordon considers as differing a little from the species.

Sect. II. Lo’te.e.

Genus IV.


Synonyms. Ajone, Fr.; Hecksaame, Ger.
Derivation. Said to be derived from ac, Celtic, a point; in reference to the prickly branches.

Gen. Char. Calyx bracteate, bipartite, one of the lips 3-toothed, the other bidentate. Stamens all connected. Legume oval-oblong, turgid, many-ovulate, but few-seeded, hardly longer than the calyx.

Leaves simple, linear, caducous, often changing into spines. Flowers solitary, yellow.

Branchy spinous shrubs, evergreen from the colour of the bark, with yellow flowers, natives of Europe, which will grow in any tolerably good soil that is dry; and are readily propagated by seeds, or by cuttings planted in sand.
1. U'LEX EUROPE' A L. The European, or common, Furze, or Whin.


Synonymes. Genista spinosa L'Obel; U. grandiflora Pourr.; U. vernalis Thor; Whin, Gorse, Prickly Broome; Ajone common, Jone marin, Jomarin, or Genet épineux, Fr.

Engravings. Eng. Bot., t. 742.; and our figs. 299. and 300.

Spec. Char., &c. Leaves lanceolate, linear. Branchlets villous. Bractens ovate, loose. Calyx pubescent. An erect compact bush, evergreen, from the colour of the bark. Middle and South of Europe, on gravelly soils; and in Britain on hills. Height 2 ft. to 5 ft.; in sheltered woods, 10 ft. Flowers rich yellow; February to May, and in mild winters September to May. Pod brown; ripe in August.

Varieties.

a. U. c. 2 flore pleno has double flowers, and is a splendid plant when profusely covered with blossoms, well adapted for small gardens, and easily increased by cuttings.

U. provincialis and U. stricta are probably only varieties of U. europæa, but, as they may possibly belong to U. mäna, we have kept them distinct, and treated them as botanical species or races.

The common furze, in Caernarvonshire, grows to the height of 1500 ft. above the sea, in open, airy, warm situations; but in damp shaded valleys, not higher than 600 ft. In the North of England, according to Winch, it forms fine fox covers at 800 or 900 feet; and grows, in warm sheltered situations, at 2000 ft. At Inverness, it is found to the height of 1150 ft. About Tongue, in the north-west of Sutherland, where it was introduced, but is now naturalised, it scarcely attains 350 ft. of elevation. The young branches, bruised, and given to cattle and horses in a green state, are found highly nutritious as fodder; and for this purpose the variety U. (e.) stricta is preferable, on account of the absence of prickles. The use of furze for hedges is chiefly desirable in situations where the hawthorn or the holly will not thrive; because the furze is not a plant of long duration. As a shelter to young trees, it is sometimes sown where acorns, beech masts, or chestnuts are to be sown, or young trees are to be planted. The use of furze in a dead state is chiefly as fuel for bakers' ovens, for brick, tile, and lime kilns, and for lighting fires. In Scotland, it is sometimes used in kilns for drying oats. In England, a common use of it is to weave into the sides of hovels for sheltering cattle, to prevent them from rubbing against them. In gardens, the points of the shoots are chopped into pieces of about 1 in. in length, and dropped into the drills in which peas are sown, before the seeds are covered; and, the earth being drawn over them and trod down, they are found effectually to resist the attacks of mice and small birds. In France, the chopped branches are mixed with cow-dung, and the mixture afterwards formed into bricks, which are dried in the sun, and used as fuel. The seeds, if they could be procured in sufficient quantity, would, if ground into flour, form a nutritive food both for cattle and swine: they retain their vital property for several years. In Britain, large heaps are formed of alternate layers of turf and dried furze branches; and, the whole being set fire to, the ashes are preserved as manure. In many parts of both France and England, the ashes of dry furze branches are used as a lye for washing linen. A pound of seeds, which, in London, costs from 8d. to Is., will sow an acre broad-cast, or a drill of a
mule in length as a hedge. The double-flowered and the fastigiate varieties are propagated by cuttings; the latter, when wanted for agricultural purposes, may be bedded in, like box, in a sandy soil rather moist, in the beginning of September; and by the following spring they will be fit to transplant.

n. 2. U. (e.) Na'na Forst. The dwarf Furze.


Spec. Char., &c. Branches and leaves smooth, the latter linear. Calyx glabrous, with spreading narrow teeth. According to Smith, the essential character consists in the more distinct and spreading calyx teeth, and the more minute, rounded, close-pressed, and often hardly discernible, bracteas. An evergreen, compact, low, spiny shrub. Britain and the western parts of France, on poor gravelly soils. Height 2—3 ft. Flowers rich yellow; August to December. Pods brown; ripe in December.

A very distinct sort, though, from the very different and more luxuriant habit which the plant has when cultivated in gardens on rich soils, we have no doubt of its being only a variety of U. europaea. In its native habitats, it is easily distinguished from that species by its low growth, seldom exceeding 2 ft. in height; by its being much smaller in all its parts; by its decumbent habit; and by its flowering from the end of August till the beginning of December, and seldom at any other season. Very neat low hedges and edgings may be formed of it.


Synonyme. Ulex australis Clement.

Engravings. Lois, Not., t. 6. f. 2.; and our fig. 303.


Whatever doubts there may be as to U. na'na being a distinct species, there can be none as to this sort being only a variety. As an evergreen shrub, flowering freely; it well deserves a place in collections.

n. 4. U. (e.) stri'cta Mackay. The upright-growing, or Irish, Furze.


Engravings. Our fig. . . in p. .

Spec. Char., &c. Habit erect, narrow, and compact. Spines few or none; and what there are, weak, branched, leafy, and pubescent. An erect, compact, evergreen shrub. Ireland. Height 6 ft. to 10 ft. Introduced in 1815. Flowers yellow, rarely produced; August to December. Pod brown; ripe in December.

Discovered in the Marquess of Londonderry's Park, in the county of
Down, in 1815, or before. It is very upright in its growth, and attains the height, in good soils, of from 6 ft. to 10 ft. in as many years. Its branches are so soft and succulent that sheep and cattle eat them without injuring their mouths, and are very fond of them. It forms excellent garden hedges, and, in rather moist climates, is a most excellent forage plant, as has been already stated under *U. europae'a*. It only rarely flowers, and has very seldom produced seeds; but it is easily propagated by cuttings.

Other Species of *U. lex*.— *U. geniStoides* Brot., *U. mitis* Hort., *Stauracanthus aphylUnus* Link, is a leafless shrub, with the habit of *U. lex*; a native of Portugal in sandy pine woods; and differing from *U. lex* nana chiefly in the spines branching into two small ones at the sides. It was introduced in 1823; and grows to the height of 1 ft. to 2 ft. It is rather tender in the climate of London, but sometimes stands the winter among rockwork.

**Genus V.**

**SPARTIUM Dec. The Spartium, or Spanish Broom.** *Lin. Syst.*

**Monadelphus Decandria.**

**1. S. Ju'nceum L.** The Rush-like Spartium, or Spanish Broom.


**Synonymes.** Spartium Link Exus.; Genista sp. Lam. and Mench.; Spartium Ital.

**Derivation.** From sparson, cordage; in allusion to the use of the plant in early ages generally, and in Spain, even to the present day, for making ropes.

**Gen. Char., &C.** Calyx membranous, spathaceous, cleft above, 5-toothed at the apex, somewhat labiate. Corolla with a roundish complicated vexillum, and an acuminate keel. Petals a little agglutinated, but partable. Stamens monadelphous. Legume compressed, many-seeded, glandless. *(Don's Mill.)*

**Leaves** simple, alternate, ex stipulate, caducous; lanceolate. Flowers in terminal racemes, large, distant, and yellow. — A shrub, a native of Spain and Portugal.

**Spec. Char., &C.** Branches upright, round, of a deep green color, smooth, and with but few leaves, which are lanceolate, and soon drop off. An upright shrub, evergreen from the colour of its numerous shoots. Spain, Portugal, and the South of France, in gravelly soils. Height 5 ft. to 8 ft.; in British gardens 8 ft. to 12 ft. Introduced in 1548. Flowers dark yellow, large; July to September. Pods brown; ripe in October. Naked young wood smooth and dark green.

**Varieties.**

a. S. j. 2 *odoratissimum* (S. odoratissimum D. Don Brit. Fl. Gard. 2, st. 390.; S. acutifolium Lindll. Bot. Reg.; and our fig. 304.) has the flowers sweet-scented, and the leaves more acute than those of the species. Raised from Turkish seeds.

b. S. j. 3 *fibra pilosa* has double flowers.
In Italy and the South of France a very good cloth is manufactured from the fibres of this plant. Both in Spain and France, the shoots are used for forming baskets, and for tying up vines and other fruit trees. The bees are said to be very fond of the flowers; and the seeds are eaten with great avidity by poultry, partridges, &c. Medicinally, the flowers and leaves, in infusion, act as an emetic, or, in a larger quantity, as an aperient. In Britain, the plant is solely regarded as an ornamental shrub. Seeds are produced in abundance, and they will come up in any soil that is tolerably dry. In the nursery, they ought to be transplanted every year, as they are apt to form long taproots and very few fibres.

**Genus VI.**


**Gen. Char.** Calyx bilabiate, upper lip bipartite, lower one tridentate, or 5-lobed, the three lower lobes nearly joined to the apex. Vexillum oblong-oval. Carina oblong, straight, not always containing the stamens and pistils. Stamens monadelphous. **Legume** compressed, many-seeded. (*Don's Mill.*)

Leaves simple or compound, alternate, rarely opposite, stipulate, deciduous or sub-evergreen; lanceolate, linear, or trifoliolate. Flowers terminal or axillary, yellow.

The hardy species are deciduous or sub-evergreen shrubs, generally with trifoliolate leaves and yellow flowers; there is a great sameness of character among them, and, though many are quite distinct, yet it is highly probable that the greater number now recorded as species are only varieties. They are chiefly natives of Europe; but a few are found in the North of Africa. As they grow rapidly, and flower freely, especially on soils not wet at bottom, they are desirable plants for newly formed shrubberies, but in general they are not of long duration. A number of the species were formerly included under the genus Spártium and some under Cytisus, from which they have been separated by Lamarck, whose arrangement, as modified by De Candolle, we have adopted in the following enumeration.

§ 1. Unarmed. Leaves all, or for the most part, trifoliolate.

1. **G. parviflo'ra Dec.** The small-flowered Genista.


*Engravings.* Vent. Hort. Cels., t. 87; and our fig. 506.

*Spec. Char., &c.* Leaf trifoliolate, the petiole very short; and the leaflets usually deciduous, very narrow, glabrous. Flowers in lengthened terminal racemes. Legumes compressed, 1–3-seeded, rather pubescent, being covered with minute closely pressed down, slightly spreading. (*Dec. Prod.*) A deciduous shrub. Levant, near the Gulf of Mundania.
Height 6 ft. to 7 ft. Introduced in 1817. Flowers yellow; May to August. Legume ?. H. S.

2. G. ca'ndicans L. The whitish Genista.
Engravings. Dendr. Brit., t. 86.; and our Fig. 307.

The great advantage of this species is, that it grows rapidly, and flowers freely.

Synonyme. Spartium patesens Cav. Icon. 2. p. 58., exclusive of the synonyme.
Engravings. Cav. Icon., 2. p. 58. t. 176.; and our Fig. 308.

It differs from Cytisus patesens, in the upper lip of the calyx being acutely bipartite; lower lip of three bristles, not with the lips nearly equal and entire.

4. G. tri'questra Ait. The triangular-stemmed Genista.
Synonyme. G. triquetera Linn. &c.
Engravings. Bot. Mag., t. 314.; Dendr. Brit., t. 79.; and our Fig. 309.
Spec. Char., &c. Branches 3-sided, decumbent, the younger ones villose. Leaves trifoliolate, simple about the extremities of the branches; leaflets ovate-lanceolate, villose. Flowers in short terminal racemes. (Dec. Prod.) A trailing shrub, evergreen from the colour of its shoots. Spain, Italy, and France. Height 6 in. Introduced in 1748. Flowers yellow; April to July. Legume ?.

No shrub is more ornamental on rockwork; and, when trained to a stake and allowed to form a head, or grafted standard high on a laburnum, it forms a singular object, and, when in flower, a most magnificent one. It is also an admirable plant for training against a wall, particularly in dry situations, where it is exposed to the sun.

Engravings. Our Fig. . in p .
Spec. Char., &c. Leaf trifoliolate, its petiole short, its leaflets linear-lanceolate,

Variety.

§ 2. Spinae. Leaves all, or some of them, trifoliolate.


Remarkable for having opposite leaves and branches; a character not common among Leguminosae.


Engravings. Mill. Icon., t. 349. f. 1.; Bot. Mag., t. 2969.; and our fig. 311.

Spec. Char., &c. Branches angled, grouped, glabrous. Leaf trifoliolate, almost sessile, opposite, the leaflets somewhat silky. Flowers in terminal heads, 2—4 in a head. Corolla and legume silky. The old branches show a tendency to become spiny. The legumes are oval, short, compressed, pointed with the style, and include two seeds. (Dec. Prod.) A low shrub, of short duration, evergreen from the colour of its young shoots. Italy, Carniola, and the Vallais. Height 2 ft. to 4 ft. Introduced in 1758. Flowers yellow; June and July. Legume ?.

Variety.

4. *G. (L.) umbelláta*, *G. umbelláta* Poir., Spártium umbelláta Desf., appears, from a plant that was in the Hort. Soc. Garden in 1837, to belong to this species.

Differing from *G. lusitanica* principally in being without spines, and having its leaves somewhat longer. Both *G. radia'ta* and *G. lusitanica* have a very singular appearance when without their leaves; and, in that point of view, they may be considered as almost as interesting in winter as they are in summer.


Spec. Char., &c. Leaves some trifoliolate, some simple, few sessile; leaflets linear, almost glabrous. Branches rigid, round, becoming striated and spiny. Flowers in spikes, alternate, yellow. Calyx somewhat pubescent. (Dec. Prod.) A shrub,
evergreen from the colour of its young slender shoots. Sardinia. Height 2 ft.; in British gardens 4 ft. Introduced in 1832. Flowers small, yellow; June to September. Legume?.

The whole plant is glabrous, and resembles in appearance Ephedra distachya. Cuttings strike readily.


**Synonyme.** G. rostrata Poir. Suppl. 2. p. 719.

**Engravings.** Brot. Phyt., t. 54.; and our fig. 313.

**Spec. Char., &c.** Leaves sessile, trifoliolate and simple, glabrous. Leaflets linear-lanceolate. Branchlets spiny, branched. Flowers in terminal racemes, few in a raceme. Calyx, corolla, and legume glabrous; legume 1-seeded. The spines are simple, trifid, or branched. (Dec. Prod.) A deciduous undershrub. Portugal, on mountains and in woods. Height 2 ft. to 3 ft. Introduced in 1821. Flowers yellow; May to July. Legume?.

**Variety.**

\[G. t. 2 interrupta Dec., Spartium interruptum Cav. Annal., 1801, vol. iv. p. 58., has linear leaflets, and branches usually simple, and shorter than those of the species. It is found wild about Tangier.\]


**Engravings.** Gilib. Bot. Prat., 2. p. 239. leon.; and our fig. 314.

**Spec. Char., &c.** Branches grouped, angled, spiny, opposite. Leaves trifoliolate, opposite; the leaflets linear, folded, somewhat silky. Flowers few, almost terminal. Calyx pubescent. (Dec. Prod.) A native of the Pyrenees. Height 4 ft. Introduced in 1821. Flowers yellow; May and June. Legume?.

\[6. 3. Spinose. Leaves all simple.\]


**Synonyme.** G. hispanica Jacq. Icon. Rar. t. 557.

**Engravings.** Jacq. leon. Rar., t. 557.; and our fig. 315.


**Engravings.** Denf Brit., t. 78.; and our fig. 316.


Spec. Char., &c. Spiny, except in the flower-bearing branches; spines simple or branched. Leaves simple, lanceolate, slightly hairy. Flowers somewhat villose, in terminal racemes. Keel longer than the standard and wings. Legume ovate, slightly hairy, including many seeds. (Dec. Prod.) A prostrate deciduous shrub, with woody stems. Native of the Middle and North of Europe; and frequent in Britain, on moist, boggy, heathy commons. Height 1 ft. Flowers yellow; May and June. Legume brown; ripe in August.

Cultivated in collections, where it forms a spiny bush about 2 ft. in height.

Variety.

G. g. 2. *inermis* Dec. is almost without spines.

§ 4. Unarmed. Leaves all simple.


**Synonyme.** Spä'tium purgans Lin. Syst. 474.

**Engravings.** Bot. Cab., 117.; and our fig. 320.


17. G. *ser'icea* Wulf. The silky Genista.


**Engravings.** Jacq. Icon. Rar., 3. t. 556.; and our fig. 321.

**Spec. Char., &c.** Decumbent, with upright round branches. Leaves simple, linear-lanceolate, silky beneath. Flowers terminal, 3 or 4 together, in a sort of raceme. Petals silky, nearly equal. Lobes of the calyx oblong-acuminate; the floral leaves equalling the calyx in length. (*Dec. Prod.*) A decumbent shrub. Height 6 in. Austria and Croatia, in subalpine places near the shore. Introduced in 1812. Flowers yellow; May and June. Legume brown; ripe August.


**Synonyme.** Spä'tium aphyllum Lin. FIL. Suppl. 320.; G. virgata Lam. Dict. 2. p. 616.

**Engravings.** Pall. Flm. ed. Gall. Append., No. 357. t. 99. f. 2.; and our fig. 322.

**Spec. Char., &c.** Branched, upright. Leaves simple, very few, linear, very short. Flowers disposed distantly, in lengthened terminal racemes. Legumes compressed, including 2 seeds; when young, tomentose; when adult, glabrous. (*Dec. Prod.*) Height 3 ft. to 4 ft. in British gardens. Found in Siberia, in deserts, about the Volga. Introd. 1500. Flowers violaceous; June and July. Legume brown; ripe in September.


**Engravings.** Bot. Mag., t. 683.; and our fig. 323.

**Spec. Char., &c.** Branched, upright. Leaves simple, very few, linear-oblong, adpressedly pubescent. Flowers in lateral racemes, few in a raceme. Petals silky, almost equal. Legumes ovate, inflated, membranaceous, glabrous, including 1—2 seeds. (*Dec. Prod.*) An erect shrub, with numerous slender, twiggy, flexible
branches. On the Mediterranean shores, where, in many places, it serves to retain and consolidate the drifting sand. Height 2 ft. to 4 ft. Introduced in 1670. Flowers white; June and July. Legume brown; ripe in September.

The leaves and young branches are, in these countries, eaten by sheep and goats; and the twigs are used for tying vines to stakes, or tying up faggots; and they are also twisted into ropes.


Synonyme. Sphäroidichneum Linn. Mant. 571.

Engravings. Chas. Hist., 1. p. 102. & 3.; and our fig. 324.


Engravings. Bot. Mag., t. 2674.; and our fig. 325.


Resembles the preceding species, except that the flowers are twice the size.


Synonyme. *A. anxantica* Tenore.

long as the calyx; and about 8 lines long. Legume containing 8—10 seeds. (Dec. Prod.) A diffuse shrub. Naples. Height 3 ft. to 4 ft. Introduced in 1818. Flowers yellow; June and July. Legume brown; ripe in September.

**Variety.**

*G. a. 2 scariòsa.* G. scariòsa *Vin.* (Frag. Fl. Ital. 1. t. 8.; and our fig. 328.) — An upright shrub, closely resembling the species. Introduced in 1821, and flowering in the Hort. Soc. Garden in June and July. It deserves a place in collections.

23. **G. tinctoria L.** The Dyer's Broom, or Green Weed.


**Synonymes.** G. italica *Lod. Cat.*; Base Broom, Green Wood, Dyer's Weed, and Wood-waxen; *Genêt des Peinturiers,* *Genêt de Siberie,* Fr.; fürbinder *Ginster,* Ger.; *Baccellina Ital.*

**Engravings.** Eng. Bot., t. 44.; and our fig. 329.


**Varieties.**

*G. t. 2 flòre plèno.* — There are plants in the Epsom Nursery and the Hort. Soc. Garden.

*G. t. 3 latifòlia Dec.* — Leaves broadly lanceolate. A native of Auvergne, on the Mont d'Or.


*G. t. 5 pratênsis Poll.* — Leaves oblong-lanceolate, rather hairy. Branches ascending. Inhabits the mountainous parts of Upper Italy.

It is very common in pastures, in many places, both in England and Scotland; but, when cows feed on it, it is said by Ray to give a bitter taste to their milk. All parts of this plant, and especially the branches and leaves, have long been used by dyers for producing yellow, especially for dyeing wool that is afterwards to be dyed green with woad (*Isatis tinctoria L.*). The plant is not, now in cultivation for this purpose; but, in Norfolk and Suffolk, it is still collected in quantities from sandy wastes and commons, and sold to the dyers.

*G. (t.) sibêrica L.* The Siberian Genista.


**Synonymes.** Genistâbies elata *Mench Meth.* 132.; *Genista tinctoria var. N. Du Ham.*

**Engravings.** Jac. Hort. Vind., t. 190.; and our fig. 330.

**Spec. Char., &c.** Stems erect; and the whole plant more slender and taller than *G. tinctoria,* of which it is evidently only a variety. An erect shrub. Siberia. Height 6 ft. Introduced in 1785. Flowers yellow; June to August. Legume brown; ripe in September.


**Synonyme.** *G. nervata* Kit. in Lütk. Engravings. Waldst. et Kit. Hung., 1. t. 84.; Deod. Brit., t. 77.; and our fig. 331.

**Spec. Char., &c.** Stems numerous, hairy, erectish, somewhat herbaceous, striated, terete. Leaves ovate, or ovate-oblong, and are, as well as the legumes, hairy. Racemes short. Corolla smooth. (*Don's Mill.*) A shrub. Slovakia and Hungary; and on the hills of Italy, from Piedmont to Naples. Height 2 ft. to 4 ft. Introduced in 1819. Flowers yellow; June to August. Legume brown; ripe in September.


**Synonyme.** *G. triqueta* Waldst. et Kit. Hung. 2. p. 165. t. 183., but not of Alton.

**Engravings.** Waldst. et Kit. Hung., 2. t. 183.; and our fig. 332.


Closely resembling *G. triqueta*, of which, notwithstanding its simple leaves, it may possibly be only a variety; the change not being greater than what takes place in *Fraxinus excelsior simplicifolia.

27. *G. sagitta'lis* L. The arrow-jointed Genista.


**Engravings.** Jacq. Fl. Aust., t. 209.; Hayne Abbild., t. 117.; and our fig. 333.


**Variety.** *G. s. 2 minor* Dec. — A small shrub, having the branches clothed with adpressed pubescence at the apex, as well as the leaves.

For practical purposes, this may be considered as a herbaceous plant. It is a very distinct, ornamental, and hardy sort; growing and flowering freely.
28. **G. diffusa Willd.** The diffuse Genista.


**Engravings.** Jacq. Icon. Rar., t. 555.; and our fig. 334.


29. **G. prostrata Lam.** The prostrate Genista.


30. **G. procumbens Waldst. et Kit.** The procumbent Genista.


**Engravings.** Bot. Reg., t. 1150.; and our fig. 337.


Most likely only a variety of the preceding species.

31. **G. pilosa Lin.** The hairy Genista.


**Synonymes.** *G. repens* Lam. Fl. Fr.; Genistöldes tuberculata Munch Meth.

**Engravings.** Jacq. Fl. Austr., t. 528.; Hayne Abbild., t. 120.; and our fig. 338.

**Spec. Char., &c.** Stems procumbent, striated, branched, tuberculated. Leaves obovate-lanceolate, obtuse, folded, and having beneath a close-pressed silky
down. Flowers axillary, on short pedicels. Calyx and pedicels silky. Legumes pubescent, and 3—4-seeded. (Dec. Prod.) A procumbent shrub. South of France, Switzerland, Germany, &c.; and Britain, on dry elevated downs or heaths, in Suffolk, Cornwall, and North Wales. Height 1 ft. Flowers yellow; May and June. Legume brown; ripe in Sept.

The specific name, pilosa, is certainly not very appropriate, for there are other species, such as G. candidans, much more hairy.

Other Species of Genista.—G. spinosa, in the Hort. Soc. Garden, is a young plant with trifoliolate leaves, and the side shoots terminating in spines. There are various other names in collections, and a great many in books; but the whole genus is in such a state of confusion, that nothing can be determined with certainty respecting the species, till they are all collected together and cultivated in the same garden and examined.

Genus VII.

|-------------|------------------------------------------------|


**Synonymes.** Cytisus and Sparrtium sp. Lin., Lam. &c.; Cytis, Fr.; Bohnenb., Ger.; Citis, Ital.

**Derivation.** From Cytisus, one of the Cyclades, the first of the species known having been found there.

**Gen Char.** Calyx bilabiate. **Upper Lip** usually entire; lower one somewhat tridentate. **Calyx ovate,** large. **Carina** very obtuse, including the stamens and pistils. **Stamens** monadelphous. **Legume** compressed, many-seeded, glandless. (Don's Mill.)

**Leaves** trifoliolate, alternate, stipulate. **Flowers** of nearly all the species yellow.—Deciduous or sub-evergreen shrubs of short duration, or low trees; natives chiefly of the Middle and South of Europe.

All the species have trifoliolate leaves, and the flowers are for the most part yellow. The shrubs have the habit of Genista or of Sparrtium, to both which genera they are nearly allied. They are all ornamental, some of them eminently so; and those which have their flowers in terminal racemes are decidedly more elegant than those which have them in close terminal, or in axillary heads. The wood of the laburnum is valuable in turnery and cabinet-work. All the species produce seeds in abundance, by which they are almost exclusively propagated. The species recorded in books are numerous; but, if they were all brought together, and cultivated in the same garden, we question much if a tithe of them would be found specifically distinct.

§ 1. Albuniödes Dec.

**Derivation.** From the word album, signifying the white inner sap-wood of trees; and applied to this section from the flowers of the species being white.


§ 1. C. A'bus Link. The white Cytisus, or Portugal Broom.


**Engravings.** N. Da Ham., 2 t. 23.; and our fig. 339.

A very handsome shrub, more especially when covered with its white flowers in May, and when surrounded by hundreds of bees, busily occupied in extracting the honey. In good soil, it is of very rapid growth, attaining the height of 5 or 6 feet in 3 or 4 years; and, in 6 or 8 years, growing as high as 15 or even 20 feet, if in a sheltered situation. Placed by itself on a lawn, it forms a singularly ornamental plant, even when not in flower, by the varied disposition and tufting of its twiggy thread-like branches. When in flower, it is one of the finest ornaments of the garden. Trained to a single stem, its effect is increased; and, grafted on the laburnum, a common practice about Paris, it forms a very remarkable combination of beauty and singularity. Plants are easily raised from seeds.

Variety.

2. C. a. 2 incarnatus has flesh-coloured flowers, or flowers very slightly tinged with reddish purple. This variety was introduced in 1818; and reproduces itself from seeds, but it varies much in the quantity of colour in the flowers.

§ ii. Laburnum Dec.

Derivation. A name applied by Pliny to some species of Cytisus.


† 2. C. Labu'rnun L. The common Laburnum.

245. Cytisus Laburnum.

Synonyms. C. alpinus Lam. Fl. Fr., p. 621; Bean-trefoil, Tree, and Peascod Tree, Gerard; Pea Tree, Scotch; Golden Chain; l'Aubours, faus E'bénier, Arbois, or Arc-Bois, Fr.; gemellna Bohnenbaum, Ger.; Aborniello, ItaL

Derivation. The name of L'Aubours, which is given to this tree in Dauphiné and Switzerland, is supposed by Du Hamel to be a corruption of the Latin word laburnum. The word Arbois is a corruption of arc-bois, the wood of this tree having been used by the ancient Gauls to make their bows; and being still so employed by the country people, in some parts of the Maconnais, where these bows are found to preserve their strength and elasticity during half a century. The name of Faux E'bénier is applied to the wood, from the blackness of its heart-wood. The German name signifies Bean Tree; and both it and the English and Scotch names of Bean-trefoil and Peascod Tree have reference to the shape of the leaves and the legumes. The name of Golden Chain alludes to the length of the drooping racemes of flowers, which, as Cowper elegantly describes them, are "rich in streaming gold."


Varieties.

Ŷ C. L. 2 pêndulum Hort. has slender pendulous branches.

Ŵ C. L. 3 quercifolium Hort., C. L. 2 incisum, has sinuated leaflets, not unlike the leaves of the common oak. (See the plate of this variety in Arb. Brit., 1st edit., vol. v.; and our fig. 341.)

Ŵ C. L. 4 fôlius variegâtis has variegated leaves; but it is a plant of no beauty, and rarely seen in collections.

Ŵ C. L. 5 fraîgrans Hort. — Flowers fragrant. Wherever a number of laburnums are found in flower together, whether of this or the other species, the scent of the blossoms will be found to differ very considerably, and occasionally one may be found which may be termed fragrant; hence the origin of this variety.

Ŵ 3. C. (L.) alpi'nus Mill. The Alpine, or Scotch, Laburnum.


Synonyms. C. Laburnum & At., Lam., Dec., Fl. Fr.; Cytisus angustifolius Marnch Meth. 145.; P 4
C. Laburnum var. latifolium Pers. and Du Mont; Cytise des Alpes, l'Aubours, Fr.; Alpen Bohnenbaum, Ger.; Maggio Cloudblo, Ital.


342. Cytisus (Laburnum) alpinus.

Spec. Char., &c. Branches glabrous and terete. Leaves petiolar; leaflets ovate-lanceolate, rounded at the base. Racemes pendulous. Pedicels and calyces puberulous. Legumes glabrous, few-seeded, niarginate. (Don's Mill.) A deciduous low tree. Found in Carinthia, in the Alps of Jura, on Mount Cenis, and on the Apennines. According to some, it is also found wild in Scotland; but, though it is much cultivated in some parts of Fifeshire and Forfarshire, it is far from being indigenous there. Height 20 ft. to 30 ft., sometimes much higher in a state of cultivation. It was introduced into Britain about the same time as the other species, viz. 1596; and was, probably, for a long time confounded with it; for which reason we shall treat of the two species, or races, together. Flowers yellow; May and June. Legume brown; ripe in October.

Varieties.

* C. (L.) a. 2 pendulus has pendulous branches, and, in the foliage and legumes, seems intermediate between C. Laburnum and C. (L.) alpinus. This is very obvious in a fine specimen of this variety in the arboretum of the Messrs. Loddiges, as shown in the plate in Arb. Brit., 1st edit., vol. v. The pendulous variety of C. Laburnum is a much less robust plant.

* C. (L.) a. 3 purpureus Hort., C. L. purpureum Hort., C. Adami Poir., C. L. coccineum Baum. Cat., the purple Laburnum, the scarlet Laburnum, is not a hybrid between C. Laburnum and C. purpureus, as was at first supposed, but a sport from a bud of Cytisus purpureus inserted in C. alpinus, in 1825, by D. Adam, a nurseryman at Vitry, near Paris. The flowers are of a reddish purple, slightly tinged with buff, and are produced in pendent spikes, 8 in. or more long. A few years after this sport was originated, it was found that it had a strong tendency to return to the original kinds; and that from one bud or graft, branches were produced of the true Cytisus purpureus, of the true Laburnum (either the Alpine or the common.
according to which of these may have been chosen as the stock) with yellow flowers, and of the purple laburnum. This was soon observed both in France and England. (See Gard. Mag., vol. xii, p. 223; vol. xv. p. 125; and Arb. Brit., 1st edit., p. 590.) It is a very vigorous, and somewhat erect and fastigate, growing variety, having produced shoots from 6 ft. to 9 ft. long in one season; but, though it has been highly spoken of by some cultivators, in point of beauty, it cannot be recommended.

*C. (L.) a. 4 frangrans Hort.—Blossoms fragrant. There are plants in the Hackney Arboretum.

Miller recognised *C. Laburnum* and *C. alpinus* as species; but Linnaeus did not. Whether they are species or varieties, they are certainly very distinct; as much so, perhaps, as the Quercus Robur pedunculatum, and *Q. R. sessiliflorum*, and like these two oaks they come true from seed. Both sorts, being highly ornamental, have been extensively propagated and cultivated in British gardens and plantations. There are trees at Syon of *C. alpinus* above 40 ft. high, and some at Alnwick Castle with trunks 3 ft. in diameter. The heart-wood of the laburnum is of a dark colour; and, though of rather a coarse grain, it is very hard and durable: it will take a polish, and may be made to resemble ebony. A cubic foot weighs 52 lb. 11 oz. in a dried state. The colour and grain of the heart-wood vary much, according to the soil, and the age of the tree. It is darkest in the *C. Laburnum*, when grown on poor calcareous soil; and lightest in the *C. (L.) alpinus*, when grown in deep rich soil: in which last case its colour is a sort of greenish black. It is in much demand among turners and cabinet-makers. The ordinary use of the wood in the North of Scotland, is to form alternate staves with the wood of the holly, or the spindle tree, in making small noggins, or bickers; but it is also used for the bowls of punch-ladles; for flutes, and other musical instruments. Hares and rabbits being remarkably fond of the bark of the laburnum, it has been suggested to sow laburnum seeds, in order to produce an undergrowth in plantations liable to be infested with these animals; for, though the plants are eaten to the ground every winter, yet they will spring up again the next season, and thus yield a regular supply of winter's food for these kinds of game. As an ornamental tree, the laburnum has few rivals. The shape of the head is irregular and picturesque; its foliage is of a smooth, shining, and beautiful green; and, what is a great recommendation to every ornamental plant, it is not liable to be preyed on by insects. Though the laburnum will grow in a very indifferent soil, it requires a deep fertile sandy loam to attain a large size. In regard to situation, as the tree puts out few horizontal roots, and has rather a spreading head, when it grows rapidly it is apt to be blown aside by high winds; but, for the same reason, it is less injurious to plants growing near it, than some other ornamental trees. For producing timber, it should be placed in masses in a sheltered situation, or in a plantation among other trees, so as to be drawn up with a clear straight stem; and when so circumstanced, in good soil, *C. (L.) alpinus* will grow to the height of from 35 ft. to 45 ft. Both *C. Laburnum* and *C. (L.) alpinus* are invariably raised from seed, and the pendulous and other varieties are propagated by grafting or budding on either of the common sorts. The seeds are fit to gather in October; and they may be kept in the pod, in a dry airy loft, till the March following, when they should be sown in beds of light soil, at about an inch apart every way, and covered about half an inch or three quarters of an inch thick. Half the plants which come up will be fit for transplanting into nursery lines in the November following.

4. **C. Weldenii** Vis. Welden's Cytisus.


*Engraving.* Our fig. 343. from a drawing kindly sent us by the late Baron Jacquin.

*Spec. Char., &c.* Erect. Leaves ternate, petiolate; leaflets elliptic, entire, cu-
neated at the base, and obtuse at the apex, smooth. Racemes terminal, stalked, pyramidal, straight; pedicels hoary and villous. Calyces campanulate, 3-lobed; lobes tomentosely ciliated. Corolla glabrous, but the carina is clothed with silky villi. Legume glabrous, mucronate by the style. (Don's Mill.) An erect woody shrub, resembling a laburnum. Dalmatia, in woods on mountains. Height 2 ft. to 3 ft.; 6 ft. to 8 ft. in gardens. Introduced in 1837. Flowers yellow, fragrant; June and July. Legumes brown; ripe in October.

The racemes are erect, and do not droop even when in fruit. The seeds are still more poisonous than those of the common laburnum, and the scent of the flowers causes headache. The milk of the goats which feed upon the flowers, Baron Welden observes, produces the same effect, only more severely, upon those who drink it.

II. 5. *Cytisus nigricans* L. The black Cytisus.


*Spec. Char., &c.* Branches round, twiggy. Leaves stalked, and clothed with closely pressed down beneath, as well as the branches, calyces, and pods; leaflets elliptic. Racemes elongated, terminal, erect. Calyces without bracteas. (Dec. Prod.) A handsome deciduous shrub. Piedmont, Vailais, and Bohemia. On hills and along waysides. Height 3 ft. to 6 ft. Introduced in 1730. Flowers yellow; June and July. Legume black; ripe in October. The whole plant turns black when drying; whence the specific name.

It ripens seed in abundance; and it may also be propagated by grafting on *C. Laburnum*, thus forming a handsome standard.


*Engravings.* Lam. Ill., t. 618. f. 2.; Bot. Mag., t. 255.; and our figs. 345. and 346.


In very general cultivation in British gardens, generally as a bush, but some-
times grafted standard high on the laburnum; when it forms a very formal, symmetrical, round-headed, small tree, which, however, is highly beautiful when in flower. We have given two figures of this species, both drawn to the same scale, to show how much it varies in the magnitude and general appearance of its foliage, according to soil and situation. Plants grafted standard high are common in the London nurseries.

7. C. triflorus L'Hérit. The three-flowered Cytisus.


**Engravings.** Clus. Hist, 1. p. 94. f. 3.; Duh., t. 5. f. 492.; our fig. 347.


Frequent in gardens, sometimes grafted standard high; but neither as a standard nor as a dwarf is it of great duration. It should be planted in an airy situation.

8. C. patens L. The spreading Cytisus.


**Engravings.** Our fig. 348.

**Spec Char., &c.** Branches striated and pubescent. Leaves trifoliolate, petiolate; the upper ones simple, and obovate, as are the leaflets; covered with closely pressed down. Flowers axillary, usually in pairs, pedicellate, nodding. Pods very hairy. (Dec. Prod.) A spreading shrub. Native of Portugal. Height 4 ft. to 6 ft. Introduced in 1752. Flowers yellow; June and July. Legume brown or black; ripe in October.

A very handsome shrub, especially when grafted standard high, not so common in collections as it ought to be.

9. C. scoparius Link. The common Broom.


**Spec Char., &c.** Branches angled, glabrous. Leaves petiolated, trifoliolate; the uppermost simple; these and the leaflets oblong. Flowers axillary, pedicellate, solitary. Legumes pilose at the margins. (Dec. Prod.) A shrub, evergreen from the colour of its numerous young shoots. Native of dry sandy or gravelly soils, throughout Europe. Height 3 ft. to 12 ft. according.
to the soil and situation. Flowers large, yellow; May and June. Legume black; ripe in September. Naked young wood green.

Varieties.

C. s. 2 albus Hort. has the flowers white, or of a very pale yellow.
C. s. 3 flore pleno Hort. has flowers slightly double.

The roots are straight, and penetrate perpendicularly to a great depth. The leaves are trifoliolate or simple; the branches numerous, long, straight, angular, dark green, smooth, and tough. The flowers are of a deep golden yellow, sometimes tinged with orange, and occasionally of a uniform pale lemon colour: they are succeeded by pods above an inch long, black when ripe, and each containing 15 or 16 seeds. The flowers are larger than those of any other species of the genus; and, were the plant not so common in a wild state, it would, doubtless, be considered the most ornamental. The whole plant is exceedingly tough, and bitter to the taste, and has a strong disagreeable smell. Though it is at present comparatively neglected, yet in former times it was one of very great importance in rural and domestic economy. The branches are eaten by sheep and cattle; and, on poor gravelly soils, formed, before the general improvement of grass lands which has taken place within the last century, the principal herbage. One of the principal modern uses of the broom, both in Britain and on the Continent, is to form brooms, or besoms; for which purpose, as the specific name would imply, it appears to have been used from time immemorial. The young shoots were formerly used as a substitute for hops in brewing beer; and the flower-buds, just before they become yellow, were pickled in the manner of capers. The tops and leaves are purgative and diuretic. In the North of Scotland, a decoction of the recent shoots is used by shepherds, for dressing the backs of sheep, instead of tobacco water. The broom produces abundance of seeds, which, according to M. Hartig, retain their germinating quality for a very long time: some that he kept 25 years, in a room which was occupied, having come up as readily as new seed.

§ iii. Calycatóme Link.

Derivation. From kalix, a calyx, and tome, a cutting; in reference to the calyx, the upper part of which, after some time, falls off, in such a manner as to give the remainder the appearance of being cut round.


10. C. spinosus Lam. The spiny Cytisus.


There are plants in the Hort. Soc. Garden.

Identification. Iter Hispan., p. 51.; Otiia Hispan., p. 3.

Engravings. Otiia Hispan., t. 3. and our fig. 351.

Spec. Char., &c. Decumbent. Branches tetragonal, divaricate, rigid, obtuse. Leaves trifoliolate, verticillately sub-opposite; leaflets ovate-elliptic, slightly obtuse at the apex, retuse, with ash-coloured silky down, petiolulate. Common petiole none, or cohering with the branch. Flowers axillary, clustered, pedunculate. Calyx bilabiate, hairy; upper lip cut to the middle in narrow acute segments; lower lip longer, narrow, 3-toothed; middle tooth longest, supported at the base by three ovate closely pressed bracts. (Webb, Otiia Hisp.) A decumbent shrub, evergreen from the colour of its bark. Spain near Medina Sidonia, on the summits of mountains. Height 1 ft. to 3 ft. Introduced in 1838. Flowers yellow; May. Legume ?.


Engravings. Our fig. 352. from a specimen in the British Museum.


Variety.

C. l. 2 rigidus Dec.—Spines very strong.

Not common in collections, and in all probability it is nothing more than a variety of the preceding species.

§ iv. Tubocytisus Dec.

Derivation. From tubus, a tube, and cytisus; in reference to the tubular shape of the calyx.


A. Flowers white or whitish.

13. C. leuca'nthus Waldst. et Kit. The white-flowered Cytisus.


Engravings. Bot. Mag., t. 1438.; and our fig. 353.

Very ornamental, and well deserving a place among other species of the genus. It forms a handsome object grafted standard high.

B. Flowers purple.


**Varieties.**

\[\times C. p. 2 flos albo Hort.\] has the flowers of a pure white.


Of all the different species of Cytisus, when grafted on the laburnum standard high, this forms the most graceful tree; and a plant of it covered with its purple flowers, placed on a lawn, or in a border near a standard of Genista triqueta, covered with its golden yellow flowers, will produce a very striking effect. The singular hybrid or sport formed between this plant and the laburnum has been already described, p. 216.

C. Flowers yellow.

\[15. C. elongatus Waldst. et Kit.\] The elongated Cytisus.


*Engravings.* Waldst. et Kit. Hung., t. 183; and our fig. 356.


In H. S. Garden, and at Messrs. Loddiges's.

\[16. C. multiflorus Lindl.\] The many-flowered Cytisus.


*Engravings.* Lindl. Bot. Reg., t. 1191; and our fig. 357.

**Spec. Char., &c.** Stems erect. Branches elongated, terete, younger ones villous. Leaflets oblong, tapering to the base, villous beneath, and of the same colour on both surfaces. Flowers usually ternary. Pedicles about equal in length to the petioles.
Vexillum emarginate, undulated. (Don's Mill.) A downy shrub. Native of Europe. Height 2 ft. to 3 ft. Introduced in 1800. Flowers yellow; May and June. Legume black; ripe in September.

It appears to us to be only a variety of the preceding species.

17. C. falcatus Waldst. et Kit. The sickle-like-podded Cytisus.


Spec. Char., &c. Stems decline. Branches round and twiggy; the young ones, as well as the leaves, clothed with closely pressed hairy down. Petioles hairy. Flowers usually in threes, lateral, and on short peduncles. Calyces clothed with closely pressed hairs. (Dec. Prod.) A downy shrub. Native of Croatia, the South of Russia, and Gallicia. Height 2 ft. to 4 ft. Introduced 1816. Flowers yellow; June to August. Legume black; ripe in October.

Varieties. C. triflorus Lod., C. ruthénicus Lod., C. decumbens Lod., are apparently all varieties of this species.

18. C. austriacus L. The Austrian Cytisus.


Engravings. Mill. Icon., 117. f. 2.; Fall. Hist., ed. Gal., t. 100. f. 3.; Jacq. Austr., t. 21.; and our fig. 358. above.


Variety.

C. a. 2 nova Lod. has the leaves much smaller than the species, and seems to be an erect, and very distinct variety.


(Dec. Prod.) A decumbent hairy shrub. Native of Belgium, Austria, Pannonia, Siberia, Turkey, and Dauphiné, both on exposed hills, and in sheltered bushy places. Height 1 ft. Introduced in 1755. Flowers pale yellow, with the standard reddish; May to August. Legume dark brown, or black; ripe in November.

20. C. hirsutus L. The hairy Cytisus.


Spec. Char., &c. Stems and branches erect, the latter hispid. Leaflets ovate-elliptic, hairy. Flowers numerous, and forming heads at the points of the branches; but sometimes lateral in the autumn. Calyces and pods covered with short hairs. (Dec. Prod.) An upright hoary shrub. Found wild on the edges of woods in Burgundy, Italy, and Austria. Height 2 ft. to 4 ft. Introduced in 1774. Flowers yellow; June and July. Legume dark brown, or black; ripe in October.

Varieties or Synonyms. Cytisus australiacus Lod., C. canescens Fisch. of Get., C. uralensis Lod., C. calycinus Lod., C. parvifolius Lod., C. hirsutus Lod., C. supinus Lod., appear to be all varieties of C. capitatus, or in some cases, perhaps, identical with that species.

22. C. ciliatus Wahlenb. The ciliated-podded Cytisus.


23. C. poly'trichus Bieb. The many-haired Cytisus.


§ v. Lotôides Dec.

**Derivation.** From lotos, the lotus, and eidos, appearance; from the general resemblance of the species to the genus Lotus.

**Spec. Char., &c.** Tube of the calyx short, obconical; the upper lip 2-parted, the lower 3-toothed. Corolla hardly longer than the calyx. Many-stemmed deciduous, with few flowers, generally capitate and terminal, and all yellow. (Dec. Prod.)


**Synonyme.** Lotus argenteus BroU. Fl. Lus. 2. p. 119.

**Engravings.** Lob. Icon., 2. p. 41. t. 2.; and our fig. 362.


A silvery-looking shrub, from the prevalence of closely pressed silky down over all its parts; noticed in the specific character, and whence it derives its specific name.

*25. C. calycinus Bieb.* The large-calyxed Cytisus.


**Synonyme.** C. pauciflorus Willd. Sp. 3. p. 1126.

**Engravings.** Lod. Bot. Cab., t. 673.; and our fig. 363.

**Spec. Char., &c.** Stems ascending. Leaves, calyces, and pods somewhat hairy from spreading down. Leaves trifoliolate and petiolate. Leaflets roundish, obovate. Flowers terminal, from 2 to 8 together. (Dec. Prod.) A prostrate shrub, with trailing branches, the ends of which grow upright. Found in stony places on Mount Caucasus. Height 1 ft. Introduced in 1820. Flowers yellow; August. Legume black; ripe in October.


**Engravings.** Wats. Dend. Brit., t. 81.; and our fig. 364.

**Spec. Char., &c.** Stems cylindrical. Leaves trifoliolate, obovate, clothed with strigose pubescence beneath, and smooth above. Raceme terminal, secund, usually 4-flowered. Calyx deeply 3-parted; hairs on the stems and peduncles adpressed. (Don's Mill.) A prostrate shrub. Native of the Levant. Height 1 ft. Introduced in 1816. Flowers yellow; June and July. Legume black; ripe in October.

This is a beautiful little shrub for rockwork; and if planted in dry sandy soil, covered with broad flat stones to retain the moisture during the hot weather of July, it will continue flowering during the whole of that month, and produce abundance of seeds; which may be sent to any distance in the pods.
§ VI. Chronanthus Dec.

**Derivation.** From **chronos**, a year, and **anthos**, a flower; applied to this section because the petals remain attached to the calyxes all the year.

**Sect. Char.** Calyx with the upper lip bifid, and the lower one trid; lobes acute, of the same length as the tube. Petals permanent. Legume oval, much compressed, 2-seeded. (*Dec. Prod.,* ii. p. 157.)


**Synonyme.** C. orientalis, &c., Gerard and **Vail. Herb.**

**Engravings.** Plak. Phyt., t. 31. t. 8.; and our fig. 365.

**Spec. Char., &c.** Stems erect, hairy. Leaves almost sessile, trifoliolate, hairy; leaflets linear, acute. Flowers large and yellow, subterminal, on short pedicels, and few. The flowers and pods are both glabrous. Calyx hairy, more 5-cleft than bilabiate. (*Dec. Prod.,* ii. p. 157.) An erect hairy shrub. Native of the Levant. Height 2 ft. to 3 ft. Introduced in 1818. Flowers yellow, large and persistent; June and July. Legume black; ripe in October.

**Other Species of Cytisus.**—This genus, in British gardens, is in such a state of confusion, that nothing can be done in it satisfactorily till all the kinds are collected together, and cultivated for two or three years till they show their flowers and fruit. Perhaps two thirds of the alleged species in the London gardens are only varieties. In the mean time, all that a cultivator can do is to procure as many kinds as he can; and in the collection of Messrs. Loddiges he will find the greater number of those above described, though some of them have been killed by the winter of 1837–8. Among the species probably hardly, by far the handsomest in point of foliage is the *C. aulicus* Guss. (*Bot. Reg.* t. 1902.; and our fig. 360.) It is a tall, very hoary shrub. A native of Stromboli. Height 5 ft. to 8 ft. Intro'd. in 1835. Flowers pubescent, yellow, campanulate, and the young legumes glabrous. It has the appearance, Dr. Lindley observes, of being an intermediate species between *C. Laburnum* and *C. triflorus*. (See *Arb. Br.*, 1st ed., p. 2551.) *C. racemosus* Marnock (*Flor. Mag.,* vol. ii. t. 18.; and our fig. 367.) is a handsome shrub, of moderately robust habit; a native of the Peak of Teneriffe. Height 3 ft. to 4 ft. Intro'd. in 1835. The flowers are terminal, in a spike about 6 in. in length, and of a bright yellow. There were plants in the Epsom Nursery in 1835. Many other species of Cytisus are described by authors, for which we refer to *Don's Miller*, Webb's *Iter Hispaniae*, Boissier's *Elenchus Plantarum*, Duby and De Candolle's *Botanicon Gallicum*, and the first edition of this *Arboretum*. Many genera of ligneous plants require to be cultivated together, in the same garden, in order to settle their nomenclature: but while some of these, as Quercus, Pinus, &c., would consume the greater part of a lifetime in procuring them from the different quarters of the world, and waiting till they came into flower, the genera Genista, Cytisus, and Adenocarpus are almost exclusively European, and might be collected in the course of one year; while, in three years after the seeds were sown, the plants would in most cases come into flower. It is surprising, therefore, that some amateur of leisure does not undertake their arrangement.
Genus VIII.


Derivation. From adén, a gland, and karpos, fruit; in reference to the legumes being beset with pedicellate glands.

Gen. Char. Calyx obconical, usually beset with glands, bilabiate; upper lip bi-partite, lower one longer and trifid. Carina obtuse, enclosing the stamens and pistils. Stamens monadelphous. Legume oblong, compressed. (Don's Mill.)

Leaves compound, trifoliolate, alternate, stipulate, deciduous. Flowers yellow in all the species. — Shrubs, straggling, of short duration, somewhat evergreen from the colour of their young shoots; natives chiefly of Europe.

Branches divergent; leaves trifoliolate, with petiolar stipules, and folded leaflets, and usually grouped; flowers upon bracteolate pedicels, and disposed in terminal racemes. Culture as in Cytisus, from which genus most of the species have been separated.


Engravings. Our fig. 368.


Identification. Webb's Iter Hisp., p. 52; Otia Hispan., p. 4.


Engravings. Otia Hispanica, t. 4; and our fig. 369.

A most beautiful species when in flower; but, when out of flower, of a gloomy ashy hue. The trunk is disfigured by the old ragged bark, whence the vernacular name. It is truly astonishing, Mr. Webb observes, that this splendid European plant, of almost arboreous stature, with spikes of flowers sometimes a foot in length, should so long have escaped detection. It closely resembles A. hispánicus, but, according to Mr. Webb, it is "very entirely distinct." Plants are, or soon will be, in the Milford Nursery.


Engravings. Clus. Hist. 1 p. 94 f. L.; and our fig. 370.


A very handsome species, and one that is much admired for its fine terminal spikes of flowers, which, in favourable seasons, and in a dry soil, ripen abundance of seeds.


Engravings. N. Du Ham., 5 t. 47 f. 1.; and our fig. 371.


Engravings. N. Du Ham., 5 t. 47 f. 2.; and our fig. 372.


It well deserves a place in British gardens; where, when judiciously treated, it will, owing to the moisture of our climate, attain double the height that it does in the South of France.
XXV. LEICUMINAECÆ: ONO'NIS.

GENUS IX.


Description. Said to be from onos, an ass; because only asses would feed upon so prickly a plant. Restharrow is a corruption of arretæ, that is, stop, harrow; from the long and deeply seated roots opposing a serious impediment to the plough or harrow.

Gen. Char. Calyx campanulate, 5-cleft, with linear segments. Vexillum large, striated. Stamens monadelphous, the tenth one sometimes almost free. Legume usually turgid, sessile, few-seeded. (Don's Mill.)

Leaves trilobulate, stipulate, alternate, deciduous. Flowers yellow, purplish and red, or rarely white. — Shrubs, very low, suffrutescent; natives of Europe. Two species are hardy.

The peduncle is, in many instances, furnished with an awn, which is the pistil of an abortive floral leaf. The two specimens here described are well adapted for rockwork or flower-borders, on account of their lively flowers, which are red, or reddish-purple; colours not frequently met with in the ligneous Leguminaceæ, by far the greater part of which have yellow flowers. They are readily propagated by seeds or by division, and will grow in any soil that is tolerably dry.

1. O. FRUITICO'SA L. The shrubby Restharrow.


Description. Leaves trifoliate. Leaflets sessile, lanceolate, serrated. Stipules connate into one, sheathing, and 4-awned; and, in the uppermost parts of the plant, occupying the places of leaves which are absent. Pedicels 3-flowered, disposed in a raceme. (Dec. Prod.)

A low shrub. Alps of Dauphiné, &c. Height 1 ft. to 4 ft. Introduced in 1650. Flowers purplish red; May and June. Legume brown; ripe in September.

Variety.


2. O. ROTUNDIFOLIA L. The round-leaved Restharrow.


Description. O. latifolia Asso Syn. 97. Lin. Mant. t. II. f. 1.; Nátrix rotundifolia Munch. 


Other Kinds of Ononis. — O. trisactiata Dec., a suffrutescent plant with pink flowers, supposed to be a native of Carinthia, differs little from O. rotundifolia. Several other species are hardy, but not sufficiently ligneous for our purpose.
AMORPHA L. THE AMORPHA, or BASTARD INDIGO. Lin. Syst. Monadelphia Decandria.

**Genus X.**

AMORPHA L. THE AMORPHA, or BASTARD INDIGO. Lin. Syst. Monadelphia Decandria.


**Derivation.** From a, private, and morphié, form; in reference to the deformity of the corolla, from the want of the wings and keel.


Leaves compound, impari-pinnate, alternate, stipulate, deciduous; stipules deciduous. Flowers of a blue violet colour, in spicate racemes.

**Shrubs, large, deciduous; natives of North America. Leaves having many pairs of leaflets that have transparent dots in their disks, and usually minute stipules at their base. The flowers are disposed in racemes, usually grouped at the tips of the branches. The species are highly ornamental on account of their leaves, and more especially of their long spikes of flowers; which, though, when taken separately, they are small, and imperfect in regard to form, are yet rich from their number, and their colours of purple or violet, spangled with a golden yellow. The plants are not of long duration; and are liable to be broken by wind; for which reason they ought always to be planted in a sheltered situation. They produce abundance of suckers, from which, and from cuttings of the root, they are very readily propagated.**

**§ 1. A. FRUTICOSA LINN. The shrubby Amorpha, or Bastard Indigo.**


**Synonyms.** Wild Indigo, Amer.; faux Indigo, Fr.; Strauchartiger Uniform, Ger.; Indaco bastardo, Barbado di Giove, Ital.

**Engravings.** Schkuhr Handb., t. 197.; Bot. Reg., 427.; and our fig. 375.

**Spec. Char., &c. Rather arborescent, somewhat villose or glabrous. Leaflets elliptic-oblong, the lowest distant from the base of the petiole. Calyx somewhat villose; 4 of its teeth obtuse, 1 acuminate. The standard glandless. Legume few-seeded. (Dec. Prod.) An erect glabrous shrub. Carolina and Florida, on the banks of rivers. Height 9 ft. to 12 ft. Flowers very dark bluish purple; June and July. Legume brown; ripe Oct. Naked young wood greyish brown.**

**Varieties.**

**a** A. f. 2 angustifólia Pursh has the leaflets linear-elliptic.

**b** A. f. 3 emarginata Pursh has the leaflets notched, and the calyx hoary.

**c** A. f. 4 Lewisii Lodg. Cat., 1830, appears to have rather larger flowers and leaves than the species.

**d** A. f. 5 evrialea Lodg. Cat., 1830, has the flowers of somewhat a paler blue. Perhaps only a variation of A. croceo-lanata.

**§ 2. A. (F.) GLA'NRA DESF. The glabrous Amorpha, or Bastard Indigo.**


**Engravings.** Our fig. 376. from a specimen in Dr. Lindley's herbarium.

**Spec. Char., &c. Rather arborescent, glabrous. Leaflets elliptic-oblong, the

3. A. (f.) NA'NA Nutt. The dwarf Amorpha, or Bastard Indigo.


4. A. (f.) FRA'GRANS Sweet. The fragrant Amorpha, or Bastard Indigo.


Synonyme. A. nana Sims in Bot. Mag., t. 2112., but not of others.


5. A. (f.) cro'CEO-LANA'TA Wats. The Saffron-coloured-woolly Amorpha, or tawny Bastard Indigo.


Engravings. Wats. Dend. Brit., t. 139.; and our fig. 379.

Spec. Char., &c. Plant clothed with tawny pubescence. Racemes branched. Leaves with 6–8 pairs of oblong-elliptic, mucronulate, downy leaflets; the 3 upper teeth of calyx ovate, acute, the 2 lower ones very short, and rounded. (Don's Mill.) A pubescent shrub. North America. Height 3 ft. to 5 ft. Introd. 1820. Flowers purple or purplish blue; July and August. Legume dark brown, or brown; ripe in October.


**Synonyme.** A. pubescens Pursh 2, p. 467.

**Engraving.** Our fig. 380. from Pursh’s specimen in the Lambertian herbarium.

**Spec. Char., &c.** Saffron-flowered, dwarf, all over whitely tomentose. Leaflets ovate-elliptic, mucronate, the lowest near the base of the petiole. Calyx tomentose; its teeth ovate, acute, equal. Ovary 2-ovuled. Legume 1-seeded. (Dec. Prod.) A low tomentose shrub; Louisiana, on the banks of the Missouri and the Mississippi. Height 3 ft. Introd. 1812. Flowers dark blue; July and August. Legume brown; ripe in October.

**Genus XI.**


**Synonyme.** Dalbergia Spreng. Syst. App. 236.

**Derivation.** Named in honour of Charles William Eysenhardt, M.D., a professor in the University of Königsberg, in Prussia.

**Gen. Char.** Calyx obconically campanulate, 5-toothed; upper teeth rather remote, lower one longest. Petals 5, disposed in a papilionaceous manner. *Vexillum* oblong, and the two keel petals distinct. Stamen diadelphous. (Don’s Mill.)

Leaves compound, impari-pinnate, alternate, stipulate, deciduous; beset with glands. Flowers in terminal racemes, white. — An unarmed shrub or low tree; native of Mexico.


**Synonyme.** Dalbergia amorphóides Spreng.

**Engraving.** H. et B. et Kunth, 6, t. 592.; and our fig. 381.

**Spec. Char., &c.** An unarmed low tree or shrub, with impari-pinnate leaves, composed of many pairs of stipulate leaflets, and these are, as well as the calyxes, beset with glands. Racemes terminal, cylindrical, flowers white. (Don’s Mill., ii. p. 234.) A deciduous shrub or low tree. Mexico, on mountains. Height 6 ft. to 10 ft; in British gardens 4 ft. to 6 ft.Introduced in 1837. Flowers white. Legume ?

This plant was raised in the Hort. Soc. Garden, and has proved quite hardy. The leaves are distinctly marked with glandular dotting; a very unusual case among leguminous plants. The twigs are short, and so closely set upon the branches as to form a dense mass of foliage. Each is terminated by an erect compact spike, from 2 in. to 3 in. long, of white or pale yellow flowers, which, although not larger than those of a spiraea, nevertheless, from their abundance, must produce a beautiful appearance. (Bot. Reg.)
Genus XII.


Derivation. Named in honour of Jean Robin, a French botanist, once herbalist to Henry IV. of France, author of Des Plantes, 1200, Paris, 1629; printed with the second edition of Lonerée's History of Plants. His son Veppelin was sub-demonstrator at the Jardin des Plantes in Paris, and was the first person who cultivated the Robinia Pseud-Acacia in Europe.


Leaves compound, unequally pinnate, alternate, deciduous; leaflets generally ovate or obovate, petiolate. Flowers white or rose-coloured, in axillary usually nodding racemes. — Trees, deciduous, natives of North America, where one of the species is highly valued for its timber.

The species are prized, partly for their use, but chiefly for their beauty. They are readily propagated by seeds, large truncheons of the stem and branches, cuttings of the roots, or by grafting; and they will grow in any soil that is not too wet. Their roots are creeping, and their branches very brittle: they grow rapidly, but are generally not of long duration. Their rapid growth is a property that they have in common with all trees and plants the principal roots of which extend themselves close under the surface; because there the soil is always richest: but the same cause that produces this rapidity at first occasions the tree to grow slowly afterwards, unless the roots are allowed ample space on every side; since, as they never penetrate deep, they soon exhaust all the soil within their reach. They are, therefore, highly objectionable among ornamental shrubs, or in flower borders. For this reason, also, such trees are objectionable as hedgerow trees, or as scattered groups in arable lands; their roots proving a serious impediment to the plough, and the suckers thrown up by them choking the corn crops. Roots, on the other hand, which penetrate perpendicularly as well as horizontally, belong to more slowly, but more steadily, growing trees, which always attain a larger size in proportion to the extent of ground they occupy.

* 1. R. PSEUD-ACACIA Lin. The common Robinia, or False Acacia.

Synonymes. Echymophylla Pseudacacia Rbor.; Pseudacacia odorata Monach Meth. 145.; Locust Tree, Amer.; the Bastard Acacia, Robinier faux Acacia, Acacia blane, Caronge des Américains, Fr.; gemeine Acacie, Schotendorn, Ger.
Derivation. This tree, when first introduced, was supposed to be a species of the Egyptian acacia, (Acacia vera), from its prickly branches and pinnate leaves, which resembled those of that tree. It was named the locust tree by the missionaries, who fancied that it was the tree that supported St. John in the wilderness. It is not, however, a native of any other part of the world than North America. The name Carouge is the French word for carob bean, the locust tree of Spain; which, being also a native of Syria, is, probably, the true locust of the New Testament. The German name of Schotendorn is composed of schote, a pod, or legume, and dorn, a thorn.

Engravings. Lam. Ill., t. 566.; N. Du Ham., 2. t. 16.; the plate of this species in Arb. Brit., 1st edit, vol. v. ; and our fig. 385.

Varieties. The plant varying much in its different native localities, and also having been long cultivated from seeds in Europe, the varieties are numerous. Some of those included in the following list appear in our Hortus Britannicus, and in Don's Miller, as species; while some hybrids, such as R. hybrida and R. intermedia, might also have been considered as varieties, but we have preferred keeping them apart.

**R. P. 2 flos lutea** Dumont 6, p. 140, has the flowers yellow.


**R. P. 5 umbraculifera** Dec. Prod. ii. p. 261., Cat. Hort. Monsp. 157. R. inermis Dum. Cours. vi. p. 140.—Prickles wanting. Branches much crowded, and smooth. Head orbicular. Leaflets ovate. This variety is said to have been raised from the seed of R. Pseud-acacia; and, according to Dumont de Coursat, to have yellow flowers. It has been common in British gardens since 1820, but has not yet flowered in this country.


**R. P. 7 sophorafoia** Lodd. Cat. 1830 has the leaves large, and somewhat like those of Sophora japonica.

**R. P. 8 amorphaphoia** Lk. has leaves somewhat like those of Amorpha fruticosa.

**R. P. 9 stricata** Lk. has the general tendency of the shoots upright; but still the plant is not so fastigate as the Lombardy poplar.

**R. P. 10 procera** Lodd. Cat. 1830.—A tall vigorous-growing variety.

**R. P. 11 pendula** Ort. Dec. p. 26.—The shoots are somewhat drooping, but not very decidedly so.

**R. P. 12 monstroa** Lodd. Cat. 1830.—The leaves are large, and twisted.

**R. P. 13 macrophylla** Lodd. Cat. 1830 has the leaves long, and the leaflets broad.

**R. P. 14 microphylla** Lodd. Cat. 1830, R. angustifolia Hort., has the leaves small, and the leaflets narrow.

**R. P. 15 spectabilis** Dum. has large leaves and is without prickles: it produces straight vigorous shoots, which are-angular when young. It was raised from seed by M. Descemet, at St. Denis, and was formerly known in the French nurseries by the name of Acacia agacante (enticing).

**R. P. 16 latifolia**, the broad-podded locust, is mentioned in Prince's Catalogue for 1829.

Most of these varieties are tolerably distinct in the foliage when the plants are young. Those best worth cultivating, for the shape of the tree, are R. P. umbraculifera, the parasol acacia; R. P. pendula; R. P. stricata, the upright-growing sort; and R. P. spectabilis. With regard to the yellow-flowered variety, it may be worth continuing by grafting or suckers; but, to make quite sure of having white flowers, the trees producing them ought to be propagated by grafting also; as plants raised from seed, though for the most part they have white flowers, yet occasionally produce yellowish ones.

The wood, which is commonly of a greenish yellow colour, marked with brown veins, is hard, compact, and susceptible of a bright polish: it has a good deal of strength, and is very durable; but it has not much elasticity, and is somewhat liable to crack. A cubic foot of locust wood, newly cut, weighs 63 lb. 3 oz.; half-dry, 56 lb. 4 oz.; and, when quite dry, only 48 lb. 4 oz. Its value for fuel, when compared with that of the beech, is as 12 to 15. For duration Hartig places it immediately after the oak, before the larch and the
Scotch pine. According to Burrow, the strength of acacia timber, as compared with fine English oak, is as 1667 to 1672; the strength of ash being as 2026; beech, 1536; elm, 1013; Riga fir, 1108; Norway spruce (spruce fir), 1474; and teak, 2462. The tree has one property almost peculiar to it, that of forming heart-wood at a very early age, viz. in its third year; whereas the sap-wood of the oak, the chestnut, the beech, the elm, and most other trees, does not begin to change into heart, or perfect, wood, till after 10 or 15 years' growth. The trees of this species, and of several of its varieties, in the garden of the Horticultural Society, and in the arboretum of Messrs. Loddiges, have attained the height of 30 ft. and upwards, in 10 years from the time they were planted. There is, perhaps, no American tree respecting which so much has been said and done, in Europe, as the locust. It was one of the first trees that we received from America, and it has been more extensively propagated than any other, both in France and England. It has been alternately extolled and neglected in both countries; and even at the present time, though the beauty of its foliage and flowers is generally acknowledged, and though it has, at different periods, been enthusiastically praised by different writers, for the valuable properties of its wood, it cannot be considered as holding a high rank as a timber tree, or as being worth planting with a view to profit. We pass over many curious and historical facts respecting the locust tree, for which we refer to the 1st edit. of this work, and come to the year 1823, when an extraordinary sensation was excited in Britain respecting this tree by Cobbett. This writer, while in America, from 1817 to 1819, "was convinced that nothing in the timber way could be so great a benefit as the general cultivation of this tree." On his return to England he commenced nurseryman, and the name of locust, as applied to this tree, being, before Cobbett's time, almost forgotten in England, many persons, in consequence, thought it was a new tree. Hence, while quantities of plants of Robinia pseud-acacia stood unasked for in the nurseries, the locust, which every one believed could only be had genuine from Mr. Cobbett, could not be grown by him in sufficient quantities to supply the demand. After creating a prodigious sensation for a few years, the locust mania entirely subsided, and the tree is now, as it was before Cobbett's time, planted only, or chiefly, for ornament.

2. R. viscosa Vent. The clammy-barked Robinia.


The 3 lower teeth of the calyx acuminated. Roots creeping. (Dec. Prod.)
A clammy-barked tree. South Carolina and Georgia, near rivers. Height
30 ft. to 40 ft. Introduced in 1797. Flowers scentless, pale pink mixed
with white, varying to pale purple or violet colour according to the soil;
June to August. Legume brown; ripe in October. Naked young wood
purplish and clammy.

The bark, particularly that of the young shoots, which is of a dull red, is
covered with a clammy substance, which, when touched, sticks to the fingers.
In every other respect, both in natural characters and artificial culture, this
tree strongly resembles the common R. Pseūd-Acācia.

yla 3. R. DU'BIA Fout. The doubtful Robinia, or False Acacia.

Mill., 2. p. 238.
Synonyms. R. hybrida Audib.; R. ambiguα Poir. Suppl. 4. p. 690.; and, perhaps, R. echinata

furnished with a few glands, rarely clammy. Leaflets ovate. Racemes loose
and pendulous. Bracteas concave, caducous, ending each in a long bristle.
(Don's Mill.) A deciduous tree, rather under the middle size. Hybrid?

the 3 lower teeth of the calyx acuminated. (Dec. Prod.) A shrub, or low tree. Carolina, in pine
woods. Height 6 ft. to 20 ft. Introduced in 1758. Flowers large, dark rose-coloured; June
to October. Legume brown; ripe in October and November. Naked young wood purplish
brown, thickly beset with prickles.
XXV. LEGUMINACEAE: CARAGANA.

237

Varieties.
1. R. h. 2 \(n\)ana Dec. is a plant hardly a foot high, found in pine woods in Carolina.
2. R. h. 3 r\(o\)sca Pursh has the leaflets for the most part alternate, and the branches smoothish. In its native habitats, on the high mountains of Virginia and Carolina, it grows, according to Pursh, to a considerable height, whereas the species is a low straggling plant.
3. R. h. 4 macr\(o\)phylla Dec., R. grandiflora Hort., figured in Arb. Brit., 1st edit., vol. v., has the leaflets large, and ovate-roundish; and the branches and peduncles glabrous, and without prickles.

The species, and the different varieties, are shrubs or low trees, with tortuous and very brittle branches, and leaves and flowers nearly twice the size of those of Robinia Pseud-Acacia. They form singularly ornamental shrubs for gardens; but, as standards or bushes, they can be only planted with safety in the most sheltered situations. When grafted standard high, and trained to a wire parasol-like frame, supported on a rod or post 6 or 8 feet high, few plants are equal to R. h. macrophylla in point of brilliant display.

Genus XIII.

CARAGANA Lam. The Caragana, or Siberian Pea Tree.

Lin. Syst. Diadephia Decandria.

Synonyme. Robinia sp. L.

Derivation. Caragan is the name of C. arborescens among the Mongol Tartars.


Leaves compound, abruptly pinnate, alternate, stipulate, deciduous; stipules usually spinescent. Flowers mostly yellow.

Trees or shrubs, natives of Siberia and of the East. Leaves with the leaflets mucronate, and the petioles either with a bristly or a spiny point; their flowers axillary, each on a distinct pedicel, usually several together, pale yellow, except in C. jubata, in which they are white tinged with red; their stipules usually become spines. They are all ornamental or curious, and of the easiest culture in any common soil; propagated by cuttings of the roots or by seeds. The dwarf and pendulous-growing species, when grafted standard high on C. arborescens, form very singular trees.

1. C. arborescens Lam. The arborescent Caragana, or Siberian Pea Tree.


Engravings. N. Du Ham., 2 t. 19.; Pall. Fl. Ross., 1 t. 42., middle figure; the plate of this species in Arb. Brit., 1st edit., vol. v.; and our fig. 385.

Variety.

† C. a. 2 inermis Hort. has the branches without spines. Plants in the Horticultural Society's Garden.

Pallas informs us that upon the banks of rivers it grows to the height of 18 ft. or more; but in arid places it is only a small shrub; in the latter state forming, as we think, the varieties C. (a.) Allagana, and C. (a.) microphylla. C. arboréscens forms an erect stiff tree, with numerous upright-growing branches. The flowers are axillary, one on a pedicel; the pods are oblong-taper, and each contains 3 or 4 seeds. The wood is hard, compact, and very tough; yellow on the outside; and within, waved and striped with red, and with reddish brown.

2. C. (a.) ALTAGANA Poir. The Altagana Caragana, or Siberian Pea Tree.


Derivation. Altagana is the name of the shrub in Siberia.

Engravings. Pall. Fl. Ross., t. 32, under the name of Robinia Altagana; L'Hérit. Stirp. t. 76; and our fig. 386.


Usually propagated by grafting on C. arboréscens.


Synonymes. Robinia microphylla Pall. Fl. Ross. t. 42, t. 1, 2; Caragana Altagana var. Poir. Suppl. 2 p. 89.

Engravings. Pall. Fl. Ross., t. 32, f. 1, 2, under the name of Robinia microphylla; and our fig. 387.


Engravings. Dec. Legum., t. 11, f. 45, in the seedling state.

Variety.

C. (A.) R. 2 préce Cox Fisch. only differs from C. Redowksi in coming into flower earlier. The specimen in the Hort. Soc. Garden was in full leaf, and in flower, on April 30. 1836, when C. frutescens and C. arborescens had not a single leaf expanded.

In general appearance and habit of growth, it resembles C. Altagana, of which it is probably only a variety. H. S.


Probably only another variety of C. arborescens. It ripens seeds in England, but is generally propagated by grafting.


Spec. Char., &c. Leaves having 2 pairs of leaflets, which approximate near the top of the petiole: they are obvo-vate-cuneate. Stipules membranous. Petiole furnished with a short spine at the apex. Pedicels solitary, twice the length of the calyx. Flowers yellow, resupinate. Leaves with a yellow hue. (Don's Mill.) A low shrub. Native of Russia, on the banks of the Wolga and other rivers. Height in open situations 5 ft.; in woods and gardens 9 ft. to 10 ft. Introduced in 1752. Flowers yellow; May. Legume brown; ripe in August.

Varieties. Decandolle mentions two forms:—

C. f. 1 latifolia, which has glabrous broadly ovate leaflets, and is frequent in gardens; there being a subvariety, with 2-flowered peduncles; and

C. f. 2 angustifolia, which has glabrous oblong cuneate leaflets, and is found near Odessa.

A handsome shrub, sometimes grafted standard high on C. arborescens.


**Engravings.** Pall. Fl. Ross., t. 44.; Amm. Ruth., t. 35., as Robinia pygmaea; and our fig. 301.

**Spec. Char., &c.** Leaves with 2 pairs of linear, glabrous, approximate leaflets near the tip of the petiole, which is very short. Stipules and petioles spinous. Pedicels solitary, and nearly the length of the calyx. Calyx nearly equal at the base. Leaflets acute, crowded, usually in the axis of trifid spines. Flowers yellow. (Dec. Prod.) A low shrub. Native of the Altai Mountains. Height 2 ft. to 6 ft. Introduced in 1751. Flowers yellow; April and May. Legume brown; ripe in August.

**Variety.**

A. C. p. 2 arenaria Fisch. has linear-cuneate leaflets, and pedicels of the flowers generally longer than the calyx.

This species has large trifid spines, slender leaves, and small flowers. The leaflets are remarkable for being in fours, disposed in the form of a star, in the axes of the spines. The young shoots are of a fine yellow, very tough, and fit for being used as withes. When grafted as a standard on C. arborescens, it forms a small tree of very singular appearance. Increased by suckers or by grafting.


**Engravings.** Pall. Fl. Ross., t. 44.; Bot. Reg., t. 1021.; and our fig. 392.


(Don's Mill.) A spiny shrub. Siberia, in gravelly arid situations; and also said to be plentiful in China, about Peking, where branches of it are stuck in clay upon the tops of the walls, in order that its spines may prevent persons from getting over them. (Pall. Fl. Ross.) Height 3 ft. to 4 ft. Introduced in 1753. Flowers yellow; April and May. Legume brown; ripe in August.

Seeds, cuttings, or grafting. Standard high it makes a very singular plant.


**Synonym.** Robinia tragacanthoides Pall. Nov. Act. Pet. 13. t. 7., Astr. 115. t. 86.; Robinia ma-


11. C. jubata Poir. The crested Caragana.


Spec. Char., &c. Leaves with 4 or 5 pairs of oblong-lanceolate lanuginously ciliated leaflets. Stipules setaceous. Petioles somewhat spinose; adult ones deflexed, filiform, permanent. Pedicels solitary, very short. Legume glabrous. Flowers few and white, suffused with red. (Don’s Mill.) A low shrub; native of Siberia near Lake Baikal. Height 1 ft. to 1 ft. 6 in. Introduced in 1796. Flowers white, tinged with red; April and May. Legume brown; ripe in August.

This species has a curious shaggy appearance, occasioned by the footstalks of the leaves being bristly or thorny, and remaining on long after the leaflets have dropped off. Increased by grafting on Caragana arborescens, and as a standard forming a very singular-looking object.


Engravings. Our fig. 395.

Spec. Char., &c. Leaves with 2 pairs of oblong-cuneate approximate leaflets, near the tip of the petiole, which is very short. Stipules and petioles spinose. Pedicels solitary, almost the length of the calyx, which is gibbous at the base. Legume terete, acute, brown, glabrous. Flowers 1 in. long, yellow. (Don’s Mill.) A low shrub; native of Georgia, near Teflis. Height 2 ft. to 4 ft. Introduced in 1823. Flowers yellow, 1 in. long; June and July. Legume brown; ripe in September. H. S.

13. C. Chamlagu Lam. The Chamlagu, or Chinese Caragana.


Engravings. L’Herit. Stirp., t. 77; N. Du Ham. Arb., 2. t. 21; and our fig. 396.

This species has a thick root and branching stem, with grey bark. The branches are alternate; at first upright, and then decumbent. The whole plant has a singular appearance, more especially when just going out of flower. It is generally propagated by separating the offsets, or by seeds, or it may be grafted on C. arboréscens. Grafted on this species, especially when the stock is 10 or 12 feet high, it forms a singularly picturesque pendulous tree; beautiful not only when it is in leaf or in flower, but from the graceful lines formed by its branches, even in the midst of winter, when they are completely stripped of their leaves.

Genus XIV.

Halimode'ndron Fisch. The Halimode'ndron, or Salt Tree
Lin. Syst. Diadelphia Decándria.

Derivation. From halimus, maritime, and dendron, a tree; in reference to the habitat of the shrubs, which grow in dry naked salt fields, by the river Iris, in Siberia.


Leaves compound, alternate, stipulate, deciduous; abruptly pinnate, with 2 pairs of leaflets; petioles and stipules spinose. Flowers bluish pink, or purplish, in 2—3-flowered peduncles.—Shrubs, deciduous; natives of Europe and Asia.

Propagated by seeds, by cuttings of the roots, or by grafting on the common laburnum, or on the Caragàna arboréscens.

Species. 1. H. argé'nteum Dec. The silvery-leaved Halimode'ndron, or Salt Tree.

Engravings. Pall. Fl. Ross., t. 36.; and our fig. 397.


Varieties. De Candolle mentions two forms of this species:—

a H. a. 1 vulgare Dec. Prod.—Leaves hoary or silvery. Standard the same length as the keel.

b H. a. 2 brachyséma Dec. Prod. (Bot. Mag., 1016.; and our fig. 398.)—Leaves hoary or silvery. Standard shorter than the wings and keel. Style short.
H. a. 3 Sievérssii, H. Sievérssii Fisch., is a dwarf variety, very hardy, named by some as a species. H. S.

An irregular, much-branched, rigid shrub, with a strigose grey bark, and leaves clothed with a whitish silky down. The flowers are numerous, resembling those of Láthyurus tuberósus, both in colour and size; and they smell sweet. According to Pallas, it is much frequented by insects, especially of the genus Méloé L., many species of which are peculiar to Siberia. It flowers freely from May to July, and, in moist seasons, later; and, when grafted standard high on the common laburnum, it forms one of the most graceful drooping trees that can adorn a lawn.

2. H. (A.) subvire'scens G. Don. The greenish Halimodendron, or Salt Tree.

Identification. Don's Mill., 2, p. 244.


Engraving. Our fig. . in p. .

Spec. Char., &c. Leaves greenish. The standard of the same length as the keel. Pedicels 3-flowered. (Don's Mill.) A shrub, like the preceding one, of which it is, without doubt, only a variety.

Genus XV.


Character. From kalos, beautiful, and phaké, a lentil; in allusion to the beauty of the plant, and to its being one of the leguminous kind.

Gen. Char. Calyx 5-cleft, the lobes acuminate. Keel obtuse. Stamens diadelphous. Style villous and straight at the base, but glabrous incurred at the apex. Stigma terminal. Legume sessile, oblanceolate, somewhat cylindrical, mucronate, 1-celled. Valves concave, beset with soft hairs, as well as with stiff glandular bristles, mixed. (Don's Mill.)

Leaves compound, alternate, stipulate, deciduous; impari-pinnate: stipules lanceolate. Flowers yellow.—A shrub, native of Siberia.


spec. Char., &c. Leaflets 6 or 7 pairs, orbicular, velvety beneath, as well as the calyces. (Don's Mill.) A deciduous shrub. Siberia, in desert places near the rivers Don and Wolga, in a gravelly or sandy soil. Height 2 ft. to 3 ft. Introduced in 1750. Flowers yellow; June. Legume reddish; ripe in August.

Being somewhat difficult to propagate except seeds, which, however, in fine seasons, it produces in abundance, it is not so common as ought to be in British gardens. Grafted standard high on the common laburnum, it forms
an object at once singular, picturesque, and beautiful, whether when covered with blossoms, or with its fine reddish pods.

**Genus XVI.**

**COLUTEA R. Br.** The **Colutea**, or **Bladder Sena.** Lin. Syst. Diadéphia Decandria.


**Synonymes.** Baguenandier, Fr.; Senna falsa, Ital.; Blasenbaum, Ger.

**Derivation.** From kolotó, to amputate. The shrubs are said to die if the branches are lopped off. Kolotea is also the name of a plant mentioned by Theophrastus.

**Gen. Char.** Calyx 5-toothed. Vexillum flat, bicallose, larger than the keel, which is obtuse. Stamens diadelphous. Stigma lateral, hooked under the top of the style. **Style** bearded longitudinally behind. Legume stipitate, ovate, boat-formed, inflated, scarios. (**Don's Mill.**)

Leaves compound, alternate, stipulate, deciduous; impari-pinnae: stipules small. Flowers usually yellow, axillary, the racemes shorter than the leaves, and succeeded by bladdery legumes. — Shrubs, deciduous; natives of the Middle and South of Europe, the North of Africa, and Nepal.

All the kinds that have hitherto been introduced into Europe are probably only varieties of one species. They are readily increased by seeds or cuttings of the roots on any common soil.

**2. C. arborescens Lin.** The arborescent Colutea, or Bladder Sena.


**Synonyme.** C. hirsuta Roth Fl. Germ. 1. p. 305.

**Engravings.** N. Du Ham., t. 22.; Schmidt Arb., t. 117.; Bot. Mag., t. 81.; and our fig. 409.

**Spec. Char., &c.** Leaflets elliptical, retuse. Peduncles bearing about 6 yellow flowers. Callosities of the standard short. Legumes closed. (**Dec. Prod.)** A rapid-growing shrub. Middle and South of Europe, Italy, and on Mount Vesuvius is found even on the ascent to the crater, where there are scarcely any other plants. Height 12 ft. to 14 ft. Introduced in 1570. Flowers yellow; June to August. Legume bladder-like, reddish; ripe in September.

The bladders, when pressed, explode with a cracking noise. On the Continent, the leaves have been recommended as a substitute for senna, and they are also said to afford a grateful food for cattle. The seeds, in doses of a drachm or two, are said to excite vomiting. In British gardens, the plant is chiefly valuable as a bulky fast-growing shrub, of the easiest culture, and fit for almost any situation.

**2. C. (L.) cruenta All.** The bloody-flowered Colutea, or Oriental Bladder Sena.


**Engravings.** Lam., Ill., 624. f. 3.; N. Du Ham., t. 25.; Schmidt Arb., t. 119.; Krause, t. 105.; and our fig. 401.

**Spec. Char., &c.** Leaflets obovate, emarginate, glaucous. Peduncles bearing 4—5 flowers. Callosities of the standard obtuse, very small. Legumes opening at the tip. Corolla, in colour, between red and saffron-coloured, with a yellow spot at the base of the standard. (**Dec. Prod.)** A glaucous
shrub. Archipelago, Georgia, and the Levant. Height 4 ft. to 8 ft. Introd. 1731. Flowers reddish copper-coloured; June and July. Legume reddish; ripe in August.

Resembles C. arboréscens, but of smaller dimensions, and with leaflets more glaucous, and more retuse.

3. C. (a.) media Willd. The intermediate Colutea, or Bladder Senna.


Engravings. Wats. Dend. Brit., t. 140; and our fig. 492.


A shrub rather larger than C. (a.) cruenta, and differing from it chiefly in having orange-coloured flowers. Perhaps, a hybrid between the two preceding sorts.

4. C. (a.) haleppica Lam. The Aleppo Colutea, or Bladder Senna.


Engravings. Schmidt Arb., t. 120; and our fig. 403.


Closely resembling C. arboréscens, of which it appears to be a variety, but rather more tender in British gardens.

5. C. nepalénsis Hook. The Nepal Colutea, or Bladder Senna.


Engravings. Hook. Bot. Mag., t. 2622; and our fig. 404.

R 3

The leaflets are small, and, being more imperfectly-developed than in any of the other kinds, give it a singular appearance.

Genus XVII.


Synonyme. Astragalus sp. of Lin. and others; Astragalus, Fr.; Tragac., Ger.; Astragalo, Ital.

Derivation. From astragalos, a vertebra; the seeds in the legumes of some species being squeezed into a squarish form, so as to look something like the joints of the backbone; or, perhaps, from aster, a star, and gala, milk. It is also the name given to a shrub by Greek writers.

Gen. Char. Calyx 5-toothed. Keel obtuse. Stamens diadelphous. Legume bilocular or half-bilocular, from the upper suture being bent in so much. (Don's Mill.)

Leaves compound, alternate, stipulate, deciduous; pinnate: petioles permanent. Flowers in the only hardy ligneous species purplish or white.

—Shrubs, low; natives of the South of Europe and Asia.

n. 1. A. TRAGACANTHA L. The Goat's-Thorn Milk Vetch, or Great Goat's Thorn.


Spec. Char., &c. Peduncles usually 4-flowered, about equal in length to the leaves. Calixes cylindrical, with 5 short blunt teeth. Leaves with 9—11 pairs of elliptic hoary leaflets. (Don's Mill.) A low prickly glaucescent shrub, with sub-persistent leaves, and persistent petioles. Marseilles and Narbonne, in sandy places, as well as Corsica and Mauritania. Height 6 in. to 1 ft. Introduced in 1640. Flowers purplish or white; May to July. Legumes tomentose, brown; ripe in September. General aspect whitish.

The flowers are disposed on axillary peduncles, so short as to prevent them from being at all conspicuous above the leaves. After the leaflets drop off, the petioles become indurated, so as to give the plant the appearance of being densely covered with spines. Propagated by seeds, which it sometimes ripens in England, or by cuttings. It requires a dry soil, and a sunny situation; and is well adapted for rock-work.

Other ligneous Species of Astragalus. — A. alticicenus Lodde. Cab.; A. aristatus L'Hérit. Stirp. 170., with yellow flowers, which is figured in Bot. Cab. t. 1278., and our fig. 406.; A. brevifolius, with a purplish flower, figured in Bot. Cab. t. 1338., and our fig. 407.; and A. massiliensis Lam., which is probably a variety of A. Tragacantha with white flowers instead of purplish
ones, are in British collections; but, though technically ligneous, are usually treated as rock herbaceous plants.

Sect. III. **Hedysa'rae.**

**Genus XVIII.**


**Synonyme.** Coronilla sp. of Lin. and others.

**Derivation.** From corona, a crown; in reference to the disposition of the flowers in crowns, or umbels, at the tops of the peduncles.

**Gen. Char.** Calyx campanulate, short, 5-toothed, the two superior teeth approximate, and joined together higher up than the rest. Claws of petals usually longer than the calyx. Carina acute. Stamens diadelphous. Legume nearly terete, slender, at length separating into oblong 1-seeded joints. Seeds ovate or cylindrical. (Don's Mill.)

**Leaves** compound, alternate, stipulate, deciduous; impari-pinnate. Flowers in axillary peduncles, bearing at their tops umbels of pedicellate flowers, usually yellow.—Shrubs, deciduous or sub-evergreen; natives of the South of Europe or Asia.

They are all highly ornamental, and most of them produce seeds in England, by which, or by cuttings, they are easily propagated in common soil.

**1. C. E'merus L.** The Scorpion-Senna Coronilla.

**Spec. Char., &c.** Shrubby, glabrous. Its leaves are attended by minute stipules, and have 5—7 ovate leaflets. Its flowers are yellow, disposed 3 upon a peduncle. The claws of the petals are thrice as long as the calyx. The legume is rather cylindrical than compressed, and its
joints separate slowly and unobviously, but they do separate. (Dec. Prod.)
A bushy glabrous shrub. Middle and Southern Europe, in thickets and
hedeges. Height 4 ft. to 10 ft. Introduced in 1596. Flowers yellow; April
to June. Legume brown; ripe in September.

Before the flowers are expanded, the corolla is partly red externally, mostly
so towards the tips of the petals; and the mingling of the yellow flowers, with
flower-buds more or less red, and the elegant foliage, produce a fine effect.
It flourishes most in a sunny sheltered situation, and a dry soil. It bears clipping,
and would form a beautiful garden hedge.

\( \text{as 2. C. junccea L. The rushy-branchled Coronilla.} \)

\[ \text{Identification. Lin. Sp., 1017; Dec. Prod., 2 p. 369; Don's Mill., 2 p. 274.} \]
\[ \text{Engravings. Bot. Reg., t. 820; Bot. Cab., t. 235; and our fig. 409.} \]

\( \text{Spec. Char., &c. Shrubby, glabrous. Branches rush-like, round, bearing but} \)
\( \text{few leaves; the latter are attended by minute stipules, and} \)
\( \text{have 3—7 leaflets, that are linear oblong, obtuse, and rather} \)
\( \text{fleshy; the lowest leaflets being rather distant from the base} \)
\( \text{of the petiole. The flowers are yellow, 5—7 in an umbel.} \)
\( \text{The claws of the petals are scarcely longer than the calyx.} \)
\( \text{The legume is rather compressed, and its joints separate} \)
\( \text{obviously. (Dec. Prod.) An erect glaucous shrub. South} \)
\( \text{of France. Height 2 ft. to 3 ft. Introduced in 1756. Flowers} \)
\( \text{bright yellow; June and July. Legume brown; ripe in} \)
\( \text{September.} \)

\( \text{It deserves a place in collections, on account of the singularity of its rush-} \)
\( \text{like slender branches, which, like those of Spartium juncceum, are partly desti-} \)
\( \text{tute of leaves.} \)

\[ \text{Sect. IV. Phaseoleae.} \]

\[ \text{Genus XIX.} \]

\( \text{WISTARIA Nutt. The Wistaria. Lin. Syst. Diadelphia Decandria.} \)

\[ \text{Synonymes. Glycine sp. L., Thysraanthus Elliot, Krafihid Rafin.} \]
\[ \text{Derivation. Named in honour of Caspar Wistar, late Professor of Anatomy in the University of} \)
\[ \text{Pennsylvania. (Don's Mill., 4 p. 34.) Nuttall first characterised and named this genus, from the} \)
\[ \text{American species, which he denominated W. speciosa; but which DeCandolle has changed to W.} \)
\[ \text{frutescens. In DeCandolle's Prodromus, and some other works, Wistaria is erroneously spelled} \)
\[ \text{Wistertia.} \]

\[ \text{Gen. Char. Calyx campanulate, somewhat bilabiate, upper lip with two short} \)
\[ \text{teeth, lower one with 3 subulate teeth. Corolla papilionaceous. Vexillum} \)
\[ \text{bicalo1se. Wings conforming to the keel, which is 2-edged. Stamens diadel-} \)
\[ \text{phous. Nectariferous tube girding the stipe of the ovary. Legume standing} \)
\[ \text{on a short stipe, coriaceous, 2-valved, 1-celled, rather torulose at the seeds.} \)
\[ \text{(Don's Mill.)} \]

\[ \text{Leaves compound, opposite, extipulate, deciduous; impari-pinnate.} \]
\[ \text{Flowers blush purple, in terminal and axillary racemes.—Shrubs, deciduous,} \]
\[ \text{twining; natives of North America and China; of vigorous growth, forming,} \)
\[ \text{when in flower, some of the most splendid ornaments of British gardens.} \]

\( \text{The species are quite hardy, will grow in any soil, and are generally pro-} \)
\( \text{pagated by layers of the young shoots, which will root at every joint if laid} \)
\( \text{down during summer as they grow. They may also be propagated by cuttings} \)
\( \text{of the roots; or by seeds.} \)


Engravings. Bot. Mag., t. 2103; and our fig. 410.

Wings of the corolla each with two auricles. Ovary glabrous. Flowers odorous. (Dec. Prod.) An elegant deciduous climber. Virginia, Carolina, and the Illinois, in boggy places. Stem 20 ft. to 30 ft. Introduced 1724. Flowers bluish purple, sweet-scented, the standard having a greenish yellow spot at the base; July to September. Legume brown; ripe in October. It is readily propagated by cuttings of the root and by layers, and forms a very ornamental climber, especially when trained against a wall.


Engravings. Swt. Brit. Fl. Gard., t. 211; Bot. Mag., t. 2083; Bot. Reg., t. 650; Bot. Cab., t. 773; and our fig. 41A.

Wings of the corolla each with one auricle. Ovary villose. Flowers large. (Dec. Prod.) A vigorous-growing deciduous twiner. China. Stem 50 ft. to 120 ft. Introduced in 1816. Flowers pale bluish purple; May and June, and sometimes producing a second crop of flowers in August. Legume?.

The flowers are larger than those of W. frutescens; they are disposed in longer and looser racemes, and are somewhat paler in colour. On established plants they are produced in great abundance; but they have not yet been succeeded by legumes in England. This plant may truly be considered the most magnificent of all our hardy deciduous climbers. It will grow wherever the common laburnum will flourish; but, as its flowers are somewhat more tender than those of that tree, they are more liable to be injured by frosts in very late springs. A plant in the Hort. Soc. Garden, against a wall, extends its branches above 100 ft. on each side of the main stem; one at Coughton Hall covers 905 superficial feet of walling.

Sect. V. Cassieae.

Genus XX.


ARBORETUM ET FRUTICETUM BRITANNICUM.

Derivation. In honour of Gottlieb Gleditsch, of Leipsic, once a professor at Berlin, and defender of Linnaeus against Silesseck; author of Methodus Pangorum (1708), Systema Plantarum a Stamnun situm (1764), and many other smaller works.

Gen. Char. Flowers unisexual from abortion, or hermaphrodite. Calyx of 3—4—5 equal sepalis, which are connected together at the base into a cupule. Petals equal in number to the sepalis, rising from the tube of the calyx. Stamens equal in number to the sepalis. Style short. Stigma pubescent above. Legume continuous, furnished with more or less pulp. Seeds compressed. (Don's Mill.)

Leaves compound, abruptly pinnate, and bipinnate, on the same tree; or, rarely, by the coalition of the leaflets, almost simple, alternate, stipulate, aeciduous. Flowers greenish, in spikes.—Trees, deciduous, of the 1st, 2d, and 3d ranks; natives of North America or China. Branchlets supra-axillary, and often converted into branched spines. Decaying leaves yellow. Naked young wood purplish or brownish green.

The species are of easy culture in good free soil; and, in Britain, generally propagated by imported seeds, or grafting. The species appear to be in a state of great confusion in British gardens; and, judging from the trees in the Hort. Soc. Garden, and in the arboretum of Messrs. Loddiges, we should conjecture that there are, probably, not more than two species, the American and the Chinese. The Chinese species is distinguished by its trunk being more spiny than its branches.

Γ 1. G. tricanáthos Lin. The three-thorned Gleditschia, or Honey Locust.


Synonymes. G. tricanáthos var. a polysperma Martin, Mill.; G. meliloba Watt.; G. spinosa Du Rham.; Acacia tricanáthos Hort.; Acacia americana Pluk.; Févier d'Amérique, Fr.; F. americana, Ital.; Thorny Acacia, Sweet Locust, United States; Carouge à Miel, Canada.


Γ G. t. 2 inermis Dec., G. la'vis Hort. (Dec. Leg. Mém., 2. t. 22. fig. 109.; Catesb. Carol., 1. t. 43.; Pluk. Alm., t. 123. fig. 3.; and the plates of this variety in Arb. Brit., 1st edit., vol. v.), has the stem and branches not spiny, or but very sparingly so.


The trunk and branches, when the tree is young, are covered with large prickles, which, though they are not ligneous, become hard, and remain on for several years, and offer a formidable defence. These prickles are not only produced by the young wood, but occasionally protrude themselves from the trunk, even when the tree is of considerable bulk and age. In general, the trunk presents a twisted appearance, and the branches proceed from it rather horizontally than in an upright direction. The pinnated foliage is particularly elegant, and of an agreeable light shining green; it appears late in spring, the trees in the neighbourhood of London sometimes not being fully clothed till the middle or end of June; and it begins to turn yellow, and drop off, early in autumn. The flowers are inconspicuous; the male flowers being in the form of cattik-like racemes of nearly the same colour as the leaves. Some trees in the grounds at Syon have ripened seeds, the pods containing which, being 1 ft. to 2 ft. in length, and remaining on the trees after the leaves are off, have a singular appearance. These crooked pendulous pods are of a reddish
brown colour; they contain hard, smooth, brown seeds, enveloped in a pulpy substance, which, for about a month after the maturity of the seeds, is very sweet, but after a few weeks becomes extremely sour. The rate of growth of this tree, for the first 15 or 20 years, is generally about the average of a foot a year; but in favourable situations it will grow at double that rate. In the garden of the Hort. Soc., and in the arboretum of the Messrs. Lodiges, plants 10 years planted were, in 1835, from 20 ft. to 25 ft. in height. The wood of this tree, when dry, weighs at the rate of 32 lb. the cubic foot: it is very hard, and splits with great facility, resembling in this and other respects the wood of the robinia; but its grain is coarser, and its pores more open. In Britain, this, and all the kinds of the genus, can only be considered as ornamental trees; but in that character they hold the first rank; their delicate acacia-like foliage, and the singularly varied, graceful, and picturesque forms assumed by the tree, more especially when young or middle-aged, together with the singular feature afforded by its spines, will always recommend it in ornamental plantations. It requires a deep, rich, free soil, and a situation not exposed to high winds; and it requires the South of England or France to ripen the seeds. The species is always propagated by seeds imported from America, or from France or Italy. The plants are best transplanted to where they are finally to remain when quite young; as they make but few fibrous roots, and these take, for the most part, a descending direction. The variety G. t. inermis can only be insured by grafting on the species. In general, however, abundance of plants without spines may be selected from beds of seedlings of G. triacanthos.

‡ 2. G. (t.) monosperma Walt. The one-seeded Gleditschia, or Water Locust.

Engravings. Mill. Icon., 5; and our fig. 413; in which the male flower, the pod, and the seed, are of the natural size.


Closely resembles the honey locust, from which, in England, where neither of them ripens seeds, it is almost impossible to distinguish it. The bark,
though smooth when the tree is young, yet cracks and scales off when the tree grows old, as in G. triacanthos. The leaves, Michaux says, differ from those of G. triacanthos, in being a little smaller in all their proportions. The branches are armed with thorns, which are also less numerous, and somewhat smaller than those of G. triacanthos. The tree is treated in all respects like G. triacanthos; of which it has, till lately, been considered only a variety. It is raised in the nurseries from imported seed; but whether the plants really turn out perfectly distinct, with respect to the form of their fruit, is uncertain; from their not having yet, as far as we know, fruited in England.


*Varieties.*

♀ G. s. 2 inérmis N. Du Ham., G. japonica Lodd. Cat., G. javánica Lam. (see the plate of this tree in Arb. Brit., 1st edit., vol. v.; and our fig. 414.), differs from G. sinensis in being without spines, of much less vigorous growth, and in having the foliage of a much deeper green. It seems a very desirable variety for small gardens.

♀ G. s. 3 mágior Hort., G. hórida mágior Lodd. Cat., seems scarcely to differ from the species.

♀ G. s. 4 nánà Hort., G. h. nánà in Hort. Soc. Gard. (see the plate of this tree in Arb. Brit., 1st edit., vol. v.; and our fig. 415.), is a tree of somewhat lower growth than the species, but scarcely, as it appears to us, worth keeping distinct.

♀ G. s. 5 purpúrea Hort., G. h. purpúrea Lodd. Cat., (see the plate in Arb. Brit., 1st edit., vol. v.; and our fig. 416.), is a small tree of compact upright growth, very suitable for gardens of limited extent.

*Other Varieties of G. sinensis.*—In Loddiges’s arboretum there is a plant
marked *G. chinensis* (Potts), which was imported from China by the Hort. Soc. It is, at present, a low bush, and may, perhaps, prove something distinct. There were also, in 1835, in the Hort. Soc. Garden, some plants without names, apparently belonging to this species; but, as we have already observed, the genus is in great confusion, and nothing perfectly satisfactory can be stated respecting it.

The spines, which are very strong and branchy, are more abundant on the trunk than on the branches, and are frequently found in bundles.
The leaves are bipinnate, and the leaflets are elliptic obtuse, notched on the edges, smooth, shining, and much larger than those of any other species. (Desf. Arb., ii. p. 248.) The pods are rarely above 6 in. long. The tree stands the cold better than the honey locust, and has ripened its fruit in Paris, in the Jardin des Plantes, and in the nursery of M. Cels. (Dict. des Eaux et des Forêts, vol. ii. p. 150.)

† 4. G. (s.) macracanthia Desf. The long-spined Gleditschia.


Synonymes. G. ferox Baudr.; Fevier à grosses Épines, Fr.


The prickles are axillary and large. The leaves are twice winged; the leaflets large, coriaceous, dark green, and shining on the upper surface. The young shoots are covered with extremely short hairs, and are of a purplish brown colour. On the whole, it bears a close resemblance to G. sinensis, of which it is, probably, only a variety. It is very hardy; and Desfontaines says that it fruits freely in France. The fruit ripens in the autumn; and the pods are long, pendulous, swelled, and rather cylindrical. They are filled with a sharp acid pulp, somewhat resembling that of tamarinds, but the emanations from which, when inhaled, occasion sneezing.

† 5. G. (s.) Fe'roX Desf. The ferocious-prickled Gleditschia.


Synonymes. G. orientalis Bosc; Fevier hérisse, Fr.

Engraving. Our fig. in p.


A middle-sized branching deciduous tree, the trunk of which is thickly beset with strong branchy prickles, and which is supposed to grow from 30 ft. to 50 ft. in height; but of which the native country, and year of introduction into Britain, are unknown. Judging from the plants in the Hort. Soc. Garden, and those in the arboretum of Messrs. Lodges, we should say it was only a variety of G. sinensis; though Desfontaines states the foliage and habit of growth to be somewhat different. It has not yet flowered in Europe.

† 6. G. ca'ispica Desf. The Caspian Gleditschia.


Synonymes. G. caspica Bosc.

Engraving Our fig. 417.


Nothing is known of its flowers and fruit; but it strongly resembles G. sinensis (of which it is, probably, only a variety) in its leaves, general appearance, and habit.

Variety.

† G. c. 2 subei'secons Hort., Févier verdître, Fr., is mentioned in the Don Jardiniere for 1836, as a variety of this species.

Other Sorts of Gleditschia.—Every modification of the species of this genus is so interesting, both in point of the elegance of its foliage, and the singularity of its prickles, that new varieties have been eagerly sought after by cultivators; and the genus seems particularly favourable to this desire, from the tendency of seedling plants to sport. Hence there are several names in collections, of
which it is difficult to say anything satisfactory in the present young and immature state of the plants. In the Hort. Soc. Garden, there were in 1837 *G. microcarantha*, *G. Böqui*, and *G. praecox*; and in Messrs. Loddiges's arboretum were plants marked *G. aquatica*, which are evidently the same as *G. monosperma*, *G. orientalis*, evidently *G. ferox*, *G. chinensis* (already mentioned); and some young plants without names.

Genus XXI.


Derivation. From gymnos, naked, and *klados*, a branch; from the naked appearance of the branches during winter, when they seem, unless perhaps at the points of the shoots, totally devoid of buds.


Leaves compound, alternate, stipulate, deciduous; bipinnate. Flowers in terminal racemes, white. — A tree, deciduous, with upright branches and inconspicuous buds; native of North America.

1. G. CANADE'NSIS Lam. The Canada Gymnocladus, or Kentucky Coffee Tree.


Spec. Char., &c. Branches blunt at the tip, bipinnate leaves, flowers in racemes, and whitish petals. The leaf has 4—7 pinæ; the lower of which consist each of but a single leaflet, the rest each of 6—8 pairs of leaflets. (*Dec Prod.*) A singular tree. Canada. Height 30 ft. to 60 ft. Introduced in 1748. Flowers white; May to July. Decaying leaves yellow. Naked young wood of a mealy white, without any appearance of buds.

The branches have almost always an upright direction; and the appearance of the head, in the winter season, is remarkable, from being fastigiate, and from the points of the branches being few, and thick and blunt, as compared with those of almost every other tree. They are also wholly without the appearance of buds; and this latter circumstance, connected with the former, gives the tree, during winter, the appearance of being dead; and hence the Canadian name of chicot, or stump tree. The leaves, on young thriving trees, are 3 ft. long, and 20 in. wide; but, on trees nearly full grown, they are not half that size. The leaflets are of a dull bluish green, and the branches of the petioles are somewhat of a violet colour. It is very hardy, and flowers freely in the neighbourhood of London, but does not produce pods. The wood is hard, compact, strong, tough, and of a fine rose colour. In America, it is used both in cabinet-making and carpentry, and, like the wood of the robinia, it has the remarkable property of rapidly converting its sap-wood into heart-wood; so that a trunk 6 in. in diameter has not more than six lines of sap-wood, and may, consequently, be almost entirely employed for useful purposes. The seeds were, at one time, roasted and ground as a substitute for coffee in Kentucky and Tennessee; but their use in this way has been long since discontinued. The pods, preserved like those of the tamarind (to which
this genus is nearly allied), are said to be wholesome, and slightly aperient. In Britain, the only use of the tree is for ornamental purposes; and, considered as an object of curiosity and beauty, no collection ought to be without it. A rich, deep, free soil is essential to the thriving of this tree; and such a soil is never met with naturally in exposed situations. The tree is generally propagated by imported seeds; but it will grow freely from cuttings of the roots, care being taken in planting to keep that end upwards which is naturally so.

**Genus XXII.**

*CERCIS* L. THE JUDAS TREE. *Lin. Syst. Decándria Monogyny.*


*Derivation.* From *kerkis*, a shuttlecock, the name given by Theophrastus to this tree.

*Gen. Char.* Calyx urceolate at the base and gibbous, bluntly 5-toothed at the apex. Petals 5, unguiculate, all distinct, disposed in a papilionaceous manner; the wings or side petals the largest. Stamens 10, free, unequal. Ovary on a short stipe. Legume oblong, slender, compressed, 1-celled, many-seeded, somewhat winged on the seminferous suture. Seeds obovate. (Don's Mill.)
Leaves simple, alternate, stipulate, deciduous; heart-shaped at the base, many-nerved, rising after the flowers have decayed. *Flowers* in 1-flowered pedicels, rising from the trunk and branches in fascicles.—Trees, deciduous, of the third rank; natives of Europe, or North America. Decaying leaves yellowish purple. Propagated by seeds or grafting.

† 1. C. *Silquastrum* L. *The common Judas Tree*


**Engravings.** N. Du Ham., t. 7.; Bot. Mag., t. 1158.; the plates of this species in Arb. Brit., 1st edit., vol. v.; and our fig. 419.

**Spec. Char., &c.** Leaves very obtuse, and wholly glabrous. (Dec. Prod.) A low tree. South of Europe, in Greece, in Asiatic Turkey, and more especially in Judea. Height 20 ft. to 30 ft. Introduced in 1596. Flowers purplish pink; May. Legume brown; ripe in September. Decaying leaves yellowish purple.

**Varieties.**

‡ C. S. 2 *parviflorum* Dec.—A shrub; its branches spotted with white, its flowers smaller by half than those of the species. A native of Bokhara.

‡ C. S. 3 *floræ albidæ.*—Flowers whitish. H. S.

‡ C. S. 4 *rosea.*—A seedling, raised from foreign seeds, which has flowered in the Botanic Garden at Kew; has numerous flowers, which are brighter, and a shade darker, than those of the species; and they also appear about a fortnight later; but it is, perhaps, hardly worth noticing as a variety.

The common Judas tree, in the South of Europe, forms a handsome low tree, with a flat spreading head, in the form of a parasol; and it is a singularly
beautiful object in spring, especially when it is covered with its numerous bright purplish pink flowers, which appear before the leaves, and are produced not only from the young wood, but from wood of 6 or 8 years growth, and even from the trunk. The leaves are not liable to be attacked by insects. The flowers are succeeded by flat, thin, brown pods, nearly 6 in. in length, which remain on the tree all the year, and give it a very singular appearance in the winter season. The rate of growth is about 18 in. a year, for the first 10 years. The wood is very hard, and agreeably veined, or rather blotched or waved, with black, green, and yellow spots, on a grey ground. It takes a beautiful polish, and weighs nearly 48 lb. to the cubic foot. The flowers, which have an agreeable acid taste, are mixed with salads, or fried with batter, as fritters; and the flower-buds are pickled in vinegar. In British gardens, the tree grows about the same height, and flowers about the same time, as the laburnum, the Guelder rose, and the hawthorn, and enters into beautiful combination with these and other trees. The foliage is hardly less beautiful and remarkable than the flowers; the leaves being of a pale bluish green on the upper surface; and of a sea-green underneath, and of a cordate reniform shape, apparently consisting of two leaflets joined together; which circumstance, combined with others, brings the genus in close alliance with that of Bauhinia. Like most of the Leguminosae, this tree prefers a deep, free, sandy soil, rich rather than poor; and it will only thrive, and become a handsome tree, in sheltered situations. In the northern parts of the island, it requires to be planted against a wall; and few ornamental trees better deserve such a situation. The species is propagated by seeds, and the varieties by grafting. The seeds are sown on heat early in spring, and come up the same season; and the plants will produce flowers in three or four years.

† 2. *C. canadensis* L. The Canada Judas Tree.


*Synonyms* Silphium cordatum Meth.; red Bird Tree, Amer.; Gainier de Canada, Boujon rouge, Fr.

*Engravings* Mill. Icon., t. 2.; the plate of this species in Arb. Brit., 1st edit., vol. v.; and our fig. 420.

---

258 ARBORETUM ET FRUTICETUM BRITANNICUM.
Spec. Char., &c. Leaves acuminate, villose beneath at the axils of the veins. As compared with C. Siliquastrum, its flowers are of a paler rose colour, the legume is on a longer pedicel, and tipped with a longer style. A low tree. Canada to Virginia. (Dec. Prod.) Height 10 ft. to 20 ft. Introd. 1730. Flowers red; May and June; Legume brown; ripe in August.

Variety.
+ C. c. pubescens Ph. — Leaves pubescent on the under surface. (Dec.)

This tree bears a general resemblance to the preceding species; but it is more slender and smaller in all its parts; and it seldom rises higher than 20 feet. It is at once distinguished from C. Siliquastrum by its leaves being heart-shaped and pointed; they are also much thinner, more veined, and of a lighter green; and the flowers are generally produced in smaller numbers than in the other species. The flowers are used by the French Canadians in salads and pickles, and the young branches to dye wool of a mankeen colour. The wood resembles that of the other species. Propagated by imported seeds, and considered more tender than C. Siliquastrum.

Order XXVI. ROSA'CEÆ.

The term Rosaceæ has been applied to this order, because all the species belonging to it agree more or less with the genus Rosa, in essential characters. It includes many genera belonging to the Linnaean class Icosandria.

Ord. Char. Flowers regular. Calyx, in most cases, with 5 lobes, the odd one posterior to the axis of inflorescence. Petals and stamens arising from the calyx. Stamens, for the most part, numerous. Ovaries many, several, or solitary; each of one cell that includes, in most cases, 1 ovule; in some, 1 to many ovules. Style lateral or terminal.

Leaves simple, or pinnately divided, alternate, in nearly all stipulate. Flowers showy, with numerous stamens. Fruit, in many of the genera, edible.

—Trees and shrubs, mostly deciduous; natives of Europe, Asia, and America.

The ligneous species which constitute this order include the finest flowering shrub in the world, the rose; and the trees which produce the most useful and agreeable fruits of temperate climates, viz. the apple, the pear, the plum, the cherry, the apricot, the peach, and the nectarine. The plants are, for the most part, deciduous low trees or shrubs, all producing flowers more or less showy; and the greater number fruits which are edible. They are chiefly natives of Europe and Asia; but several of them are also found in North America, and some in South America, and the North of Africa. The fruit-bearing species, and the rose, have followed man from the earliest period of civilisation, and are, perhaps, better known to mankind in general than any other ligneous plants. The medical properties of several of the species are remarkable, from the circumstance of their yielding the prussic acid; while others produce a gum nearly allied to the gum Arabic, which indicates a degree of affinity between this order and Leguminaceæ. The bark of some species, as of Cerasus virginiana, is used, in North America, as a febrifuge; and that of others, as the capollin cherry (Cerasus Capollin), for tanning, in Mexico. The leaves of Crataegus Oxycanthæ, Prunus spinosa, Cerasus Sylvæstræ, and Rósa Rubigínosa, have been used as a substitute for tea, or for adulterating tea. The leaves and bark of the spíráææ are said to be at once astrangent and emetic. There are two characteristics of this order, with reference to its cultivation, which are of great importance to the gardener: the first is, the liability of almost all the species to sport, and produce varieties differing, in many cases, more from one another, than they differ from other species; and the second is, that they are remarkably subject to
the attacks of insects and diseases. They usually all require a free loamy soil, not overcharged with moisture, and rich rather than poor; and, while all the species are increased by seeds, which, for the most part, are produced freely in Britain, or by cuttings of the roots, almost all the varieties are best increased by grafting or budding; and not, as in some other orders, with equal ease by cuttings of the shoots, or by layers.

With reference to landscape-gardening, all the rosaceous trees have three properties which deserve to be kept constantly in view by the improver of grounds: 1st, they never attain a large size; 2d, they attain their natural size and shape in a very few years, in good soil not requiring more than from 10 to 20 years; and 3d, they sooner take the character of old trees than the trees of any other natural order of ligneous plants. A few exceptions may be taken from different orders, such as the common field maple, the common laburnum, &c. ; but we know of no natural order, in which, like the Rosaeaces, all the trees are low or middle-sized, and all take the character of age while comparatively young. Hence their value in laying out small places, where the object is to make a new place appear old, or a small place appear large, and at the same time to combine character of form with beautiful blossoms in spring, and showy (Crataegus, Cotoneaster, and Amelanchier) or useful (Pyrus and Prunus) fruit in autumn.

The genera are included by De Candolle and G. Don in five tribes; and the following are their names and distinctions:—

Sect. I. Amygda'lee Juss.

Sect. Char. Fruit a drupe; the nut 2-ovuled, 1—2-seeded. Style terminal.

Calyx deciduous. Leaves feather-nerved, undivided, serrate, with the lower serratures or the petioles glanded. Stipules not attached to the petiole. Kernel containing more or less of hydrocyanic acid: chiefly fruit trees.

Amyg'dalus Tourn. Covering of nut not fleshy; nut even, or perforated. Young leaves folded flatwise. Flowers almost sessile, solitary or twin, protruded before the leaves.

Persica Tourn. Covering of nut very fleshy; nut wrinkled. The characters of the other parts described under Amygdalus are the same in Persica.

Armeni'aca Tourn. Covering of nut fleshy; nut furrowed at both edges, in the other parts even. Young leaves with their edges rolled inwards. Flowers almost sessile, solitary or a few together, protruded before the leaves.

Prunus Tourn. Covering of nut fleshy; nut indistinctly furrowed at the edges, in the other parts even. Young leaves with the edges rolled inwards. Flowers upon pedicels, in groups resembling umbels, and produced before or after the leaves.

Cerasus Juss. Nut subglobose, even, its covering fleshy. Young leaves folded flatwise. Flowers upon pedicels, either in groups resembling umbels, and produced before the leaves, or in racemes terminal to the shoots, protruded along with them.

Sect. II. Spirae'e Dec.

Sect. Char. Fruit of 5, or fewer, capsular carpels, which are distinct from the calyx (which is persistent in Spiræ'a, and, perhaps, in the other genera), and, in most cases, from each other: each contains 1—6 seeds. Style terminal. Low deciduous shrubs.


Spiræ'a L. Stamens 10—50. Carpels 1 to several, distinct; stipitate; each includes 2—6 seeds, affixed to the inner suture.

Sect. III. Potenti'lee Juss. (Synon. Dryadeæ Vent.)

Sect. Char. Fruit an aggregation of carpels; their integuments dry or
succulent; the carpels distinct from one another, and from the calyx, which is persistent, and surrounds them, and, in many, is subtended by as many bracteas as it has lobes; the bracteas alternate with the lobes. Style proceeding from a little below the tip of the carpel. Leaves, in most cases, pinnately divided. Stipules attached to the petiole. Shrubs bearing fruit, or ornamental.

Rhubus L. Integuments of carpels juicy.

Potentilla Nost. Integuments of carpels dry.

Sect. IV. Rosaceae Dec.

Sect. Char. Fruit a hip; that is, with the tube of the calyx fleshy, of a pitcher shape, contracted at the mouth; and including an aggregation of carpels attached to its inner face. Style proceeding from the inner side of the carpel. Shrubs eminently ornamental.

Rosa Tourn. Leaf impari-pinnate. Stipules attached to the petiole. Prickles simple.


Sect. V. Poeae Lindl.

Sect. Char. Fruit a pome; that is, with the tube of the calyx become very fleshy, and including, and connate with, the carpels. Carpels normally 5, with gristy or bony walls, including 1—2 seeds; in Cydonia, several. Habit spiny or not; leaves, in most cases, undivided, in some pinnate. Stipules not connate with the petiole. Ornamental low trees, or large shrubs, with showy flowers, in some genera spiny, and in others bearing some of our best hardy kitchen and dessert fruits.

Crataegus Lindl. Carpels 1—5 prismatic nuts with bony shells, each including 1 seed. Leaves angled or toothed; in most cases deciduous. Flowers in terminal corymbs. Spiny shrubs or low trees.


Cotoneaster Medik. Carpels 2—3; ovules 2 in each cell. Leaves simple, entire, woolly beneath. Flowers in lateral spreading corymbs.


Heptophyllum Lindl. Carpels 2—5 compressed nuts with bony shells, each including 1 seed. Leaves lanceolate, serrulate, deciduous. Flowers large, subsessile, sub solitary.

Pyrus Lindl. Carpels 5, or 2—5. Seeds 2 in each carpel. Leaves simple or pinnate, deciduous. Flowers in spreading terminal cymes or corymbs.

Cydonia Tourn. Carpels 5, each including many seeds.

---

Sect. I. Amygdaleae Juss.

Genus I.


**Gen. Char.** Drupe clothed with velvety pubescence, having a dry rind, which separates irregularly, containing a pitted or smooth putamen or nut. (Don's Mill.)

Leaves simple, conuplicate when young, alternate, stipulate, deciduous. Flowers nearly sessile, usually pink or rose coloured, rising either singly or by pairs from the scaly buds, earlier than the leaves. — Shrubs or trees of the middle size, deciduous. Natives of the North of Africa, and the mountains of Asia; also of Russia, and the Levant.

The fruit-bearing species are cultivated in the Middle and South of Europe and the Levant, and are propagated chiefly by grafting; and the others by grafting, layers, suckers, or cuttings of the root. The almond was included by Linnaeus in the same genus with the peach and nectarine, of both of which it is, doubtless, the parent, as trees have been found with almonds in a state of transition to peaches, and with both peaches and nectarines on the same branch.

1. A. **na'na** L. The dwarf, or shrubby, Almond.

**Spec. Char.** Leaves oblong-linear, tapered at the base, serrated, glabrous; flowers solitary, rose-coloured. Calyx cylindrically bell-shaped. Fruit of the same shape as that of A. communis, but much smaller. (Dec. Prod.) A deciduous low shrub. Calmee Tartary, very frequent on the banks of the Volga, and about Odessa. Height 2 ft. to 3 ft. Introduced in 1683. Flowers rose coloured; March and April.

**Varieties.**

- A. n. 2 géorgica Dec. A. géorgica Desf. Arb. 2. p. 221., and Lodd. Cat.—It differs from the species in having the lobes of the calyx lanceolate, and as long as its tube; and the styles only tomentose at the base, being scarcely so there, and not protruded. A native of Georgia, which has been cultivated in the Geneva Botanic Garden.

- A. n. 3 campéstria Ser. A. campéstria Besser Enum. p. 46. No. 1425., Hort. Fl. Aust. 2. p. 2., and Lodd. Cat.; A. Besserinita Schott in Cat. Hort. Vindob. 1818, and Lodd. Cat.—Leaves broader. Lobes of the calyx as long as the tube. Petals narrower, longer, and white. Styles tomentose at the base. The form of the nut, according to Besser, is various. Supposed to be a native of the South of Podolia. (Dec. Prod.) This variety is in the Hort. Soc. Garden, where it was raised from seeds received from Dr. Fischer of Petersburg.

- A. n. 4 sibirica Lodd. Cat., and Lodd. Bot. Cab. 1599., and our fig. 421., is extant in some British botanical collections, where it is an upright shrub, about 6 ft. high, with wand-like shoots, clothed with fine, long, willow-like, glossy, serrate leaves; on account of which, and its upright habit of growth, the latter being different from that of all the other species and varieties of almond, it is valuable in every collection where variety of character is desired. H. 8.

All the different forms of the dwarf almond are low shrubs, seldom exceeding 2 or 3 feet in height. The leaves bear a general resemblance to those of som
of the species of willow, but are of a darker and more shining green, at least in the original species. The stems are not of long duration; but the plant throws up abundance of travelling suckers, by which it is continued naturally, and also propagated. It is common through all the plains of Russia, from 55° N. lat. to the south of the empire. In British gardens it is valuable on account of its early flowering, the gracefulness of the slender twigs, on which its flowers are produced before the leaves appear, and of its easy culture in any dry soil. Its fruit resembles that of *A. communis*, but is much smaller, and rarely seen in England. The plant, which is usually called the dwarf double-blossomed almond in British gardens, is *Cerasus japonica flore pleno*, or, as it is frequently named in the nurseries, *Amygdalus pumila*.

**2. *Amygdalus* Comm.**


Flowers red; March and April.

Readily known from *A. nana* by its leaves being covered with hoariness beneath. Increased by budding on the common plum.

**3. *Amygdalus* L.** The common Almond Tree.


**Varieties.**

**A. c. 1 amara** Dec. The bitter Almond. Amandier amer, Fr.; gemeine Mandelbaum, Ger. — Flowers large. Petals pale pink, with a tinge of rose colour at the base. Styles nearly as long as the stamens, and tomentose in the lower part. Seeds bitter. There are two forms of the bitter almond; one with a hard shell, and the other with a brittle one. The tree is cultivated in the South of France, in Austria, in Italy, in Greece, &c. for its fruit, which is preferred for some purposes in medicine and in domestic economy to that of the sweet almond, particularly for giving a flavour; and for stocks for grafting the other varieties on, and the peach, apricot, and even the plum. Bitter almonds are generally mixed with sweet ones, in very small proportions, for making blançmange, &c.
264  ARBORETUM ET FRUTICETUM BRITANNICUM.

243. Amygdalus communis.

A. c. 2 dêleis Dec., Lam. ill. t. 430. The sweet Almond. Amandier à petits Fruits, Amande douce, Fr.; susse Mandel, Ger.—Leaves grey-green. Flowers protruded earlier than the leaves. Styles much longer than the stamens. Fruit ovate-compressed, acuminate. Shell hard. Kernel sweet-flavoured. Cultivated in the same places as the preceding sort, and generally propagated by grafting standard high on the bitter almond, or any strong-growing seedling almonds, in order to make sure of the fruit being sweet.

A. c. 3 floré plêno Baum. Cat. has double flowers.

A. c. 4 fêlis variegâtis Baum. Cat. has variegated leaves.

A. c. 5 frâégis Ser., Dec. Prod. 2. p. 531. A. frâégis Hell. 1. p. 500.; Amandier des Dames, N. Du Ham. 4. p. 113., Noisette Jard, Fruit. p. 7.; Coque molle, Amandier à Coque tendre, Fr.; Abellan, Provence.—Flowers protruded at the same time as the leaves, and of a pale rose colour. Petals broader, and deeply emarginate. Leaves shorter; the petioles thick. Fruit acuminate; shell soft; kernel sweet-flavoured. Cultivated for its fruit.

A. c. 6 macrocarpa Ser., Dec. Prod. 2. p. 531. Amandier à gros Fruits, N. Du Ham. 4. p. 112., Noisette Jard, Fruit. p. 7.; Amandier Sultane, Amandier des Dames, Amandier Pistache, Fr.—Leaves broader, acuminate, scarcely grey. Pedunces short, turgid. Flowers of a very pale rose colour, large, protruded before the leaves. Petals broadly obcordate, waved. Fruit large, umbilicate at the base, acuminate at the tip; shell hard. There are two subvarieties, one with the fruit rather smaller, called, commonly, in France, Amandier Sultane; and another, with the fruit still smaller, called there Amandier Pistache; the kernels of both of which are considered remarkably delicate, and are preferred for the table. The flowers of this variety are always produced earlier than those of any other; and the kernels of the fruit are always sweet. In British gardens, the A. c. macrocarpa has much the largest flowers of any of the varieties. It is a
vigorouls large tree, of rapid growth, somewhat more fastigiate than the species.

† A. c. 7 persicoides Ser., Dec. Prod. 2. p. 531 Amandier-Pêcher, N. Du Ham. 4. p. 114., Noisette Jard. Fruit, p 7. — Leaves similar to those of the peach tree. Fruit ovate, obtuse; its husk slightly succulent; the shell of a yellowish dark colour, and the kernel sweet-flavoured. Du Hamel has stated that its fruits vary upon the same branch, from ovate, obtuse, with the husk rather fleshy, to ovate, compressed, acuminate, and the husk dry. Cultivated in France and Italy for its fruit, but rarely found in British gardens.

Other Varieties. The almond, considered as a fruit tree, has given rise to some other varieties, which will be found treated of at length in French works on gardening, in the Nouveau Du Hamel, and the Nouveau Cours d’Agriculture.

There are several varieties of the almond in cultivation on the Continent for their fruit; and two or three in this country, partly for the same purpose, but chiefly for their flowers. The common almond, in a wild state, is found sometimes with the kernels bitter, and at other times with them sweet; in the same manner as the Quercus hispanica, which, in Spain, though it generally bears sweet and edible acorns, yet sometimes produces only such as are bitter. For this reason, in the case of the almond, instead of giving one form as the species, we have followed De Candolle, and described both the bitter and the sweet almond separately, either of which may be considered as the species, and classed them with the varieties.

4. A. orientalis All. The Eastern Almond Tree.


Very striking, from the hoary, or rather silvery, appearance of its leaves; and it makes a handsome plant when budded standard high on the common almond or the plum. It flowers much less freely than the common almond; notwithstanding which, it well deserves a place in collections, on account of its fine silvery foliage.

Genus II.

PE`RSICA Tourne. The Peach Tree. Lin. Syst. Icosandria Monogynia


Derivation. So named from the peach coming originally from Persia.

Gen. Char. Drupe fleshy, with a glabrous or velvety apicarp, and having the putamen wrinkled from irregular furrows. (Don’s Mill.)

Leaves simple, alternate, stipulate, deciduous: conduplicate when young.
Flowers almost sessile, solitary, or twin, rising from the scaly buds earlier than the leaves.—Tree, deciduous, beneath the middle size, and not of long duration. Persia.

The peach and the nectarine are by some botanists made distinct species; but there can be no doubt of their being only varieties of one kind, which kind is itself nothing more than an improved or fleshy almond; the almond being to the peach and nectarine what the crab is to the apple, and the sloe to the plum.

† 1. *P. vulgaris* Mill. The common Peach Tree.


*Spec. Char., &c.* Fruit clothed with velvety tomentum. A deciduous tree
Persia. Height 20 ft. to 30 ft. Cultivated in 1562, or probably long before.
Flowers rose-coloured; March and April. Fruit red and yellow; ripe in
September.

Varieties.

† *P. v. 1*, the freestone common Peach, Pêche, Fr., has the flesh of the fruit parting from the shell of the nut (the stone).

† *P. v. 2*, the clingstone common Peach, Pavie, Fr., has the flesh of the fruit adhering to the shell of the nut.

† *P. v. 3 fâtre pleno* Hort.—Flowers double.

& *P. v. 4 alba* Lindl.—Flowers white. A hardy ornamental shrub, with the habit of an almond. Its fruit has little merit.

† *P. v. 5 foliis variegatis* Hort.—Leaves variegated.

& *P. v. 6 compréissa* Hort., the flat Peach of China (Hort. Trans. iv. t. 19.; and our fig. 428.), is chiefly remarkable for the form of its fruit, and for being nearly evergreen in its leaves. In the Hort. Soc. Garden, against a wall, it keeps growing throughout the winter, when the weather is not too severe.
2. P. (v.) LE'VIS Dec. The smooth-skinned Peach, or Nectarine Tree.


Varieties.

† P. (v.) l. 1, the freestone Nectarine (with the fruit parting from the nut). Pêche lisse, Fr. — The Elrange is the best variety.

† P. (v.) l. 2, the clingstone Nectarine (with the flesh adhering to the nut). Brugnon, Fr. — The Orange is the best variety.

The different varieties of peach and nectarine, when treated as standard trees in the open garden, assume the general form and character of the almond; but, as they are more delicate, in consequence of being farther removed from their aboriginal state, they are of slower growth, form trees of less size, and are of shorter duration. The nectarine, as a standard in the open garden, forms a smaller and more delicate tree than the peach; and the double-flowered peach is of less vigorous growth than most of the single-flowered varieties, but very ornamental.

Genus III.

ARME'NACEA. The APRICOT. Lin. Syst. Icosándria Monogónia.


Synonymes. Prunus sp. of Lin. and others; Abricotier, Fr.; Aprikosenbaum, Ger.; Albicocco, Ital.

Derivation. The genus is named Armeniaca, from the apricot being originally from Armenia. The popular English name was originally pracoeca, from the Arabic, berkoche; whence the Tuscan bacoche, or alsicoce; and the English, abricot, or apricock, eventually corrupted into apricot. Some persons derive the name from præcor, from this fruit ripening sooner than most others.

Gen. Char. Drupe ovate globose, fleshy, covered with a velvety skin, containing a nut or stone, which is acute at one end, and blunt at the other, with a furrow on both sides; the rest smooth, not wrinkled. (Don's Mill.)

Leaves simple, alternate, stipulate, deciduous; when young, convolute. Flowers almost sessile, solitary, or few together, rising before the leaves from scaly buds. — Trees, low, deciduous, or shrubs; natives of Europe and Asia.

The common apricot is a fruit tree in general cultivation throughout the temperate regions of the globe, distinguished at first sight from the almond, peach, and nectarine, by its heart-shaped, smooth, shining leaves, and white flowers. There are several wild varieties, bearing flowers of different shades of pink, chiefly cultivated as ornamental. The great beauty of both the wild and the cultivated sorts of apricot is, that they come into bloom in Britain before almost every other tree; the Siberian apricot flowering a fortnight, or more, before the common sloe or almond.

† 1. A. vulgá'res Lam. The common Apricot Tree.


Varieties.

† A. v. 1 ovalifolia Ser.  Apricot Angoumois, A. précoce, A. blanc, Fr (N. Du Ham., 5. t. 50. f. 6.; and our fig. 429.)—Leaves oval; fruit small.

† A. v. 2 cordifolia Ser. (N. Du Ham., 5. p. 167. t. 49; and our fig. 430.)—Leaves heart-shaped, broad. Fruit larger.

† A. v. 3 foliis variegatis Hort. —Leaves variegated. Flowers double. The Breda variety is generally that which has variegated leaves in British gardens.

† A. v. 4 flore pleno Hort. —Grossier says that the Chinese have a great many varieties of double-blossomed apricots, which they plant on little mounts.

Very few trees attain the appearance of maturity so soon as the apricot; a standard 10 or 12 years planted, in good loamy rich soil, will grow to the height of 20 ft., with a head 25 ft. in diameter, presenting all the appearance of a tree of 20 or 30 years’ growth, or of a tree arrived at maturity. The best variety for producing fruit, as a standard, is the Breda apricot. It is also a very handsome-growing plant, and its blossom buds, before they are expanded, are of a most beautiful and brilliant scarlet.

† 2. A. dasyca'arpa Pers.  The rough-fruited Apricot Tree.


Spec. Char., &c. Leaves ovate, acuminate, doubly serrate. Petioles glanded. Flowers upon thread-shaped pedicels. In the flowers of a plant in the Geneva Botanic Garden, the calyx was purple, and 6-lobed; the petals were 6; and the stamens 24. (Dec. Prod.) A tree with a twisted trunk, resembling the common apricot, but smaller. Levant? Height 10 ft. to 15 ft. Introduced in 1800. Flowers white; April. Drupe purple or black; ripe in August and September.
XXVI ROSA'CFE: ARMEHI'ACA.

Variety.

\[ A. d. 2 \text{ persicifolia} \text{ Lois.} \ A. \text{ persicifolia Don's Mill., ii. p. 498. Abricot}\]

noir à Feuilles de l'écher, \textit{Fy}. (N. Du Ham., 5. p. 172. t. 52. f. 1.; \text{and our fig. 434.})—Leaves ovate and short, or lanceolate, with small lobes. Flesh of the fruit red, variegated with pale yellow. In the \textit{Nouveau Du Hamel}, it is stated to be a very slight variety, which can only be continued by budding.

The rough-fruited apricot merits cultivation for its flowers, which are generally white, but which, in this country, from the earliness of their appearance, are not often succeeded by fruit, unless the tree is planted against a wall, where it can be protected by netting from the spring frosts.

\[ 3. \ A. (v.) \text{ sibirica} \text{ Pers.} \text{ The Siberian Apricot Tree.} \]


\textbf{Synonyme.} Franus \textit{sibirica} \textit{Lin. Sp.} 129.

Spec. Char., &c. Leaves ovate acuminate, of the form of those of the beech. The petioles long and glandless. Fruit small. A native of mountainous districts in the most remote parts of Siberia. Persoon has stated that it varies with leaves linear-lanceolate. (Dec. Prod.) A low tree, having the general appearance of the common apricot, but smaller in all its parts. Dahuria, on mountains, growing upon the face of perpendicular rocks exposed to the sun. Height 6 ft. to 8 ft.; in England 8 ft. to 20 ft. Introduced in 1788. Flowers rose-coloured; May. Drupe.

This tree, on the mountains of Dahuria, does not attain a greater height than that of a man; but it has a trunk the thickness of the wrist, a rough and black bark, and hard wood. It flowers about the same time as the Rhododendron diuricum; growing on the south sides of the mountains, while the latter grows on the north sides. When both these plants are in flower, Pallas observes, the north sides of the mountains appear of a purple colour, and the south of a rose colour. (Fl. Ross., i. p. 13.) In British gardens, the Siberian apricot forms a tree of nearly the same height as the common apricot, of which it appears to us to be the wild form.


Engravings. N. Du Ham., 5. t. 59.; and our fig. 436.

Spec. Char., &c. Leaves nearly heart-shaped, toothed with numerous sharp subimbricate teeth. Flowers in groups, almost sessile, scarcely protruded before the leaves. (Dec. Prod.) A low tree. Dauphiné, in only one locality, and in another in Piedmont, where an oil, called huile de marmotte, has for a long time been expressed from the seeds. Height in British gardens 14 ft. to 15 ft. in 10 or 12 years; in its native habitats, 6 ft. to 8 ft. Introduced in 1819. Flowers white or pink; March and April. Drupe.

Seringe suggested that this kind may be the same as A. sibirica, and we think it not unlikely to be only another variety of the common apricot in its wild state, with toothed leaves.

Other Species of Armeniaca.—A. pedunculata Led. has been raised in the Hort. Soc. Garden, from seeds received under this name from Dr. Ledebour.

Genus IV.


Synonyme. Prunophora Neck. Elem. No. 718.; Prunus sp. of Lind. and others; Prunus, Ital. Derivation. Said to be a word of Asiatic origin; the wild plant, according to Galen, being called prunus in Asia. The Greek name for the plum is prounos; it occurs in Theophrastus.

Gen. Char. Drupe ovate or oblong, fleshy, quite glabrous, covered with a glaucous bloom; containing a compressed nut or putamen, which is acute at both ends, and a little furrowed on the margin, the rest smooth. (Don's Mill.)

Leaves simple, alternate, stipulate, deciduous; convolute when young. Flowers usually disposed in umbellate fascicles, solitary on the pedicels, rising generally before the leaves.—Trees or shrubs; natives of Europe, Asia, and North America.
Many of the species are spiny in a wild state; most of them bear edible fruits; and all of them have showy blossoms. In British gardens, they are chiefly propagated by grafting, but some of them by layers; and they will grow in any soil that is tolerably free, and not overcharged with moisture, but a calcareous soil is found best. The epidermis of the bark of the plum, as well as that of the cherry, and perhaps that of some of the other genera of Amygdaleæ, is readily divisible transversely, and may frequently be seen divided in this manner into rings on the tree.

P. spinosa L. The spiny Plum Tree, or common Sloe Thorn.


Derivation. The name of Mère-du-Bôls is applied to the sloe thorn in France, in the neighbourhood of Montargis, because it has been remarked there, that, when it was established on the margins of woods, its underground shoots, and the suckers which sprang up from them, had a constant tendency to extend the wood over the adjoining fields.

Spec. Char., &c. Branches spiny. Leaves obovate, elliptical, or ovate; downy beneath, doubly and sharply toothed. Flowers produced before the leaves or with them, white, and solitary. Calyx campanulate; with lobes blunt, and longer than the tube. Fruit globose; the flesh austere. (Dec. Prod.) A low tree or shrub. Europe from Upsal to Naples, and the West of Asia and North of Africa. Height 10 ft. to 15 ft. Flowers white; March and April. Drupe black; ripe in October.

Varieties.

P. s. 1 vulgàris Ser. P. spinðosa Lois. (N. Du Ham., 5. p. 185. t. 54. f. 1.)—Leaves obovate-elliptical. Fruit dark purple. This may be considered as the normal form of the species.

P. s. 2 fòlius variegàtis Ser.—Found wild; but a plant of no beauty.

P. s. 3 microcarpa Wallr. (Exs. Cent. 1. No. 45.)—Leaves elliptic, narrow, bluntest. Fruit smaller than that of the species.

P. s. 4 macrocarpa Wallr. (Exs. Cent. 1. No. 45.)—Leaves obovate, bluntest. Fruit large, dark purple. This has been found wild in Germany; but Seringe doubts whether it be not identical with P. domestica Juliâna, or with P. insittitia.

P. s. 5 ovàta Ser. (Blackw. Herb., t. 191.)—Leaves ovate, roundish.

P. s. 6 flore pleno.—This is a very beautiful variety, said to be in cultivation, and highly prized, in China and Japan; and also found wild some years ago at Tarascon. The flowers are white, and are produced in such abundance as to entirely cover the branches.

The sloe, or blackthorn, is much more frequently seen as a large spiny shrub, than as a tree; but, when the suckers are removed from it, and all the strength of the plant is allowed to go into one stem, it forms a small scruffy tree of the most characteristic kind. The stems of the sloe differ from those of the hawthorn, in growing to the height of 3 or 4 feet before they branch off. The bark is black, whence the name of blackthorn; and the leaves are dark green. The roots are creeping; and, in every soil and situation, throw up numerous suckers; so much so, that a single plant, in a favourable soil, would cover an acre of ground in a very few years. In hedges, in Britain, it is seldom seen above 20 ft. in height; but in woods and in parks, as single trees, we have seen it above 30 ft. high; for example, in Eastwell Park, in Kent. The wood is hard, and in colour resembles that of the peach, though without its beauty; it takes a fine polish; but it is so apt to crack, that little use can be made of it, except for handles for tools, teeth for hay-rakes, singleties for flails, and walking-sticks. The wood weighs, when dry, nearly 52 lb. per cubic foot. The branches, from being less spreading than those of the common hawthorn, make better dead hedges than those of that species; and, for the same reason, they are particularly well adapted for forming guards to the stems of trees.
planted in grass fields or in parks, to protect them from cattle. They are in general use for this purpose in France. They are also used as a substitute for stones and tiles in draining; and, formed into faggots, they are sold for heating bakers' ovens, and for burning lime or chalk in kilns, &c. The living plant cannot be recommended for hedges, on account of the rambling habit of its roots, and the numerous suckers they throw up; and because it is apt to get naked below, from the tendency of the shoots to grow upright and without branches. These upright shoots make excellent walking-sticks, which, accordingly, throughout Europe, are more frequently taken from this tree than from any other. Leaves of the sloe, dried, are considered to form the best substitute for Chinese tea which has yet been tried in Europe; and they have been extensively used for the adulteration of that article. The juice of the ripe fruit is said to enter largely into the manufacture of the cheaper kinds of port wine; and, when properly fermented, it makes a wine strongly resembling new port. In planting groups and masses in parks, by the addition of a few plants of the sloe, a degree of intricacy may be given sooner and more effectively than by the use of the common thorn; but, at the same time, the sloe produces a degree of wildness from its numerous suckers, and the want of control which they indicate, which is not displayed by any of the species of Crataegus, which do not throw up suckers. For producing wildness and intricacy, therefore, in park scenery, the sloe is of great value, and its effect is much heightened by the addition of the common furze or the broom. The sloe prefers a strong calcareous loam. It may be propagated freely by suckers, or by seeds: the latter should be gathered in October, when the fruit is dead ripe, mixed with sand, and turned over two or three times in the course of the winter; and, being sown in February, they will come up in the month of May.

**2. P. insititia L.** The engrafted Plum Tree, or Bullace Plum.


*Synonyms.* P. sylvestris praecox Altor Tourn.; P. sylvestris major Ray; Prunier sauvage, Fr.; Alfatous, in Dauphiny; Kirschen Pflaume, Ger.


*Specific Char., &c.* Branches becoming spiny. Flowers in pairs. Leaves ovate or lanceolate; villose beneath, not flat. Fruit roundish. (Dec. Prod.) A low tree. England, Germany, and the South of France, and also Barbary. Height 10 ft. to 20 ft. Flowers white; March and April. Drupe black; ripe in October.

*Varieties.*

1. P. i. fructu nigro Hort. The black-fruited, or common, Bullace.

2. P. i. fructu luteo-albo Hort.—Fruit yellowish-white.
XXVI. ROSACEÆ: PRUNUS. 273

† P. i. 3 fructu rubro Hort. — Fruit red.
† P. i. 4 flöre pleno Descemet in Mém. de la Russie Méridionale, 1. p. 63. — Flowers double.

The fruit, which is globular, and usually black, is sometimes yellowish or waxy, with a red tint, and sometimes red; it is also so much less austere than the sloe, as to make excellent pies and puddings, and a very good preserve.

The fruit of this plum in Provence is called prune sibarelle, because it is impossible to whistle after having eaten it, from its sourness. The wood, the branches, the fruit, and the entire plant are used, throughout France, for the same purposes as that of the sloe.

† 3. P. doméstica L. The domestic cultivated Plum Tree.

† P. d. 2 flöre pleno Hort. — Flowers large, double.
† P. d. 3 foliis variegatis Hort. — Leaves variegated.
† P. d. 4 armenioides Ser. — Leaves and fruit like those of Armeniaca brigantica.

The cultivated plum resembles the common sloe, but is ger in all its parts, and without thorns. There are numerous varieties and subvarieties; but, as they belong more to pomology than to arboriculture, we have here only noticed those at this have some pretensions to distinctness in an ornamental point of view.
The apricot-like plum seems intermediate between the wild plum and the wild apricot. The varieties cultivated for their fruit have, in general, much larger leaves, and stronger young shoots, than the other sorts; they flower later, their blossoms are larger, and their fruit, particularly such sorts as the magnum bonum and the diamond plum, several times as large; the latter being upwards of 2½ in. long. These fruit-bearing varieties are in universal cultivation in temperate climates; and for every thing of interest relating to them, as such, we refer to our Encyclopædia of Gardening, edit. 1835, p. 920. The use of the fruit in domestic economy, in Britain, for the dessert, and for making tarts and puddings, is well known. In France, plums are used principally dried, as an article of commerce, and they are known under the name of brignoles, prunes, and French plums. The different modes of preserving plums in France will be found detailed at length in the 1st edit. of this work, and in our Suburban Horticulturist.

4. P. (d.) myrœbālāna L. The Myrobalan, or Cherry, Plum.


Synonymes. P. Myrobalan Du Ham.; P. myrobalana Lois.; P. cerasifera Ehrh. Beitr. 4. p. 17.; Virginian Cherry; Early Scarlet Plum; Prunier myrobalan, or Cerisette, Fr.; Kirschpfanne, Ger.

Engravings. Du Ham. Arb. Fr. 2. p. 111. t. 2. fig. 15.; the plate of this tree in Arb. Brit., 1st edit., vol. v.; and our fig. 440.


Variety.

♀ P. (d.) m. 2 folis variegatis N. Du Ham. has variegated leaves.

Though we consider this nothing more than a variety of the common plum yet it is so distinct, both in the habit of the tree and the colour of the fruit that we think it more convenient to keep it apart. Its flowers are produced as early as those of the sloe; and, the plant being more tender than that species, it seldom produces fruit in England, except when the blossoms are protected. It forms a good stock for varieties intended to be kept dwarf. In India the fruit is sold to dye black.
XXVI. ROSACEÆ: PRUNUS.

5. *P. candidans* Balb. The white Plum Tree.


**Engravings.** Bot. Reg. t. 1135; and our figs. 441, 442.


Flowers white; April.

It is not known of what country it is a native. It is quite hardy, easily cultivated, and so laden with white blossoms in spring as to appear a mass of snow, whence the name.


**Engravings.** Our fig. 443, from a living specimen.

**Spec. Char., &c.** Leaves obovate, crenulate, glabrous on both surfaces; the crenatures glanded. Fruit ovate-oblong, with a small point, yellow, ? bitter or ? acid. (Dec. Prod.) A low shrub. Calabria, in hedges. Height 2 ft. to 3 ft. Introduced in 1824. Flowers white; April. Drupe yellow; ripe in August.

The bark is febrifugal, and, in Calabria, is considered to be a specific for the cure of the pestilential fevers common in that country.


**Engravings.** Our fig. 444, from a living specimen, and fig. 445, from Pursh's specimen in the Lambertian herbarium.

**Spec. Char., &c.** Leaves lanceolate-ovate, serrate. Flowers in pairs. Fruit small, round, sweet, dark blue.
ARBORETUM ET FRUTICETUM BRITANNICUM.

(Dec. Prod.) A middle-sized shrub. North America, in sandy soils, on the sea coast, from New Jersey to Carolina. Height 6 ft. to 8 ft. Introduced in 1818. Flowers white; April and May. Fruit, of the size of a pigeon's egg, dark purple, and, according to Pursh, very good to eat; ripe ?.

There are plants in British gardens, but they have never yet set fruit.

\* 8. P. pube'scens Poir. The pubescent-leaved Plum Tree.


Engravings. Our fig. 2034 in p. 1106.


Engravings. Led. Flor. Alt., t. 13.; and our fig. 446.


Other Species of Prunus Juss.—In consequence of many species of the genus Prunus being removed to Cerasus; and also because of the close resemblance of one species to another in both genera, there is a good deal of confusion, which cannot be cleared up till the plants are studied in a living state. Prunus effusa was raised in 1838, in the Hort. Soc. Garden, from seeds presented by Baron Jacquin.

GENUS V.


Derivation. From Cerasus, the ancient name of a town of Pontus in Asia, whence the cultivated cherry was first brought to Rome, by Lucullus, a Roman General, 68 B.C.

Gen. Char. Drupes globose, or umbilicate at the base, fleshy, quite glabrous, destitute of bloom, containing a smooth, rather globose compressed stone. (Don's Mill.)

Leaves simple, alternate, stipulate, deciduous, or evergreen; when young conduplicate. Flowers white. Pedicels 1-flowered, rising before the leaves, facicled umbels, from scaly buds; but sometimes rising after the evolution of the leaves, in racemes, from the tops of the branches.—Trees and shrubs, almost all deciduous, with smooth serrated leaves, and white flowers; and, generally with light-coloured bark. Natives of Europe, Asia, and North America.

Some of them are cultivated for their fruit, and the others as ornamental in British nurseries, the deciduous species are generally propagated by grafting or budding on the Cerasus sylvestris, and the evergreens are propagated
by cuttings or seeds; they will grow in any common soil that is tolerably dry. There is much confusion in all the species, more particularly as regards those which are natives of North America; and which, as Sir W. J. Hooker judiciously observes, can only be "removed by carefully studying the plants in a living state, both during the season of the blossom and that of the fruit." (Flor. Bor. Amer., 1. p. 167.)

§ i. Cerasóphora Dec. The Cherry-bearing Kinds.

Sect. Char. Flowers produced from buds upon shoots not of the same year; and, in many instances, disposed umbellately. Leaves deciduous.

A. Species cultivated for their Fruit.

The Cherries cultivated in Gardens, according to Linnaeus, and almost all botanists to the time of De Candolle, have been referred to Prunus avium L., and Prunus Cerasus L.; the former being the merisier of the French, and corresponding with the small wild black bitter cherry of the English (the C. sylvestris of Ray); and the latter the cerasier of the French, and corresponding with the common red sour cherry of the English (the C. vulgaris of Miller). To these two species De Candolle has added two others: Cerasus Juliana, which he considers as including the guigniers; and Cerasus duricina, under which he includes the bigarreux, or hard cherries. Under each of these four species, Seringe; in De Candolle's Prodromus, has arranged a number of varieties, with definitions to each group: but, as neither the species nor the groups appear to us distinct, we have adopted the arrangement of the author of the article on Cerasus in the Nouveau Du Hamel, as much more simple and satisfactory; and have referred all the cultivated varieties to the same species as Linnaeus; substituting for Prunus avium L., Cerasus sylvestris, the synonym of Ray; and for Prunus Cerasus L., Cerasus vulgaris, already used to designate the same species in Mill. Diet., and by Loiselleur in the Nouveau Du Hamel. The arrangement of the varieties, and general culture of the cherry in the kitchen-garden and orchard, will be found at length in our Encyclopedia of Gardening; and, in a more condensed form, in our Suburban Horticulturist.

† 1. C. Sylvèstris Bauh. and Ray. The wild black-fruited Cherry Tree.


Derivation. This cherry is called Corone, or Coroon, in some parts of England, from corone, a crown, in reference to its blackness. Merry Tree and Merries are evidently corruptions of the word Merisier; and Merisier is said to be derived from the words amère, bitter, and cerise, a cherry. Biggarue is derived from bigarrée party-coloured, because the cherries known by this name are generally of two colours, yellow and red; and Heaumier is from the French word heaume, a helmet, from the shape of the fruit. Gravurions. Du Ham. Tr. Arb., 1. p. 156.; Arb. Brit., 1st edit., vol. vi.; and our fig. 447.

pec. Char., &c. Branches vigorous and divaricate; the buds from which the fruits are produced oblong-acute. Flowers in umbel-like groups, sessile, not numerous. Leaves oval-lanceolate, pointed, serrated, somewhat pendent, slightly pubescent on the under side, and furnished with two glands at the base. (Dec. Prod., X. Du Hamel.) A middle-sized tree. Europe, in woods and hedges. Height, in dry fertile soils, 40 ft. to 50 ft. or upwards. Flowers white; April and May. Drue red or black; ripe in July. Decaying leaves of a fine red, or rich yellow and red.

Varieties.

1. Mérisiers or Merries, with black or yellow fruit.
2. Guigniers or Geans (C. Juliana Dec.), with red or black fruit, early or late, and including the tobacco-leaved guignier, or gean, of four to the pound (the C. decumana of De launay).
3. *Heaumiers*, the Helmet-shaped Cherries (C. Juliâna var. *heaumiana* Dec.),
somewhat resembling the bigarreau, but with less firm flesh.
*Variety of this race used for ornamental purposes.*

ï  C. *durâcina* 2 flore plêvo Hort., the double flowered wild black
Cherry; Mûrisier à Fleurs doubles, or Mûrisier Renunculier, Fr.;
is a very beautiful variety, known, in the garden of the Hort. Soc.,
as the double French white.

4. *Bigarreautiers*, the Bigarreaux, or hard-fleshed Cherries (C. *durâcina* Dec.)
with white, flesh-coloured, and black fruit, generally heart-shaped.

The colour of the fruit of the wild species is a very deep dark red, or
black; the flesh is of the same colour, small in quantity, austere and bitter
before it comes to maturity, and insipid when ripe. The fruit is generally ripe.
The nut is oval or ovate, like the fruit, firmly adhering to the flesh, and very large
in proportion to the size of the fruit. The juice is mostly coloured; and the
skin does not separate from the flesh.

ï 2. *C. vulga'ris* Mill.  The common Cherry Tree.


*Synonymes and Garden Names.* Cerasus avium Munch; Prunus Cerasus Lin. Sp. 679.; C. hort-
austâra and P. âdâa Ehr. Beitr. 7. p. 129, and 130.; P. Cerasus var. a Eng. Flor. 2. p. 354.; Cherry,
Kentish or Flemish Cherry, Morello, May Duke; Cerise de Montmorency, Cerise de Paris,
Cerise à Fruits ronds, Ceriser du Nord, Ceriser, and Griottier in some provinces, Fr.; Saure
Kirsche, Ger.; Marasca, or Gilieglo, Ital.

*Derivation.* Caproniâna is said to be derived from capron, the hauhois strawberry, probably from
this cherry possessing so much more flavour than *C. sylvâstris*. Morello is either from morâl
(Morchella esculenta), the flesh being of the same consistency as the flesh of that fungus; or,
perhaps, from the French word morèle, a female negro. May Duke is a corruption of Medoc,
the province of France where the variety is supposed to have been originated. Griottier is said
to be derived from aigreur, sourness, or sharpness, and applied to this cherry from the acidity
of its fruit.


*Spec. Char., &c.* Tree small, branches spreading.* Flowers in sub sessile um-
bels, not numerous. Leaves oval-lanceolate, toothed, glabrous. A decid-
uous tree. Europe and Britain, in gardens and plantations. Height 30 ft. to
40 ft. Flowers white; May. Drupe red; ripe in July. Decaying leaves
red and yellow.

*Varieties.* — There are numerous cultivated varieties, which are classed by
Loiseleur in the *Nouveau Du Hamel* in three groups, including in the first
of these the four following varieties, which we particularise on account of
their being purely ornamental: —
† C. v. 2 fīlore semiplēno Hort.—Flowers semidouble.
† C. v. 3 fīlore plēno Hort.—All the stamens of this variety are changed
into petals; and the pistillum into small green leaves, which occupy
the centre of the flower. The flower is smaller and less beautiful
than that of the double mērisier; but, as the tree does not grow so
high, and as it can be grown as a shrub, it is suitable for planting in
situations where the other cannot be introduced. It is commonly
grafted on the Prūnus Makhāleb.
† C. v. 4 periscɛfflōra Hort.—The flowers are double, and rose-coloured.
This variety was known to Bauhin and to Tournefort, but is at pre-
sent rare in gardens.
† C. v. 5 fōlis variegātis Hort. has variegated leaves.

The fruit-bearing varieties are arranged in the Nouveau Du Hamel,
under the following heads: —
1. Flesh whitish, and more or less acid; including the Montmorency
  cherry.
2. Flesh whitish, and only very slightly acid; including the English
  duke cherries.
3. Flesh red, including the griottiers, or morellos.

The following selection has been made by Mr. Thompson, with a
view of exemplifying the different forms which the varieties of the
cultivated cherries assume, as standard trees: —
The Bigarreau is a tree of vigorous growth, with large pale green leaves,
and stout divergent branches.
Buttner’s Yellow is a vigorous-growing tree, like the preceding, but with
golden-coloured fruit.
The Kentish Cherry is a round-headed tree, with slender shoots, some-
what pendulous.
The May Duke is a middle-sized or low tree with an erect fastigiate
head.
The Morello is a low tree, with a spreading head, somewhat pendulous;
most prolific in flowers and fruit; the latter ripening very late, and,
from not being so greedily eaten by the birds as most other sorts, hanging on the trees a long time.

*D'Ostheim* is a dwarf weeping tree, a great bearer.

'2 C. v. 6 Marascha, *Prunus Marascha* Jacq., is the variety from the fruit of which the liqueur called Maraschino is made. Plants of it have been raised in the Hort. Soc. Garden in 1837.

The flowers are smaller than those of *C. sylvestris*. The fruit is round, meiting, full of a watery sap, more or less flavoured, and almost always sensibly acid. The skin of the fruit is commonly red, but, in the numerous varieties in cultivation, passing into all the shades between that colour and dark purple or black. The skin of all the varieties of *C. vulgaris* separates easily from the flesh, and the flesh parts readily from the stone; while, in all, in the varieties of *C. sylvestris*, the skin is more or less adhering to the flesh, and the flesh to the stone. (*N. DuHam.,* p. 18.) This species forms a tree of less magnitude than that of *C. sylvestris*; it is never found in a truly wild state in Europe, and the aboriginal form is unknown.

*Remarks referring to both Species.* — The cherry trees in cultivation, whether in woods or gardens, may, in point of general appearance, be included in three forms: large trees with stout branches, and shoots proceeding from the main stem horizontally, or slightly inclining upwards, and when young and without their leaves, bearing a distant resemblance to gigantic candelabra, such as the geans, and many of the heart cherries; fastigate trees of a smaller size, such as the dukes; and small trees with weak wood, and branches divergent and drooping, such as the Kentish or Flemish cherries, and the morellos. The leaves vary so much in the cultivated varieties, that it is impossible to characterise the sorts by them; but, in general, those of the large trees are largest, and the lightest in colour, and those of the slender-branched trees the smallest, and the darkest in colour; the flowers are also largest on the large trees. The distinction of two species, or races, is of very little use, with reference to cherries as fruit-bearing plants; but, as the wild sort, *C. sylvestris*, is very distinct, when found in its native habitats, from the cherry cultivated in gardens, it seems worth while to keep them apart, with a view to arbiculture and ornamental planting. For this reason, also, we have kept *Cerasus semperflorens*, *C. Pseudo-Cerasus*, *C. serrulata*, and *C. Chamaecerasus* apart, though we are convinced that they are nothing more than varieties. In consequence of its rapid growth, the red-fruited variety ought to be preferred where the object is timber, or where stocks are to be grown for fruit trees of large size. As a coppice-wood tree, the stools push freely and rapidly; and, as a timber tree, it will attain its full size, in ordinary situations, in 50 years. Its rate of growth, in the first 10 years, will average, in ordinary circumstances, 18 in. in a year. There are various trees in the neighbourhood of London upwards of 60 ft. high; one on the Cotswold Hills, on the estate of the Earl of Harrowby, is 85 ft. high. The wood of the wild cherry (*C. sylvestris*) is firm, strong, close-grained, and of a reddish colour. It weighs, when green, 61 lb. 13 oz. per cubic foot; and when dry, 54 lb. 15 oz.; and it loses in the process of drying about a 16th part of its bulk. The wood is soft and easily worked, and it takes a fine polish. It is much sought after by cabinetmakers, turners, and musical instrument makers, more particularly in France, where mahogany is much less common than in Britain. The fruit of the cherry is a favourite with almost every body, and especially with children. The distillers of liqueurs make great use of ripe cherries; the spirit known as kirschewasser is distilled from them after fermentation; and both a wine and a vinegar are made by bruising the fruit and the kernels, and allowing the mass to undergo the vinous fermentation. The ratafia of Grenoble is a celebrated liqueur, which is made from a large black gin; from which, also, the best kirschewasser is made; and the maraschino from a variety of the tree found in Dalmatia. The preparation of these will be found in our first edition.
B. Species or Varieties cultivated as ornamental or curious.


Synonyms. Prunus semperflorens Ehrh. Beitr. 7. p. 132.; P. serrutina Roth Catal. 1. p. 58.; the weeping Cherry, the Allsaints Cherry; Cerise de la Toussaint, Cerise de St. Martin, Cerise tardive, Fr.


An ornamental tree, usually grafted standard high on the common wild cherry, or gean; growing rapidly for 8 or 10 years, and forming a round head, 8 or 10 feet high, and 10 or 12 feet in diameter, with the extremities of the branches drooping to the ground; and flowering and fruiting almost the whole summer. It forms a truly desirable small single tree for a lawn.

4. C. serrutata G. Don. The serrulated-leaved Cherry Tree.


Engravings. Our fig. 450. from a living specimen.

This tree resembles the common cherry tree, but is not of such vigorous growth; and only the double-flowered variety of it has been yet introduced. A very ornamental plant.

5 5. C. Pseu'do-Cerasus Lindl. The False-Cherry Tree.


Spec. Char., &c. Leaves obovate, acuminate, flat, serrate.

Flowers racemose. Branches and peduncles pubescent. Fruit small, pale red, of a pleasant subacid flavour, with a small smooth stone. (Don's Mill.) A low tree. China. Height 8 ft. to 10 ft. Introduced in 1819. Flowers white; March and April. Fruit pale red; ripe in June.

This tree is readily known from the other cherry trees, even when without its leaves, by its rough gibbose joints, at which it readily strikes root; and is, consequently, very easily propagated. It has been tried by Mr. Knight, as a fruit tree; and he finds that it forces in pots better than any other variety. Desirable for small gardens, on account of its very early flowering.

6 6. C. Chamæce'rasus Lois. The Ground-Cherry Tree, or Siberian Cherry.

Engravings. N. Du Ham., 5. p. 29. t. 6. t. A.; Hayne Abbild., t. 61.; and our fig. 452.

Spec. Char., &c. Leaves ovate-oblong, glabrous, glossy, crenate, bluntish, rather coriaceous, scarcely glanded. Flowers in umbels, which are usually on peduncles, but short ones. Pedicels of the fruit longer than the leaves. Fruit round, reddish purple, very acid. (Dec. Prod.) A neat little shrub. Siberia and Germany. Height 3 ft. to 4 ft. Introduced in 1587. Flowers white; May. Drupe reddish purple; ripe in August.

It forms a neat little narrow-leaved bush, which, when grafted standard high, becomes a small round-headed tree with drooping branches, at once curious and ornamental. It does not grow above a fourth part of the size of C. semperflorens; and, like it, it flowers and fruits during great part of the summer.

7 7. C. Prostr'ata Scr. The prostrate Cherry Tree.


A very desirable species for rafting standard high on the common cherry. The red colour of the flowers is very uncommon in this genus.

† 8. C. persicifolia Lois. The Peach-tree-leaved Cherry Tree.

† 9. C. borealis Michx. The North-American Cherry Tree.

‡ 10. C. pumila Michx. The dwarf Cherry Tree.
Engravings. Mill. Icon., t. 80. f. 2.; and our fig. 455.


A curious and rather handsome tree, when grafted standard high; and a fit companion for the other dwarf sorts, when so grafted. Sir W. J. Hooker suspects this to be the same as C. depressa. It has been compared, Sir W. J. Hooker observes, in its general habit, to Amygdalus nana; and such a comparison is equally applicable to C. depressa. (Fl. Bor. Amer., i. p. 167.)

* 11. C. (p.) depresse Ph. The depressed, or prostrate, Cherry Tree.


Engraving. Our fig. 455. from living plant in Loddiges's arboretum.


In America it is called the sand cherry, and said to be distinguished at sight from all the other species, not less by its prostrate habit, than by its glaucous leaves, which bear some resemblance in shape to those of Amygdalus nana; and, according to Sir W. J. Hooker, to those of C. pumila.

* 12. C. pygmea Lois. The pygmy Cherry Tree.


Engraving. Our fig. 457. from a specimen in the Lambertian herbarium.

Spec. Char., &c. Leaves ovate-elliptical, but tapered to the base, and rather acute at the tip, sharply serrate, glabrous on both surfaces, and with 2 glands at the base. Flowers of the size of those of P. spinosa, disposed in sessile umbels, a few in an umbel. (Dec. Prod.) A low shrub. Western parts of Pennsylvania and Virginia. Height 4 ft. to 5 ft. Introduced in 1823. Flowers white; May. Drupe black, of the size of a large pea, a little succulent, and very indifferent to the taste; ripe in July.

* 13. C. nigra Lois. The black Cherry Tree.


Spec. Char., &c. Leaf with 2 glands upon the petiole, and the disk ovate-acuminate. Flowers in sessile umbels, few in an umbel. Calyx purple; its lobes obtuse, and their margins glanded. (Dec. Prod.) A tall shrub or
low tree. Canada and the Alleghany Mountains. Height 6 ft.
to 10 ft. Introduced in 1773. Flowers white, with purple an-
thers. Drupe red; April, May.

The fruit, which, as far as we know, has not been produced in
England, is described by Sir W. J. Hooker as being as large as a mo-
derate-sized cherry, and, apparently, red. In British gardens this forms a very handsome small
tree, distinguished even in winter by the smoothness and dark colour of its
young wood, and in this respect resembling more a plum than a cherry.

14. C. hyemalis Michx. The winter Cherry Tree.

p. 588; Don's Mill., 2, p. 514.
p. 284. Pursh Fl. Amer. Sept. 1, p. 531. Elliot Carol. 1, p. 542; the black Choke Cherry, Amer.
Engravings. Our fig. 460, from a specimen in the
museum of the Jardin des Plantes.

Spec. Char., &c. Leaves oblong-oval, or
oval, abruptly acuminate. Flowers gla-
bourous, disposed unbellately. Lobes of
the calyx lanceolate. Fruit nearly ovate,
Western mountains of Virginia and Caro-
olina. Height 3 ft. to 4 ft. Introduced
in 1806. Flowers white; May. Drupe
small, black, and extremely astringent,
but eatable in winter; ripe in October.

15. C. ch'icasa Michx. The Chicasaw Cherry Tree.

Synonyms. Prunus ch'icasa Pursh Fl. Amer. Sept. 1, p. 532; P.
insititia Walt. Carol.; Chickasaw Plum, in Carolina.
Engravings. Our fig. 461, from a living specimen in Loddiges's
arboretum.

Spec. Char., &c. Branches glabrous, becoming rather
spiny. Leaves oblong-oval, acute, or acuminate.
Flowers upon very short peduncles, and mostly
in pairs. Calyx glabrous, its lobes very short.
Fruit nearly globose, small, yellow. (Dec. Prod.)
A shrub. Carolina and Virginia. Height 6 ft.
Intro. 1806. Flowers white; April and May. Drupe
small, yellow, and agree-
ably tasted; ripe in July.

Sir W. J. Hooker observes
that a plant which he received under this name appeared
to him identical with C. borealis; the plants in the Lon-
don gardens are very different, resembling much more closely the common sloe, as will appear by our figure.

16. C. pubescens Scr. The pubescent Cherry Tree.

Synonyms. Prunus pubescens Ph H. Amer. Sept. 1, p. 331., and
Lodd. Cat.; P. sphærocarpa Michx. Fl. Bor. Amer. 1, p. 284., not of
Swartz.

Engravings. Our fig. 462, from a living specimen in Loddiges's arbo-
retum; and fig. 463, from a specimen in the Lambertian herbarium.

Spec. Char., &c. Young branches pubescent. Leaves with
the disk shortly oval, serrated, and usually with 2 glands at its base. Flowers in sessile umbels, few in an umbel; pedicels and calyces pubescent. Fruit upon a short pedicel, globose, brownish purple, austere. (Dec. Prod.) A low shrub. Western parts of Pennsylvania, on the borders of lakes. Height 1 ft. to 3 ft. Introduced in 1820. Flowers white; April and May. Drupe brownish purple, very astringent; ripe in July.

17. C. PENNSYLVANICA Lois. The Pennsylvania Cherry Tree.


Spec. Char., &c. Leaves with two glands at the base of the disk, which is oblong-lanceolate, acuminate, and glabrous. Flowers disposed in grouped sessile umbels, which have something of the character of panicles. (Dec. Prod.) A shrub. North America, from New England to Virginia, in woods and plantations. Height 6 ft. to 8 ft.Introduced in 1773. Flowers white; May. Drupe black, small, but agreeable to eat; ripe in July.

Sir W. J. Hooker considers this sort as synonymous with C. borealis Michx., in which he may probably be correct. We have, however, kept them distinct; not only because the whole genus appears in a state of confusion, but because, though C. pennsylvanica is said to have been introduced in 1773, we have never seen the plant in a healthy state, and, consequently, feel unable to give any decided opinion respecting it.

18. C. JAPONICA Lois. The Japan Cherry Tree.

Engravings. Bot. Reg. t. 1801., from a plant grown in a green-house; and our figs. 465, 466, from a plant grown in the open air.


Variety.


There are two shrubs in British nurseries often confounded under the name of A. pumila. The one is that now described, which may be known at any season by the purplish or brownish red colour of the bark of its young shoots; and, in summer, by its glabrous finely serrated leaves, which have a
reddish tinge on their margins, and on the midribs. The other, C. sinensis described below, the Prúnus japoníca of Ker, and of the Hammersmith and other nurseries, may be known in the winter season by the light green or greyish colour of the bark of its young shoots; by its larger, paler-coloured, and comparatively rugose leaves, doubly or coarsely serrated; and by its more compact habit of growth. The flowers of this sort are also on longer peduncles, resembling those of a cherry; while the flowers of C. jap. mútiplex, the Amýgdalus pumíla or double dwarf almond of the nurseries, have much shorter peduncles, and are sometimes nearly sessile, giving the plant more the appearance of a Prúnus than that of a Cérasus. The C. japoníca mútiplex has been in cultivation in British gardens, under the name of Amýgdalus pumíla, since the days of Bishop Compton; and, though it is stated in books to have been introduced from Africa, there can be little doubt of its being of Asiatic origin. The great confusion which exists respecting these two plants, in botanical works, has induced us to examine, with particular attention, the plants of them that are in the Horticultural Society’s Garden, and in the Hammersmith Nursery. In the former garden, there was (June 10, 1837) a Cérasus japoníca in its single state, but not in its double state; the plant bearing the name of C. japoníca flore pléno being unquestionably the C. sinensis described below, the Prúnus japoníca of the nurseries. In the Hammersmith Nursery, there were then some dozens of plants of C. japoníca mútiplex, there called Amýgdalus pumíla, or the double dwarf almond, growing in parallel nursery lines, with some dozens of plants of C. sinensis, there called Prúnus japoníca, or the double Chinese almond. We have considered it necessary to be thus particular, to justify us for having deviated from the Bot. Mag. and Bot. Reg.


Synonyme. Prúnus japoníca Ker in Bot. Reg. t. 27.

Engravings. Bot. Reg., t. 27.; and our fig. 469.


There is no single state of this species in Britain, but there was in 1836 a plant of the double variety against a wall in the Hort. Soc. Garden, named C. japoníca flore pléno; and, as noticed under the preceding species, there were many plants in the Hammersmith Nursery, under the name of P. japoníca, or the double Chinese almond. The plant is somewhat more tender than C. j. mútiplex, which is well known in gardens as a hardy border shrub; and, except in favourable situations, it requires to be planted against a wall. Though C. sinensis and C. japoníca are quite distinct, there is nothing in that distinctness, as it appears to us, to determine that they are not varieties of the same species.


Engravings. Fig. 470, from a specimen in the herbarium of Dr. Lindley.

Spec. Char., &c. Flowers usually solitary, shorter than the leaves. Leaves
obovate, acuminated, glandularly serrated, glabrous. Stipules subulate, glandular, length of the petiole. Petiole glandless.

Species belonging to the preceding Subdivision (B.), not yet introduced. — C. Phóshin Hamilt., Prunus cerasoides D. Don., Cerasus Piddum Roxb. (Wall. Pl. Rar., ii. t. 143.; and our fig. 471.), is a native of Nepal, producing fruit like that of the common cherry, and wood which is considered valuable as timber. The flowers are of a pale rose colour, and the tree grows to the height of 20 or 30 feet. C. glandulosa, C. áspéra, and C. incisa Lois., are Japan shrubs, with rose-coloured flowers, described by Thunberg; and C. humídis Moris., a native of Sardinia.

§ ii. Pādi vērī Ser. The true Bird-Cherry Kinds of Cérasus.

Sect. Char. Flowers produced upon the shoots of the same year's growth as the flowers; the latter disposed racemously. Leaves deciduous.

A. Species of Bird-Cherry Trees already in Cultivation in Britain.

† 21. C. Mālāleb Mill. The Mahaleb, or ψεφυμένος, Cherry Tree.


Spec. Char., &c. Leaves cordately ovate, denticulate, glanded, curved. Flowers in leafy subcorymbose racemes. Fruit black, between ovate and round. (Dec. Prod.) A small tree. Middle and South of Europe; common in France, especially in the mountainous districts; very common near St. Lucie, whence the French name. Height 10 ft. to 20 ft.; in British gardens 20 ft. to 30 ft. Introduced in 1714. Flowers white; April and May. Drupe black; ripe in July.

Varieties. Besides one with variegated leaves, there are:—

† C. M. 2 fruētu fláve Hort. — Fruit yellow. There is a plant of this variety in the garden of the Horticultural Society.

† C. M. 3 latifōlium Hort. — Leaves broader than in the species.

A handsome small tree, with a white bark, and numerous branches. The leaves somewhat resembling those of the common apricot, but of a paler green. The wood, the leaves, the flowers, and the fruit, are powerfully scented; the flowers so much so as not to be supportable in a room. The wood is hard, brown, veined, and susceptible of a high polish. Its smell is less powerful, and more agreeable, when it is dry, than when the sap is in it. In a dry state it weighs 50 lb. 4 oz. per cubic foot. In France, it is much sought after by cabinetmakers, on account of its fragrance, hardness, and the fine polish which it receives. In Austria it is used for forming the twisted tubes of tobacco pipes. In France the mahaleb is used as a stock on which to graft the different kinds of fruit-bearing cherries; for which it has the advantages of growing on a very poor soil; of coming into sap 15 days later than
The common wild cherry, by which means the grafting season is prolonged; in British gardens, it is principally as an ornamental shrub or low tree. As the case of other dwarf species of a genus which will unite to a tall robust-growing species, the mahaleb, when grafted on the common wild cherry (C. hystrix), grows to a larger tree than when on its own roots. The mahaleb will grow in any poor soil that is dry, even in the most arid sands and naked rocks; and, as it forms a low bushy tree which is capable of resisting the wind, it may be planted in an exposed situation. When young plants are to be raised from seed, the fruit is sown as soon as ripe, or preserved among sand for the following spring, in the same manner as that of the cherry. Seedlings generally grow 1 ft. in length the first year, and 1 ft. to 18 in. the second. The tree may also be propagated by layers; by slips from the stool, taken off with a few roots attached; and by suckers, or by cuttings from the roots.

**22. C. Pâdus Dec.** The Bird-Cherry Tree.

- **XXVI.** *Rosaee: Ceramus.*
- **472. Ceramus Mahaleb.*

Leaves ovate-lanceolate, somewhat acuminate, thin, serrulate, with the teeth rather spreading. Racemes long, leafy. Fruit round, bitter. (Dec. Prod.) A low tree. Indigenous in most parts of Central Europe, and as far north as Lapland. Height 12 ft. to 40 ft. Flowers white: April and May. Drupe black; ripe in July. Decaying leaves greenish yellow, or reddish. Naked young wood purplish, with white spots.

**ffices.**

- C. P. 1 vulgâris Ser. *C. Pâdus Dec., N.* Du Ham, v. t. 1.—This kind has large flowers loosely disposed upon long pedicels, and black fruit.

- C. P. 2 parviflora Ser. (Œd. Fl. Dan., t. 203.)—This has smaller flowers, upon shorter pedicels, which are disposed more densely; and black fruit.
C. P. 3 rubra Ser. (Our fig. 473.)—This has red fruit. It is the C. Padus fructu rubro of Dec. and of Loiseleur; and, according to Ait. Hort. Kew., 2d ed. p. 299., it is the Prunus rubra of Willd. Arb., 237. t. 4. f. 2.

C. P. 4 bracteosa Ser. Padus racemosus Hort. — A very beautiful variety, distinguished by its long racemes of flowers, with their pedicels furnished with long bracteas at the points of the shoots, by which the latter are bent down, both when in blossom and when the fruit is ripe, so as to give the whole tree a pendulous appearance.

A very handsome small tree or large bush. The leaves are finely serrated, smooth, and somewhat glaucous; and their scent, when bruised, resembles that of rue. The flowers are of a pure white, in copious, long, terminal racemes, making an elegant appearance in spring, but scarcely lasting a fort-

night. The fruit is small, black, austere, and bitter, with a large corrugated nut. “Birds of several kinds soon devour this fruit, which is nauseous, and probably dangerous to mankind; though, perhaps, like that of the cherry laurel, not of so deadly a quality as the essential oil or distilled water of the leaves.” (Eng. Flora, ii. p. 354.) The tree grows rapidly when young, attaining the height of 10 or 12 feet in 5 or 6 years; and, as it has a loose head, and bears pruning, it allows the grass to grow under it. The wood is hard and yellowish, and, in a green state, it has a disagreeable bitter odour and taste; whence the French name puitet, from puer. It is much sought after in France by the cabinetmakers and turners, who increase the beauty of its veining by sawing out the boards diagonally, that is, obliquely across the trunk, instead of parallel with its length. The fruit, though nauseous to the taste when eaten fresh from the tree, gives an agreeable flavour to brandy; and is sometimes added to home-made wines. In Sweden and Lapland, and also in some parts of Russia, the bruised fruit is fermented, and a powerful spirit distilled from it. In Britain, the principal use of the Cerasus Padus is as an ornamental tree; and few make a finer appearance than it does, either when in flower, in April and May; or in August, when covered with its pendent racemes of black fruit. It comes into flower a little before the ornamental crab trees, and about the same time as the Sorbus aucuparia and the Acer platanoides. The bird cherry prefers a dry soil; but it will not thrive on such poor ground as the perfumed cherry. It will grow in almost any situation; but, to attain a timber-like size, it requires the shelter either of a favourable locality, or of adjoining trees. The species is propagated by seeds, which should be treated
n all respects like those of C. Mahaleb. The red-fruited variety will generally come true from seed; as, doubtless, will the early-flowering and late-flowering varieties, which may be observed in copse woods where this tree abounds. C. P. bracteosa Ser., which is a very remarkable variety, and one which deserves a place in every collection, both on account of its large racemes of flowers and its fruit, will be continued with most certainty by grafting or budding. The leaves are more infested and injured by the larvae of moths and butterflies, than those of any other European tree or shrub.

23. C. VIRGINIANA Michx. The Virginian Bird-Cherry Tree.

Leaves oblong, acuminate, doubly toothed, smooth; the petiole bearing about 4 glands. Racemes straight, petals round. Fruit red. Different from the Prunus virginiana of Miller, which is C. (v.) serotina. (Dec. Prodr.) A tree attaining a large size. Virginia, Carolina, and Canada. Height, in England, 30 ft. to 40 ft.; in some parts of North America, 80 ft. to 100 ft. Introd. 1724. Flowers white; May. Drupe red; ripe in July. Leaves remaining on late in the season, and dropping green. Naked young wood slender, purplish, but not spotted with white like C. Padus.

Readily distinguished from Cerasus Padus by the slender drooping character of its branches. The fruit is frequently ripened in the neighbourhood of London, and plants in copse woods, which have risen from self-sown seeds, are to be met with in different parts of Surrey. The wood of the Virginia bird cherry is of a light red, which deepens with age. It is compact, re-grained, and takes a brilliant polish; it is so not liable to warp when perfectly seasoned. America, it is extensively used by cabinet-makers for every species of furniture. In Europe, C. virginiana is planted solely as an ornamental tree; and, as such, it well deserves a place in every collection. It should be planted every shrubbery or wood where it is desirable to attract frugivorous singing birds. For soil, situation, propagation, culture, &c., see C. Padus.

24. C. (v.) SEROTINA Lois. The late-flowering, or American, Bird-Cherry Tree.

Variety.

♀ C. s. 2 retusa Ser. — Leaves obovate, round, very obtuse, almost retuse, slightly villose beneath; midrib hairy above and below. A native of South America.

C. (v.) serótina so closely resembles C. virginiana, that we have no doubt whatever of their being one and the same species.

♀ 25. C. mo'illus. Doug. The soft Bird-Cherry Tree.


Engraving. Our fig. 478., from a specimen in the British Museum.

Spec. Char., &c. Racemes short, pubescently tomentose, as well as the calyxes; calycine segments reflexed; leaves obovate oblong, crenated, pubescent beneath; fruit ovate.

(Don's Mill.) A tree. America, near the mouth of the Columbia, and on subalpine hills, near the source of the river. Height 12 ft. to 24 ft. Introd. 1838. Flowers white. Naked young wood dark brown and downy, and the general habit said to be that of C. pubescens.

Young plants have been raised in the Hort. Soc. Garden, from seed sent home by Douglas.


27. **C. nepalensis** Ser. The Nepal Bird-Cherry Tree.


**Synonyme.** Prunus glaucifolius Wall. MSS.

**Figure.** Our fig. 430., from a specimen in Dr. Lindley's herbarium.

**Spec. Char., &c.** Leaves resembling in form those of *Sälix frágilis*; long, lanceolate, acuminate, serrate, with blunt teeth, glabrous, whitish beneath; the veins much reticulated, and the axils of the larger of them hairy. Peduncle short, and, as well as the rachis, slightly villose. Calyx glabrous. (**Dec. Prod.**) A deciduous shrub or low tree. Nepal. Height 6 ft. to 12 ft. Intro'd. 1820. Flowers white; May. Drupe red; ripe in August.

The plant bearing this name in the Hort. Soc. Garden has leaves broader than those of *Sälix frágilis*; and, taken altogether, it is of more luxuriant growth than *C. virginiana*. It is, however, less hardy as a plant in the open garden, and was killed to the ground in the winter of 1837-8. In favourable situations, however, it is a very desirable species, being a remarkably free flowerer, and ripening abundance of fruit, which have stones as large as those of the wild cherry.

**Species of Bird-Cherry Trees which have not yet been introduced, or of which we have not seen Plants.**

* C. acuminata Wall. (Pl. Rar. Asiat., ii. 78. t. 181.; and our fig. 481.) is a Nepal shrub, growing to the height of 20 or 30 feet, with the flowers in axillary racemes, and studding, a little shorter than the leaves.

* C. emerginata Dougl. (Hook. Fl. Bor., ii. p. 169.) is a shrub, growing to the height of 6 or 8 feet, with its flowers in cobose racemes; having oval, serruluated, glabrous leaves; and globose fruit, astringent in the taste. The leaves are 2 in. long; the flowers are white; and the wood red, with white spots. It is found wild about the upper part of the Columbia River, especially between the Kettle Falls.

* C. capricida G. Don. The Goat-killing Bird Cherry. Prunus capricida Wall.; and *undulata* Hamilt. in D. Don's Prod. Nepal, p. 239.; *C. undulata* Dec. ed. ii. p. 540. — Leaves elliptic, acuminate, coriaceous, glabrous, quite entire, with undulate curled margins. Petioles glandulose. Racemes either solitary or aggregate by threes, many-flowered, glabrous, shorter than the leaves. (Don's Mill., ii. p. 515.) A handsome showy tree, probably evergreen, native of Nepal, at Narahn Bridget; where the leaves are found to contain so large a quantity of prussic acid as to kill the goats which browse upon them. F. C. T. seems to consider *C. undulata* and *C. capricida* as distinct species; and
he observes that these, and "C. cornuta, remarkable for its pod-like monstrousity, are handsome showy trees, growing on lofty mountains, and worthy of introduction into England." (Roule's Illust., p. 205.)

C. canadenensis Lois., C. elliptica Lois., C. paniculata Lois., and some other hardy species, are mentioned in our first edition.

§ iii. Laurocérasi. The Laurel-Cherry Trees.


Variety.


The Portugal laurel is generally seen as an immense bush, but when trained up to a single stem it forms a very handsome tree with a conical head. It is not of rapid growth, seldom making shoots more than 9 or 10 inches in length; but, when planted in good free soil, and trained to a single stem, plants, in the neighbourhood of London, will reach the height of from 12 ft. to 15 ft. in 10 years. It is generally planted solely as an ornamental evergreen; but sometimes hedges are formed of it in nursery-grounds and flower-gardens. The berries are greedily eaten by birds, and form a favourite food for pheasants. What renders the tree particularly valuable, Miller
serves, is its being "so very hardy as to defy the severest cold of this country; for, in the hard frost of 1740, when almost every other evergreen tree and shrub was severely pinched, the Portugal laurels retained their verdure, and seemed have felt no injury." In the winter of 1837–8, it was severely hurt in all moist situations in the climate of London; but in dry gravelly soil, there, and in most parts of England, it escaped uninjured. In British nurseries, it is propagated by seeds, which, before and after sowing, are treated like those of common wild cherry (C. sylvestris), or those of the bird cherry (C. Padus).

29. C. Laurocerasus Lois. The Laurel-Cherry, or common Laurel.


C. Char., &c. Evergreen. Leaves coriaceous, ovate-lanceolate, remotely serrate, bearing upon the under surface of the disk 2—4 glands. Racemes shorter than the leaves. Fruit ovate-acute. (Dec. Prod.) A large, rambling, evergreen, sub-prostrate shrub. Trebisond in Asia Minor; and found in Caucasus, Persia, and the Crimea. Height 6 ft. to 20 ft. Introduced in 1629. Flowers white; April and May. Drupe dark purple; ripe in October. Young shoots of a light green.

Varieties.

* C. L. 2 variegata Hort.—Leaves variegated with either white or yellow.

* C. L. 3 angustifolia Hort., with leaves about a third part of the width of
those of the species, and a more dwarf-growing plant. A very distinct variety, which seldom, if ever, flowers. In some nurseries, it is called Hartogia capensis, though this latter is a totally different plant.

The common laurel, though it will grow as high as the Portugal laurel, is, in its habit, decidedly a shrub, though it is occasionally seen trained to a single stem as a low tree, and in France it is grafted standard high on the common cherry for this purpose, though such plants, from the stock being deciduous, only last a year or two. The growth of the common laurel is rapid for an evergreen, being at the rate of from 1 ft. to 3 ft. a year; but, as the shoots extend in length, they do not increase proportionately in thickness, and hence they recline; so that plants with branches 30 or 40 feet in length, though gigantic in size, still retain the character of prostrate shrubs. Notwithstanding the rapid and vigorous growth of this plant in ordinary seasons, it suffers a great deal more from very severe frosts than the Portugal laurel, and is sometimes killed down to the ground, which the latter rarely is in England. In Britain, the common laurel is considered one of the most ornamental of our evergreen shrubs; and it is also used for covering walls, and for hedges, to afford shelter; for which last purpose it is extensively used in the market-gardens about Isleworth. It is also extensively used as undergrowth in sandy soil. Laurel leaves have a bitter taste, and the peculiar flavour of prussic acid, which is common to bitter almonds, and to the kernels generally of the Amygdalæ. The flowers have a similar flavour; and the powdered leaves excite sneezing. The leaves, in consequence of their flavour, are used in a green state in custards, puddings, blancmange, and other culinary and confectionary articles, but always in very small quantities. Any soil tolerably dry will suit the common laurel; but, to thrive, it requires a sheltered situation, and a deep free soil. It thrives better as an undergrowth than, perhaps, any other ligneous plant, with the exception of the box and the holly.

* 30. C. CAROLINIA'NA Michx. The Carolina Bird-Cherry Tree.

Engravings. Michx. Arb. d'Amer., 3. t. 7; and our fig. 486.

Spec. Char., &c. Evergreen. Leaves, with the petiole short; and the disk lanceolate-oblong, mucronate, even, rather coriaceous, mostly entire. Flowers densely disposed in axillary racemes, that are shorter than the leaves. Fruit nearly globose, mucronate. (Dec, Prod.) An evergreen shrub or low tree; in England a tender shrub. North America, from Carolina to Florida, and the Bahama Islands. Height
20 ft. to 30 ft. Introduced in 1759. Flowers white; May. Drupe dark purple; ripe?.

This tree Michaux considers as one of the most beautiful vegetable productions of the southern parts of the United States; and it is generally selected by the inhabitants to plant near their houses, not only on this account, but because it grows with rapidity, and affords an impenetrable shade. Pursh describes it as a handsome evergreen shrub, resembling C. lusitánica; but he says nothing of the flowers, which, from the figure in Michaux, from which ours was copied, appear to be almost without petals. Seeds are frequently imported from America, and abundance of young plants reared; but, as they are rather tender, and, north of London, would require the protection of a wall, they are very seldom seen in British gardens. The largest plant which we know of is in Hampshire, at Swallowfield, where, in 1833, it formed a bush 10 ft. high, with a head about 12 ft. in diameter, flowering and fruiting occasionally. Culture as in C. virginiana, but north of London it requires the protection of a wall.

Sect. II. Spirææ.

Genus VI.


Description. Frederick Pursh first characterised the only known species in his Flora Americae Septentrionalis, and named it Tigressa tridentata. The generic name, however, having been preoccupied by Aublet, De Candolle has named the present genus after Pursh himself.

Gen. Char. Calyx 5-cleft; lobes ovate, obtuse. Petals 5, obovate. Stamens about 25, rising with the petals from the calyx. Carpels 1—2, obovate oblong, pubescent, tapering into the style at the apex, at length opening by a longitudinal chink. Seed 1, inserted in the base of the carpel. (Don's Mill.)

Leaves simple, grouped together, cuneate, 2—3-toothed at the apex, stipulate or exstipulate, deciduous. Flowers yellow. — Shrub, of which there is only one species known.


Almost the only shrub to be seen through an immense tract of barren sandy soil, from the head source of the Missouri, to the Falls of the Columbia. The plants in the London gardens were all killed in the winter of 1837–8.
Genus VII.


Derivation. Named in honour of W. Ker, a collector of plants for the Kew Gardens.

Gen. Char. Calyx 5-cleft; lobes ovate, 3 of which are obtuse, and the other two callously mucronate at the apex; imbricate in aestivation. Petals 5, orbicular. Stamens about 20, arising from the calyx with the petals, exserted. Carpels 5—8, globose, free, glabrous, each ending in a filiform style. Seed solitary. (Don's Mill.)

Leaves simple, ovate, lanceolate, alternate, stipulate, deciduous; coarsely and unequally serrated, feather-nerved, conduplicate. Flowers yellow.


Spec. Char., &c. Leaves ovate, lanceolate, coarsely and unequally serrated, feather-nerved; stipules linear, subulate. A deciduous shrub. Japan. Height 3 ft. to 5 ft. Introduced in 1835. Flowers yellow; March to June, and often all the summer. Carpels ?.

Variety.

≡ K. J. 2 flôre pléno (Bot. Reg., t. 557.; Bot. Mag., t. 1296.; and our fig. 490.)—Flowers double. Introduced in 1700, and in very general culture in British gardens.

It has soft, and not very persistent, wood, clothed with a smooth greenish bark; twig-like branches; leaves that are ovate-lanceolate, and serrated with large and unequal teeth, feather-veined, and concave on the upper surface; stipules that are linear-subulate. The single-flowered variety was, until 1835, only known through a solitary specimen received from Thunberg by Linnaeus, and preserved in the herbarium of that great botanist, now in the possession of the Linnaean Society. It was after examining this specimen that De Candolle removed it from the genus Céborhus, and formed that of Kérria. The double variety is generally planted against a wall, more especially north of London. It is easily and rapidly propagated by its suckers, and grows freely in any common soil.
XXVI. ROSA'EÆ: SPIRÆ'A.

Genus VIII.


Derivation. From spiræa, a cord, in reference to the supposed flexibility of the branches of some of the species; or, according to some, from spiræis, to wreath; in allusion to the fitness of the flowers to be twisted into garlands. Spiræon is Pliny's name for a plant the blossoms of which were used, in his time, for making garlands; but that plant is thought by some to have been the Flórum Lantánæ.

Gen. Char. Calyx 5-cleft, permanent. Stamens 10—50, inserted in the torus, lining the calyx along with the petals. Carpels solitary, or several together, rarely connected at the base, ending in short points, sessile, rarely stipitate. Seeds 2—6. (Don's Mill.)

Leaves usually simple, but sometimes pinnately cut, having pinnate, or palmately ternate, nerves; alternate, stipulate, deciduous. Flowers white or reddish, never yellow. — Shrubs, low, deciduous. Europe, Asia, America.

Generally of erect growth, with conspicuous flowers of considerable elegance and beauty. The naked young wood, in almost all the species, is of a cinnamon brown; and, in those kinds in which the shoots are numerous so as to produce a mass, the effect is conspicuous in the winter season. They are all readily propagated by suckers, which, in general, they produce in abundance, and they will grow in any common soil.

§ i. Physocárpos Camb.

Derivation. From phusa, a bladder, and karpos, a fruit; in reference to the bladdery carpels.

Seel. Char. Ovaries connected at the base. Torus lining the calycine tube. Carpels bladdery, rather membranous. Ovula 2—3, fixed to the seminiferous margin of the carpel, ovoid, at first horizontal, but at length suspended. Flowers hermaphrodite, disposed in umbels. Pedicels 1-flowered. Leaves toothed, or somewhat lobed, usually stipitate. (Don's Mill., p. 517.)

1. S. opulifo'lia L. The Guelder-Rose-leaved Spiræa, or Virginia'n Guelder Rose.


Engravings. N. Du Ham., 6. t. 14.; and our figs. 491, 492.

Spec. Char., &c. Leaves lobed, or 3-lobed, and partaking of an ovate figure, doubly serrated, petiolate, and many of them stipulated. Flowers white, numerous, disposed in stalked hemispherical corymbs; the pedicel of each flower slender and glabrous. Sepals spreading. Torus wholly connate with the tube of the calyx. Ovaries connate with each other at the base. Ovules in each 2—3, affixed to the margin, egg-shaped, at first horizontal, at length the one pendulous, the rest ascending. Carpels bladdery, rather membranaceous, large and diverging. Seeds obovate, glossy, and yellow. (Dec. Prod.) A large shrub. North America, from Canada to Carolina. Height 8 ft. to 10 ft. Introd. in 1690. Flowers
white; June and July. Capsule inflated red; ripe in September. Decaying leaves purplish red, mixed with yellow. Naked young wood light brown.

Hardy, and very ornamental, from its abundance of white flowers, which are produced in corymb, and resemble those of the Guilder rose; and from the numerous inflated reddish capsules which succeed the flowers. Propagated by division of the root; but sometimes by layers, or by cuttings of the young wood put, in autumn, in a shady border, in a sandy soil.

**Varieties.**

- **S. o. 2 tomentella Ser.** has the peduncles and calyx tomentose. (Dec. Prod.) It is found at the Grand Rapids of the Columbia River.

- **S. o. 3 monogyna.** S. monogyna Torrey, Don's Mill. 2. p. 518.—A native of the Rocky Mountains, where it grows to the height of 3 or 4 feet. It is considered by Sir W. J. Hooker as a variety of S. opulifolia.

- **2. S. capitata Ph.** The capitate-corymbed Spiraea.


**Synonyme.** S. opulifolia var. Hook.

**Engraving.** Our fig. 349. from a specimen in the Lambertian herbarium.

**Spec. Char., &c.** Leaves ovate, doubly toothed, almost lobed; beneath reticulate and tomentose. Flowers disposed in terminal subcapitate corymb placed on very long peduncles. Calyx tomentose. (Dec. Prod.) A deciduous shrub. N. America, on its eastern coast by the River Columbia. Height 4 ft. to 6 ft. Introduced in 1827. Flowers white; June and July.

§ ii. Chamae'dryon Ser.

**Derivation.** From Chamae'drys, the name of the germander; from a similarity in the form of the leaves.

**Sect. Char.** Ovaries distinct. Torus with its base connate with the tube of the calyx, but with its tip separate. Carpels not inflated. Flowers each upon a distinct pedicel, and disposed in umbels or corymbs. Leaves entire, or toothed, without stipules. (Dec. Prod., ii. p. 542.)


**Synonyme.** S. cantoniensis Lour.

**Engravings.** Pall. Fl. Ross., t. 15.; and our fig. 495.


**Varieties.** Scringe enumerates the first four of the following forms of this species; to which, we think, might be added S. olmifolia, S. flexuosa, S. crataegifolia, S. betulifolia, and, perhaps, some others.

- **S. c. 1 vulgaris Camb. Monog.**—Leaves with the disks broad and glabrous; the petioles ciliated.

- **S. c. 2 media Ph. Fl. Amer. Sept. i. p. 342., Camb. Monog., and our fig. 494.—Leaves smaller, slightly villose upon both surfaces. Flowers smaller. Wild in Canada, and upon the rocks of Dahuria.

— Leaves narrower, and less serrated.

S. c. 4 subracemosa Ser. — Flowers distantly disposed along a lengthened rachis.

S. c. 5 incisa Hort. (S. chamaedrifolia latifolia Hort.) has been raised from seeds received from Germany through Mr. Hunnewear; and it appears to be only a variety of this species.

In Kamtschatka the leaves are used as a substitute for tea; and the shoots, when straight, are bored for tobacco-pipes. In its wild state, it varies exceedingly in the magnitude of the entire plant, in the largeness or smallness of its leaves, and in their being more or less cut or serrated, and more or less smooth or pubescent. A very ornamental hardy shrub, producing its corymb of white flowers, which are tolerably large, in June and July. It is said to make beautiful garden hedges. Though the seeds ripen in England, plants can seldom be raised from them; and, as this species does not produce suckers freely, it is generally raised by layers or cuttings.

4. S. (c.) ulmifolia Scop. The Elm-leaved Spiraea.


Variety.

S. (c.) u. 2 phyllantha Ser. (Our fig. 497.) — In this variety a whorl of distinct leaves, that are petioled, lanceolate, and sharply serrated, occupies the place of the sepals, and is described as being these transformed. Petals and stamens are either not present, or deformed. (Dec. Prod.)

5. S. (c.) flexuos'a Fisch. The flexible-branchcd Spiraea.


Spec. Char., &c. Leaves lanceolate, glabrous; from the tip to the middle

Varieties. S. flexuosa latifolia Hort.; S. daurica Hort.; S. alnifolia, S. carpinifolia, S. betulifolia, in Messrs. Loddiges's collection, are identical with, or very slight variations of, this species.

6. S. (c.) CRATEGOSPIRHEA Lk.
The Crataegus-leaved Spiraea.

Engraving. Our fig. 499.


S. (c.) CRATEGOSPIRHEA PALL.
The Birch-leaved Spiraea.


Engravings. Pall. Fl. Ross., 1. t. 16.; and our fig. 500.

Spec. Char., &c. Leaves broadly ovate, serrated; the petiole very short. Flowers in fastigiate panicles. Carpels 5, upright, glabrous. (Dec. Prod.) An erect shrub. Siberia; and North America, on the Blue Mountains, and in various other places on the western coast. Height 3 ft. to 6 ft. Introd. in 1812. Flowers white; June and July. Capsule red; ripe Sept.

8. S. CA'NA Waldst. et Kit. The hoary-leaved Spiraea.


Spec. Char., &c. Leaf ovate, of about the size of that of Salix repens or S. argentea, acute, perfectly entire, or slightly toothed, hoarily villose. Coryms somewhat racemose; the lateral ones peduncled, of few flowers, and lax. Sepals spreading. Styles thick. Carpels divergent, rather villose. (Dec. Prod.) A low shrub. Croatia,
on high rocks. Height 1 ft. to 2 ft. Introduced in 1825. Flowers white; June and July. Capsule reddish; ripe in September.

A very distinct little species approaching S. vaccinifolia, D. Don. H. S.

§ 9. S. TRILOBATA L. The 3-lobed-leaved Spiraea.


This species is very handsome, with branches spreading horizontally, and bearing, in the flowering season, numerous compact coryms of pure white flowers; which, combined with the neat appearance of the plant, and its glaucous leaves, rounded in their outline, and yet lobed, render the species a very interesting and ornamental one.

§ 10. S. ALPINA Pall. The Siberian alpine Spiraea.


**Engravings.** Pall. Fl. Ross., 1. t. 20.; and our fig. 503.


The coryms of flowers being large in proportion to the leaves renders this species very ornamental when in bloom; and its beauty is further heightened by the plant being of erect growth.


**Synonyme.** Hypericum frutescunt Hort.; Italian May.

**Engravings.** See Varieties.

**Spec. Char.**, &c. Leaves obovate-oblong, 3-4-nerved, entire or toothed, glabrous, slightly downy; primary veins pinnately branched. Flowers in either peduncled coryms, or sessile umbels. Pedicels glabrous, or slightly downy. Sepals ascending. A species that presents diversified appearances. (Dec. Prod.) An erect shrub. Supposed by some to be a native of Canada; but Smith and Hooker think that, like most of the species of the section to which it belongs, it is only to be found wild in the Old World. Height 4 ft. to 6 ft. Introduced in 1640. Flowers white; June and July. Capsule reddish; ripe in September.

**Trieties.** Seringhe has characterised six forms of this species, which he describes as follows:

§ S. h. 1 uralensis Ser. S. crenata Lin., Fisch. in Litt., and Don's Mill. ii. p. 519.; S. hypericifolia Camb. Monog. (Our fig. 504.) — Branches rigid,
thickish. Leaves ovate-rounded; the whole margin crenated. A native of the Ural Mountains.


This species has small hard stems, with numerous side branches, clothed with a dark green bark, and with numerous wedge-shaped leaves, like those of St. John’s wort, with glands in their substance, which give them the appearance of being punctured on the surface; whence the name. The flowers are
produced in great abundance; and, when the shrub is allowed space to expand on every side, it forms a very beautiful bush in the flowering season. It makes handsome garden hedges, and will bear the shears, which were formerly applied to it, to shape it into artificial forms, when topiary work was fashionable in garden scenery. It is readily propagated by layers, or by detaching its suckers.


Synonymes. S. aquilegiformis Pall. Itin. 3. App. 734. No. 94.; S. hypericifolia var. flava; and S. alpina flavo-argentea.

Engravings. Pall. Fl. Ross., 1. t. 18.; and our fig. 569.


Engravings. Our fig. 510.

Spec. Char., &c. Leaves oval or obovate, obtuse, stalked, quite entire, villous; corymbs crowded, and as well as the branches tomentose. (Don's Mill.) An erect-branched canescent shrub, with the habit of S. hypericifolia. Nepal, at Sirinagur. Height ?. Introduced in 1837. Flowers white, downy, in close corymbose panicles. The leaves are small, thick, downy, wedge-shaped, and either crenated near the point, or undivided; they are bright green on the upper side, and glaucous beneath, with nothing of a canescent appearance, which only visible when they are dried.


Engravings. Our fig. 500. in p. 600.


15. S. Ceanothifolii Horn. The Ceanothus-leaved Spiræa.


Engravings. Our fig. 511.


Engravings. Lod. Bot. Cab., t. 671.; and our fig. 512.


Variety.

S. c. 2 sororia, S. sororia Penny in Hort. Brit., is a smaller plant, seldom growing higher than 2 ft., and flowers rather later than the species.

A very desirable species, on account of its large corymbs of white flowers, and its distinctness in external character.

17. S. vaccinifolia D. Don. The Vaccinium-leaved Spiræa.


Synonyme. S. vaccinifolia Hort.


18. S. laxiflo'ra Lindl. The loose-flowered Spiræa.


Engravings. Our fig. 600. in p. 000.


19. S. be'llla Sims. The beautiful Spiræa.


Engravings. Bot. Mag., t. 2496.; and our fig. 514.


This species is as hardy, and as easily propagated, as that very common shrub, S. salicifo'lia, from which species it differs in its loose branchy manner of growth, and in the flowers being in corymbs. One of the most beautiful species of the genus.
§ iii. *Spirària* Ser.


20. *S. salicifo'lia* L. The Willow-leaved *Spiraea*.


monosomes. *Spiræa frutesc* Hort.; Bridewort, Queen's Needlework.

*gravers.* Gmel. Fl. Sibir., 3. t. 49.


*Varieties.* Seringe has characterised four forms of this species as follows:—

- **S. s. 1 cárnea** Ait. Hort. Kew. ed. iii. p. 254., Camb. Mon. (Eng. Bot., t. 1468.; and our *fig. 515.*)—Leaves lanceolate. Panicles consisting of racemes more or less spicated. Petals of a flesh colour. Bark of the branches yellowish. This is the form found wild in Britain: whether it be indigenous or not, botanists are not agreed. Professor Henslow considers it "possibly introduced by the agency of man."

- **S. s. 2 alpéstris** Pall. Fl. Ross. i. p. 36. t. 22., Camb. Monog. *S. alpéstris* Don's *Mill.*, ii. p. 519. (Our *fig. 516.*)—A small shrub. Leaves shorter than those of *S. s. cárnea*. Branches very short.


- **S. s. 4 latifólia** Willd. Sp. ii. p. 1055. *S. obováta* Raf. in Litt., not of Waldst. et Kit., according to Willd. Enum. 541.; *S. carpinífolia* x 2

S. 5 grandiflora; S. grandiflora Lodd. Bot. Cab. t. 1888., and our fig. 519.; has its pink flowers nearly twice as large as those of the species; and is a very ornamental free-growing shrub. Raised from seeds sent from Kamtschatka, in 1826.

S. s 6 taúrica. S. taúrica Hort.—An upright shrub, 8 ft. to 10 ft. high, tolerably distinct, and coming into flower before any other variety. Hort. Soc. Garden.

Other Varieties or Synonymes. The following kinds, in Messrs. Loddiges's collection and in that of the Hort. Soc., are either varieties of, or identical with, S. salicifolia:—S. canadensis, S. urticaefolia, S. laciniata, S. chamaedrifolia, S. lanceolata, S. carpinifolia, S. reflexa, S. incarnata.

This species sends up numerous straight rod-like stems, and these and the lateral branches terminate in large, conical, spike-like panicles, of pale red, or flesh-coloured, flowers. In deep moist soils, a sucker will attain the height of 4 ft. in one season, and flower. These suckers are produced in such abundance, that, in order to keep the shrub in a vigorous state, they ought to be cut down when they have flowered two years, in the same manner as is practised with raspberries; and the entire plant ought also to be taken up every three or four years, and separated; otherwise the old shoots are apt to die, and render the bush unsightly. It is one of the hardiest of garden shrubs, and is, also, very beautiful, from its long spicate panicles full of light feathery-looking flowers.


Engraving. Our fig. 520. from a specimen in Dr. Hooker's herbarium.

Spec. Char., &c. Branches pubescent at the apex, as well as the peduncles and calyces. Sepals reflexed. Leaves elliptic, coarsely and unequally serrated towards the apex, glabrous, the same colour on both surfaces; panicle crowded with flowers, oblong, obtuse. Flowers small. Stamens twice the length of the corolla; ovaries 5, glabrous. (Don's Mill.) An erect shrub. North America, on the west coast. Height 2 ft. to 3 ft. Introduced in 1838. Flowers rose-coloured; June and July.

22. S. tomentosa L. 'The downy Spiraea.'


Engravings Pluk. Phyt., t. 321. f. 5.; Schmidt Arb., t. 51.; and our fig. 521.

Spec. Char., &c. Nearly all the parts of this plant are more or less clothed with tomentum, the under surface of the leaves most so. The tomentum upon the stem and peduncles, and perhaps elsewhere, is of a reddish colour. The leaves are ovate and serrated, the latter partly doubly so. Lobes of the calyx triangular and deflexed. Carpels divaricate. (Dec. Prod.) An erect shrub. Canada, on mountains. Height 2 ft. to 3 ft. Introduced in 1814. Flowers white; June and July. Capsule reddish; ripe in September.

This species, or subspecies, in its mode of growth, resembles S. salicifolia; but differs from it in having rather smaller and more deeply serrated leaves, which are very tomentose beneath. The flowers are much smaller, and of a deeper red.
23. S. levigata L. The smooth-leaved Spiraea.


Engravings. Nov. Act. Petrop., t. 29, f. 2; Pall. Fl. Ross., 1, t. 23; and our fig. 522.


(Dec. Prod.) A spreading shrub. Siberia, in valleys at the foot of the more lofty of the Altaian Mountains. Height 2 ft. to 4 ft. Introduced in 1774. Flowers white; May and June. Capsule reddish; ripe in September.

A very interesting and handsome species, with a habit exceedingly dissimilar to that of Spiræas in general.


Engravings. Bot. Reg., t. 1355; and our figs. 523, 524.


A free-growing dense bush, prolific both in leaves and flowers; and, as the latter appear at a season when the flowering of shrubs is comparatively rare, it is justly considered as a most valuable addition to British gardens. It is perfectly hardy, will grow in any free soil, and is easily propagated either by division or by seeds, which it ripens in abundance.

§ iv. Sorbaria Ser.

ct. Char. Leaves pinnate, resembling, as the name implies, those of the mountain ash, or other species of Pyrus belonging to the section Sorbus.

25. S. sorbifo'lia L. The Sorbus-leaved Spiraea.


Synonymy. S. pinnata Marnich Meth. 633.

Engravings. Gmel. Fl. Sib., 3, p. 190, t. 40; Schmidt Baum., 1, t. 58; and our fig. 525.


very different from *S. s. grandiflora*, the *S. grandiflora* of Lodd., described above, among the varieties of *S. salicifolia*.

*S. sorbifolia* is a branchy shrub, growing to the height of 6 or 8 feet, with a round, brown-coloured, warty stem; the wood of which is brittle, and hollow within, with a soft ferruginous pith. The leaves are thin in texture, and bright green on both sides. The flowers are in terminating panicles and small; they are odorous, but not agreeably so. In dry rocky situations, it does not rise above 1 ft. in height, and is sub-herbaceous. It deserves a place in every collection, from its marked character, and from the beauty both of its foliage and its flowers. It throws up abundance of suckers, by which it is easily propagated.

A Selection of Species. — The following kinds, in the London gardens, appear distinct:

1. *S. hometoides*, comprehending *S. Tobolski*
2. *S. chamaedrifolia*, comprehending *S. betulifolia*, *S. daurica*, *S. sibirica*, *S. laciniata*
3. *S. salicifolia*, comprehending *S. canadensis*, *S. grandiflora*, *S. paniculata*, *S. arctica*, *S. lanceolata*, *S. carpinifolia*, *S. reflexa*, *S. incarnata*, *S. tuaurea*
4. *S. flexuosa*, comprehending *S. ulmifolia*, *S. carpinifolia*, *S. betulifolia*, and perhaps, some others.
5. *S. bella*
6. *S. corimbosa*
7. *S. cuneifolia*
8. *S. vaccinifolia*
9. *S. laeviflora*
10. *S. hypericifolia*, comprehending *S. crenata*, *S. inflexa Wendland (H. S. Gard.)*, *S. obovata Wendland (H. S. Gard.)*, *S. argentea*, *S. cuneata*, *S. nana*, *S. alpina*, *S. acutifolia*, *S. decumbens*
11. *S. oblongifolia* Wendland, apparently an upright fastigiate variety of *S. hypericifolia*.
12. *S. acaea*
13. *S. triloba*
14. *S. sorbifolia*, comprehending *S. pikowiensis* of Lodigies, which is a totally different plant from the *S. pikowiensis* of Besser, our No. 14, in p. 305.
15. *S. Lindleyana*.
Sect. III. Potentillaæ.

Genus IX.


Synonyms. Ronze, Framboisier, Fr.; Himbeere, Brombeerstrauß, Ger.

Description. From rub, red in Celtic; in reference to the colour of the fruit in some of the species.

Char. Calyx flatish at the bottom, 5-cleft. Petals 5. Stamens numerous, inserted in the calyx along with the petals. Carpels or Achenia numerous, fleshy, disposed in a head upon an elevated torus. Styles lateral, near the apex of the carpel. (Don's Mill.)

Leaves compound, digitate, pinnate or lobed, stipulate, deciduous or sub-evergreen; with the leaflets usually stalked. Flowers white or pink, in terminal racemes. Fruit edible.

Shrubs, deciduous, subligneous, with prickly stems; for the most part prostrate, but a few of them growing upright. Some of them, such as R. fruticosus, may be considered as sub-evergreen, as they retain the greater part of their leaves in a green state through the winter. All the kinds popularly called brambles may be considered as gigantic strawberry plants; and all their shoots are used by thatchers, and makers of beehives, straw mats, &c. No less than 48 supposed species of the genus are described and figured in the Rudi Germanici of Weihle and Nees von Esenbeck. The number of species in English Botany is, in Dr. Lindley's Synopsis of the British Flora, 2; which, he says, may be reduced to 5, or possibly to 2, exclusive of the herbaceous species. In Don's Miller, 147 are given as the total number described by botanists. We shall only notice such as are tolerably distinct, and which are in cultivation in British gardens. The propagation of the shrubby, or raspberry-like, species of Rubus is effected by suckers or seeds; that of the bramble division of the genus by pegging down the points of the shoots to the soil, when they will root, and throw out other shoots, which may again be pegged down; so that pits are procured from brambles much in the same way as from strawberries.

§ i. Leaves pinnate, of 3—7 Leaflets.

= 1. R. suberectus Auders. The sub-erect Bramble.


Char. &c. Stem erect. Leaf of never more than 5 leaflets, digitate, occasionally pinnate, thin, shining, and plaited. Flowers in simple corymbose racemes. Thorns weak. (Lindl.)

Sub-erect shrub. Britain, in moist woods and by the edges of rivulets, chiefly in the northern counties. Grows 3 ft. to 4 ft. Flowers white; June to September. Fruit pale purple; ripe in August.
The stems are biennial, and flower the second year, like those of the common raspberry, afterwards dying off. The fruit consists of a small number of dark red, or blood-coloured, aggregate grains, agreeably acid, with some flavour of the raspberry; whence it has been recommended by some as perhaps not unworthy of cultivation.

2. R. affinis Weihe & Nees. The related Bramble.


**Engravings.** Weihe and Nees's R. G., t. 3, and 36; Eng. Bot. Suppl., t. 2714; and our fig. 528.

**Spec. Char., &c.** Stem arched, angled, prickly with strongly recurved prickles, glabrous. Leaflets 3—5 in a leaf, ovate with a heart-shaped base, cuspidate, sharply serrated, flat at the base, a little waved towards the tip, having downy tomentum beneath. Flowers in a compound panicle, the component ones cymose. Sepals ovate-acuminate, externally naked, reflexed. Carpels large, blue-black. (Dec. Prod.) A low bramble. Germany, also of barren hills of Montpelier, and of Britain, in boggy places. Flowers white; July and August.

**Variety.**

† R. a. 2 bracteatus Ser. R. a. γ and ø, Weihe and Nees's Rubi Germanici, t. 3, b. — Bracteas very broad, undivided.


**Engravings.** Bot. Reg., t. 854, as R. pauciflorus Lindl.; and our fig. 529, representing a sprig to the usual scale, and figs. 530 and 531, representing the flowers and fruit of the natural size.

It is easily distinguished from all the other brambles in British gardens, by its nearly erect, strong, smooth, dark mahogany-coloured shoots, and by its very long pinnate leaves. The flowers are small, and the petals are of a bright reddish purple, and shorter than the sepals. The fruit is of a blackish purple, of the middle size; depressedly spherical, and covered with a fine bloom. The grains are fleshy, with a sweet subacid taste. This species throws up suckers sparingly; but its magnificent shoots arch over after they get to 6 or 8 feet in height, and grow branching and flowering on every side, till they reach the ground, when their extreme points strike root, and form new plants.

[4. R. occidentalis L. The Western, or American, Bramble.]


**Synonymes.** R. virginianus Hort.; R. idaeus fructu nigro Dill.  


[5. R. idaeus L. The Mount Ida Bramble, or common Raspberry.]


**Synonymes.** R. framboisiana Lam. Fl. Fr., 2 p. 155.; Framboisier, Fr.; gemeine Brombeere, Ger.  
"The Raspis is called in Greek BATOS IDAIE; in Latin, Rubus Idaea, of the mountaine Ida, on which it groweth; in English, Raspis, Framboise, and Hinde-berry." (Johns. Ger., p. 127.)

**Engravings.** Eng. Bot., t. 342.; and our fig. 533.


**Varieties.**


**Garden Varieties.** There are varieties with red fruit, yellow fruit, and white fruit; and one which bears twice in the year.

The fruit of the species, in a wild state, is crimson, and consists of numerous juicy grains, beset with the permanent styles, and highly fragrant; with a very deliciously sweet, and yet slightly acid flavour, when eaten. Improved varieties of it have long been in cultivation in gardens, for the fruit, which is delightfully fragrant, and grateful to the palate in itself, and is used in nu-
merous culinary and confectionery articles, as well as in liqueurs. The raspberry requires a vegetable soil, rather moist, soft, and not very deep; because most of the roots, like those of all other plants that throw up numerous suckers, keep near the surface; and the situation should be shaded, rather than fully exposed to the meridian sun. In a wild state, it is almost always found more or less shaded by trees, but not under their drip; and in woods, the situation of which is rather low and moist, than hilly and rocky or dry. The root belongs to that description which is called travelling; that is, the suckers extend themselves all round the central plant, so as every year to come up in fresh soil. Hence, as Miller observes, a raspberry plantation requires to be renewed every five or six years.

§ ii. Leaves digitate, of 3—5 Leaflets.


The appearance of this plant is that of the common bramble, except in the leaflets, which, from their being deeply cut, are strikingly different. Where it was first found is unknown; but it is, in all probability, only a variety of the common bramble, analogous to the cut-leaved variety of the elder (Sambucus nigra laciniata.) H. S.

7. R. cæsius L. The grey Bramble, or Dewberry.


Engravings. N. Du Ham., 5. t. 22.; Harne Abbild., t. 100.; Eng. Bot., t. 826.; and our fig. 556.

woods and hedges. Stem 4 ft. to 8 ft. Flowers white; June and July. Fruit black; ripe in August.

Varieties.


- R. c. 3 grandiflorus Ser. — Pubescent. Petals and sepals long.


- R. c. 5 folis variegatis Hort. has variegated leaves. A low, weakly, straggling, prostrate plant, having the flowers with blush-coloured petals, and the fruit small, with few grains; but these large, juicy, black, with a fine glaucous bloom, and very agreeably acid. This species varies exceedingly in the size of its flowers and leaves in different situations, whence have arisen many varieties.


Synonymes. R. vulgaris Weihe & Nees, according to Lindley, Synopsis of Brit. Flora, ed. 2. p. 94; R. nemorosus Heyne, according to Sprengel and Goldbach.

Engravings. Eng. Bot., t. 827; and our fig. 538.


Varieties.

- R. c. 2 canus Wallr. Sched. p. 231.—Leaflets all similar in form, roundish heart-shaped, whitishly tomentose upon both surfaces.

- R. c. 3 glandulosus Wallr. Sched. p. 231. R. glandulosus Spreng., according to Wallr. (Our fig. 537.)—Stems, oxticles, and peduncles glandulous.
The stems are long and trailing, sometimes arching, glaucous and purplish in the sun, and green in the shade: they are brittle and full of pith. The flowers are large, and appear earlier than those of most of the British species. The berry is large, agreeably acid, of larger and fewer grains than in R. fruticosus, and of a browner black: they are ripened before those of R. fruticosus and its allies.


9. R. spectabilis Ph. The showy-flowered Bramble.


**Synonyme.** R. rubifolius Wild. Herb., according to Steven.


Branches subflexuose, round, smooth; with large odoriferous flowers, succeeded by large dark-yellow fruit, of an acid and somewhat astringent taste, which make excellent tarts. It merits a place in every collection, both as a flowering shrub, and for its fruit.

10. R. fruticosus L. The shrubby Bramble, or common Blackberry.


**Engravings.** Eng. Bot., t. 715.; and our fig. 541.

**Spec. Char.** &c. Stem erect, and afterwards de-curved, 5-angled, rather tomentose, bearing recurved prickles. Leaflets 3—5, ovate-oblong, acute, glabrous, beneath greyly tomentose, each on a secondary petiole. Panicle decompound, narrow, straight. Sepals reflexed, almost without prickles. (Dec. Prod.) A large Bramble. Native of Europe, in hedges, thickets, and woods; in Britain abounding in the agricultural zone, and tolerably frequent in the upland zone; with, according to Mr. Winch, a limit similar to that of Ulex europae' à. Stem 6 ft. to 12 ft. Flowers white, or rose-coloured; June to August. Fruit purplish black; ripe August to September or October.

**Varieties.**

R. f. 2 pompónius Ser. R. fruticosus ë Weihe & Nees. (fig. 540.) — Flowers
semidouble or double. Leaves pale green; leaflets obovate. Cultivated in gardens. This variety may be considered as highly ornamental, from the large size and numerous petals of its flowers, and from its very vigorous growth. Though it will thrive at the roots of trees, and in places where other ornamental plants will hardly grow, yet it produces most effect when it is trained against a wall.

* R. f. 3 lativicus Hort. is a vigorous-growing plant, which produces by far the best fruit of any variety of bramble. H. S.

* R. f. 4 flócere róseo plínchó Baum. Cat.—Flowers double pink. H. S.

* R. f. 5 fólīs variegátis.—Leaves variegated, and not liable to the objections made to most variegated plants.

* R. f. 6 leuconomórus Ser. — Fruit white. (Dec. Prod.)

This species is considered as being more common than any of the other brambles, and also as attaining a greater size. It is always found to prosper best on a soil somewhat dry and gravelly; and, accordingly, Switzer, when speaking of choosing a soil and situation for a vineyard, recommends looking out for one where the bramble is abundant and vigorous. The fruits have been eaten by children, in every country where they grow wild, since the time of Pliny. They have also been used, both in France and England, to produce a subacid drink; an inferior description of wine; by fermentation and distillation, a strong spirit; and, boiled with sugar, a very good jam.


**Engravings.** Hayne, Abbild., t. 71.; and our fig. 542.


§ iii. Leaves lobed, not pinnate or digitate.


**Synonymes.** R. occidéntalis Hort., but not of Lin.; the Virginiaan Rasperry, the flowering Raspberry.

**Engravings.** Mill. ic., t. 225.; Bot. Mag., t. 323.; and our fig. 543.

The flowers are not succeeded by fruit in this country; but Pursh informs us that, in a wild state, the fruit is yellow, and of a very fine flavour, and a large size. "Cornutus, who first figured and described this plant, gave it the name of odoratus, on account of the very grateful fragrance of its foliage." (Bot. Mag., t. 323.)


**Synonyme.** R. odoratus Hort., but not of Lin. 

**Engravings.** Mocio Pl. Nutk.; Bot. Reg., t. 1368.; and our fig. 544.

**Spec. Char., &c.** Stem glutinous. Branches round, glabrous, rufous. Leaves 5-lobed, unequally toothed. Inflorescence subcorymbose. Flowers about 4 in a corymb, white. Sepals ovate, longly acuminate, glabrous, as long as the petals. Allied to R. odoratus, but the peduncle and calyx are glabrous. (Dec. Prod.)

An upright shrub. North-west coast of North America, from New California to Nootka Sound, and at various places between north latitude 43° and 52°, in mountains and woods. Height 5 ft. to 6 ft. Introduced in 1826. Flowers white; May to October. Fruit yellow or redish; ripe in August.

The general aspect and appearance of R. odoratus, except being of a paler green. The flowers are succeeded by large yellow or reddish berries, which are found to make excellent tarts; and the plant will probably soon be ranked as a fruit shrub. Horticultural Society's Garden.

**Species and Varieties of Rubus best deserving of Cultivation in British Gardens, as ornamental Shrubs.**

**A. Erect Raspberry-like Sorts.**

R. occidentalis, the Western, or black, Raspberry, No. 4.; and fig. 532. in p. 313.

R. nutkanus, the Nootka Sound Raspberry, No. 13.; and fig. 544. in p. 318.

R. odoratus, the sweet-scented, or Virginian Raspberry, No. 12.; and fig. 543. in p. 317.

R. spectabilis, the showy-flowered Raspberry, No. 9.; and fig. 539. in p. 316.

R. ideus, the Mount Ida, or common, Raspberry, No. 5.; and fig. 533. in p. 314.

— The varieties of this species which are recommended as being most suitable for planting in an arboretum are, the red Antwerp, the white Antwerp, and the smooth cane.

**B. Shrubby Brambles.**

R. suberectus, the sub-erect Bramble, No. 1.; and fig. 527. in p. 311.

R. micranthus, the small-flowered, or Nepal, Bramble, No. 3.; and figs. 530, 531. in p. 312.

R. fruticosus, the shrubby Bramble, or common Blackberry, No. 10.; and fig. 540. in p. 316.—The varieties recommended are, the double-flowered, the double pink-flowered (if it can be got), the variegated-leaved, and R. f. tauricus, on account of its large and excellent fruit.

R. laciniatus, the cut-leaved Bramble, No. 6.; and fig. 534. in p. 314.

R. corylofolius, the Hazel-leaved Bramble, No. 8.; and fig. 537. in p. 315.

**C. Prostrate Brambles.**

R. ca'sius, the grey Bramble, or Dewberry, No. 7.; and fig. 535. in p. 314.—The variety recommended, in addition to the species, is that with variegated leaves.

**Remark.** The plants in the last two groups are propagated by division of the roots, or by encouraging the points of the shoots to root, like the runners of a strawberry; and the plants in the first group by division of the root, or by suckers.
Other Sorts of shrubby Rubuses.—R. macropétalus Doug. MS. in Hook. Fl. Bor. Amer. p. 178. t. 59., and our fig. 543., is a native of low woods in the valley of the Columbia, with white flowers, and the general habit of R. spectabilis.

R. deliciousus Torrey in Ann. Lyce. ii. p. 196. is a native of North America, among the Rocky Mountains; with purple flowers, succeeded by a very delicious fruit. It is a shrubby bramble, 5 or 6 feet high.

R. tilicæus Smith in Rees’s Cyc. vol. xxx. is a native of Upper Nepal, with white flowers, and leaves like those of Tilia alba. R. cordifolius D. Pon appears to be the same species, or perhaps a variety. Hort. Soc. in 1834.

**Genus X.**

**POTENTII’LLA L. The Potentilla, or Shrubby Cinquefoil.**

*Lin. Syst. Icosándria Polygyния.*


**Derivation.** From potens, powerful; in allusion to the supposed medicinal qualities of some species.

**Gen. Char.** Calyx 10-parted, the 5 outer segments accessory. Petals 5. Stamens numerous. Carpels numerous with lateral styles, seated on a dry permanent, elevated receptacle. *(Don’s Mill.)*

Leaves compound, alternate or opposite, stipulate, sub-evergreen; pinnately cut. Flowers white or yellow.

Shrubs low, natives of Europe and America, and of easy culture in a dry soil. They are propagated by seeds or cuttings; and, except the common species, P. fruticosa, are not much in cultivation.

—as 1. P. frutico’sa L. The shrubby Potentilla, or Cinquefoil.


**Spec. Char., &c.** Stem shrubby.


England, Germany, the Pyrenees, and other places; in England, in Middle- ton, Teesdale; and in Rock Forest, Clare, in Ireland. Height 2 ft. to 4 ft. Flowers yellow; July and August. Fruit brown; ripe in October.
Varieties, according to Seringe, in Dec. Prod.


- P. f. 3 tenuifolia Ser.; P. fruticosa β Nestl. Pot. 30., Lehm. Pot. 32. var. γ; P. floribunda Ph. Fl. Amer. Sept. 1. p. 355., Watson's Dict. Brit. t. 70.; P. tenuifolia Schlectend. Berl. Mag., according to Lehm. Pot. 32. (Our fig. 547.) — Sepals and lobes of the leaves narrow, and with a slight hoary silkiness. North America; where it is a low-growing shrub, not above 18 in. high. It was also found by Pallas in Siberia. The handsomest variety of the species.

2. P. glabra Lodd. The glabrous Potentilla.


*Synonymes.* P. fruticosa alba Busch, according to Lodd. Bot. Cab., t. 914.

*Engravings.* Lodd. Bot. Cab., t. 914.; and our fig. 548.


It differs from P. fruticosa in being perfectly smooth in all its parts, and in having pendulous branches and undulated leaves. It thrives best in a mixture of loam and peat, is of slow growth, and difficult to increase, except by seed.


*Engravings.* Lehm. Pot., 35. t. 1.; and our fig. 549.

*Spec. Char., &c.* Habit resembling that of Comarum palustre. Stem suffrutescent. Leaves pinnately cut, coriaceous. Lobes oblong, acutely serrate, pubescent above upon the veins, whitely tomentose beneath. Stipules lanceolate, very acute, entire, rather dark at the edge. Flowers large, white, upon short peduncles, and grouped. Sepals lanceolate, very acute, broad, almost as long as the petals, which are obovate. Bracteoles very narrow, smaller than the sepals. Receptacle lanuginose. (Dec. Prod.) A low shrub. Siberia. Height 1 ft. to 2 ft. Introduced in 1823. Flowers white; June and July. Fruit brown; ripe in September.

Comarum palustre L. (Eng. Bot., t. 172.), Potentilla Comarum Scop., a well known British plant, found in boggy soils, with somewhat ligneous shoots, and showy flowers of a deep dingy purple, may be added to this order, and may prove useful in particular situations, on the margins of ponds.
Genus XI.

COWAN'IA D. DON. The COWANIA. Lin. Syst. Icosándria Polygýnia.


Derivation. In honour of James Cowan, a London merchant, who several times visited Mexico and Peru, whence he introduced a great many plants.


Leaves simple, alternate, stipulate, evergreen; wedge-shaped, oblong, pinnatifid, plaited. Flowers terminal, solitary, almost sessile, red.—Shrub; native of Mexico; very ornamental, but somewhat tender in British gardens.

1. C. Plica'ta D. Don. The plaited-leaved Cowania.


Branches copiously clothed with embedded glands. Petioles of the leaves very short, slightly channeled above, bearing at the base. Stipules adherent. Flowers, when protruding from the bud exactly like those of Rosa. This promising evergreen shrub, being extremely difficult to propagate, has been lost, for the present, to British gardens.

Sect. IV. Ro'sea Dec.

Genus XII.


Origin. From rhos, red, Celtic; in reference to the colour of the flowers of most of the species.

Gen. Char. Calyx with the tube contracted at the mouth, and with the segments usually pinnately divided. Petals 5. Stamens numerous. Carpels numerous, bony, inserted on the inside of the tube of the calyx, which at length becomes baccate and encloses them. They are dry and indehiscent, bearing each a style on the inner side. (Don's Mill.)

Leaves compound, alternate, stipulate, deciduous or evergreen; impinnate. Stipules attached to the petiole. Prickles simple. Flowers large, showy; red, white, or yellow; fragrant.

Shrubs, for the most part deciduous; natives of Europe, and of the temperate regions.
perate regions of Africa, Asia, and America, but not of Australia; and they have been in cultivation in the Old World, for the beauty and fragrance of their flowers, from time immemorial. As the culture of roses belongs more to floriculture than to arboriculture, it will be found given at length in our Encyclopaedia of Gardening, and in the first edition of this work. All the species may be propagated by cuttings of the roots, cuttings of the young wood in a growing state, by layers, or by budding or grafting; and they will all thrive in loamy soil, dry and rich, rather than poor. The genus Rosa is in a state of confusion still greater than that which subsists among the different kinds of Rubus; nor can it well be otherwise, when we consider that the greater number of kinds in cultivation are garden productions, and that the wild kinds differ exceedingly according to soil and situation, and have been chiefly described by botanists from dried specimens. We have adopted the arrangement in Don's Miller, with the exception of omitting the first section, Simplicifoliae, now made a separate genus by Dr. Lindley. Where the species arranged under a section are natives of different countries, it may fairly be presumed, that there is at least one in each country entitled to be considered a species; or, at least, it may be convenient to do so, in the present state of our knowledge. Nature, it is observed in the Nouveau Du Hamel, "appears scarcely to have placed any limit between the different species of the rose; and, if it is already very difficult to define the wild species, which have not yet been modified by culture, it is almost impossible to refer to their original type the numerous varieties which culture has made in the flowers of species already so nearly resembling each other."

§ 1. Feroces Lindl. Mon. p. 3.

Derivation. From ferox, fierce; in reference to the branches being thickly beset with prickles.

Sect. Char. Branches clothed with permanent tomentum. Fruit naked. The plants contained in this section are a truly natural group; they are low shrubs, losing their leaves early in autumn, and are then remarkable for their hoary branches, bristles, and numerous prickles. Their fruit is perfectly smooth, which separates them from the next section, in which the fruit is downy. Sepals usually toothed. (Don's Mill.) — Deciduous low bushes, natives of Caucasus and Kamtschatka.

1. R. fe'rox Lawr. The fiercely-prickled Rose.

Engravings: Lawr. Ros., t. 42; Red. Ros., 1. p. 47. t. 12; and our fig. 551.


Variety.

2. R. (f.) kamtscha'tica Vent. The Kamtschatka Rose.

Engravings: Vent. Cels., t. 67; N. Du Ham., vol. 7. t. 10. f. 2; and our fig. 552.

Spec. Char., &c. Prickles infra-stipular, falcate, large. Leaves opaque. Flowers solitary, deep red. Fruit spherical, scarlet, less than that of R. fe'rox. (Don's
Mill.) Kamtschatka, in dry rocky places. Height 3 ft. to 4 ft. Introduced in 1791. Flowers deep red; June and July. Fruit scarlet; ripe in September.

From the appearance of the plants bearing this name in the extensive collection in Messrs. Lodderijes arboreum, we should consider it to be only a variety of R. ferox. It is, however, very distinct, and, from the rich colour of its flowers and fruit, well deserving a place in collections.

§ ii. Bracteae.

Sect. Char. Branches and fruit clothed with permanent tomentum. This section is readily distinguished from the last by the woolliness of the fruit. Leaves dense, usually shining, and prickles placed under the stipules in pairs. Sepals simple, or nearly so, (Don's Mill.) — Evergreen, or subevergreen bushes. Natives of China and Nepal.

3. R. Bracteata Wendl. The large-bracted Rose.


Synonyme. Lord Macarney's Rose.


It flowers abundantly, but is rather tender, on which account it succeeds best when trained against a wall.

Varieties.


3. R. 6. 3 flóre pl. no Hort.—Flowers double, but never expanding freely.

3. R. 6. 4 Maria Leonida Hort.—Flowers double, white, yellowish pink in the centre, expanding freely. One of the finest of autumn roses.

The species and the varieties, being somewhat tender, succeed best when trained against a wall. They are very ornamental from their shining evergreen foliage, as well as from their flowers.


Engravings. Bot. Reg., t. 919.; and our fig. 554.

(Dec. Prod.) Sub-evergreen. China Height 2 ft. to 3 ft. Introduced in 1828. Flowers very large, double, and of a delicate blush colour; August to October. Fruit orange red; ripe in October.

An interesting little shrub, but somewhat tender, like R. bracteata. There is a variety in the Hort. Soc. Garden called R. m. albula.

5. R. INVOLUCRATA Roxb. The involucred-corymbed Rose.


Seringe seems to consider this as a variety of R. bracteata. The flowers are in coryms, surrounded by three or four approximate leaves. The plants are rather tender, and succeed best against a wall, where they flower magnificently. Not common in collections. Lodd.


Sect. Char. Plants setigerous or unarmed, bracteate. Leaflets lanceolate glandless. Disk thin, never thickened. This section is distinguished by its long lanceolate leaflets without glands, its upright shoots, and compact habit. Flowers red, never solitary, except by abortion, and always supported by bracteas. Fruit round, small, red (soon losing its long narrow sepals), and with small, smooth, shining carpels. The shoots are usually setigerous next the ground; but rarely so towards the apex, except in one or two instances. R. alpina and R. acicularis, of the following division, sometimes have bracteas; but their sepals never fall off till the fruit is decayed. Sepals simple, entire, or nearly so, unless when mentioned otherwise. (Don’s Mill.)—Plants of most of the species are in cultivation in British gardens. Deciduous rambling bushes; natives of Continental Europe and North America, and some of them of Britain.

A. Species Natives of North America,


appendicled, spreading. Fruit oblately globose, a little hispid or glabrous, scarlet. (Dec. Prod.) An erect shining-leaved shrub. North America, from New York to Carolina; near Boston, in bogs, and on the edges of marshes; and in Newfoundland. Height 4 ft. to 6 ft. Introduced in 1724. Flowers red, overtopped by the leaves and young branches; June to August. Fruit bright red; ripe in October.

A handsome species, on account of its shining foliage, and one which is very hardy; but the flowers have a very disagreeable smell.

7. R. ni'tida W. The glossy-leaved Rose.


Synonymes. R. Redoutea ru.scens Thory in Red. Ros. 1. p. 103. ic.; the dwarf Labrador Rose


This is an interesting plant, from its dwarf stature, its abundant reddish prickles, its glossy leaves, its flowers, and its fruit.

8. R. Ra'pa Bosc. The Turnip-fruited Rose.


Only known in its double-flowered state in British gardens, where it is a freely growing hardy plant, with large double flowers.

9. R. Parviflo'ra Ehrh. The small-flowered, or Pennsylvanian, Rose.


Variety.

- R. p. 2 flore pleuo Red. Ros. 2. p. 73., and our fig. 559. — Flowers double, pale blush, unexpanded. A neat little rose, but not in very general cultivation.


Other North-American Species.—R. Wooldsi Lindl., R. carolina Linn., R. Lindleyi Spreng., are described in our first edition; and the first two are in Messrs. Loddiges's collection.

B. Species Natives of Nepal.

= 11. R. MACROPHYLLA Lindl. The long-leaved Rose.

Engravings. Lindl. Ros. Monogr., t. 6.; and our fig. 561.

Spec. Char., &c. Unarmed. Leaves very long; leaflets 5—11, lanceolate. Petioles with a few glands, which, as well as the leaflets, are woolly beneath. Sepals narrow, longer than the petals, which are apiculate. (Don's Mill.) A smooth shrub. Gossainthan. Height 5 ft. to 6 ft. Introduced in 1830. Flowers red, on villous peduncles, and furnished with a few unequal setae, as well as the fruit.

Dr. Lindley observes of this rose, that its leaves are the largest he has ever seen; that it cannot be confounded with any thing else; and that it may be considered the link between Cinnamomere and Pimpinellifolia. Horticultural Society's Garden.

C. Species Natives of Continental Europe.


Engravings. Lindl. Ros., t. 5.; Fl. Dan., t. 1214.; and our fig. 562.

pale or bright red. Fruit round, naked, and crimson. The double-flowered variety is most common in gardens. An upright shrub. Native of most parts of Europe, and a doubtful native of England. Height 5 ft. to 6 ft. Flowers pale or bright red; May and June. Fruit crimson; ripe in September.

A very desirable sort, on account of its fragrance, which resembles that of cinnamon. There is a semi-double variety; and the single state is supposed to be identical with R. majalis below.

*Other European Species not Natives of Britain.*—R. frutetorum Bess., R. taurica Bieb., and R. dahurica Pall., are described in our first edition, and the first two are in Messrs. Lodigies's collection.

D. Species Natives of Britain.


This is supposed by some to be the single state of R. cinnamomea.


*Engravings.* Eng. Bot., t. 2707.; and our fig. 564.

*Spec. Char., &c.* Branches flexuous, setigerous, armed with a few slender scattered prickles. Leaflets folded together, unequal, with coarse double serratures. Stipules, petioles, and sepals compound. Styles stretched out, glabrous. (Don's Mill.) A large prickly shrub. Ireland. Height 5 ft. to 6 ft. Flowers white or pale pink; June and July.


*Sect. Char., &c.* Plants bearing crowded, nearly equal, prickles, or unarmed. Bractless, rarely bracteate. Leaflets ovate or oblong. Sepals connivent, permanent. Disk almost wanting. This section is essentially different from the last in habit, but in artificial characters they approach very nearly. It, however, may be distinguished by the greater number of leaflets; which vary from 7 to 13, and even to 15, instead of from 5 to 7. The flowers are also universally without bracteas; except in the R. alpina, R. Sabini, R. Dominata, and, perhaps, R. marginata. These, having connivent permanent sepals, cannot be confounded with the preceding division; nor, on account of their disk, with the following. There is no instance of stipular prickles in the present tribe. The sepals are entire, or nearly so, unless...
when mentioned otherwise. (Don's Mill.)—Deciduous: forming bushes partly low and dense, and partly large and rambling. Natives of Britain, Continental Europe, Asia, and North America.

A. Species Natives of Europe.

15. **R. alpiana** Lin. The Alpine Rose.


**Engravings.** Jacq. Fl. Austr., t. 272; Lindl. Bot. Reg., t. 474; and our fig. 565.


![Image of R. alpiana](image1)

**Varieties.**

- **R. a. 2 laevis Ser.,** but not of Desv. or Red.; R. Sanguisorba majoris, &c., Dill. Elth.; R. alpina glabra Desv.; R. a. vulgaris Red. Ros. 2, p. 111, and our fig. 566; has the stem, peduncles, and calyx quite glabrous, and the fruit oblong.

- **R. a. 3 speciosa Hort.** Drummond's Thornless Rose. — A very beautiful climbing variety, raised by Mr. Drummond in the Cork Botanic Garden, about 1520.

**Other Varieties.** Fourteen are described in the first edition of this work, but they are chiefly of botanical interest.

16. **R. suavis Willd.** The sweet Rose.


**Engravings.** Hayne Abbild., t. 46; and our fig. 567.


This very distinct variety, or perhaps species, of rose is probably at present wanting in British collections; for it must not be confounded with Rōsa suavellens or with Rōsa suavifolia, both described in Le Botaniste Cultivateur as varieties of R. rubiginosa, or synonyms to that species.
17. R. sulphurea Ait. The sulphur-coloured flowered Rose.


Engravings. Lindl. Ros. t. 77.; Bot. Reg., t. 46.; and our fig. 568.


This sort does not flower freely, except in open airy situations; and, if trained against a wall, exposed to the north or east rather than to the south. Its flower buds are apt to burst on one side before they expand, and consequently to become deformed; to prevent this, the blossom buds should be thinned, and care taken that they have abundance of light and air. Watering it freely in the flowering season is found advantageous; and the shoots, in general, ought not to be shortened. This beautiful species is said to flower freely, if grafted on the musk cluster at 8 or 10 feet from the ground; or it will do well on the China rose.

18. R. sanguisorbifolia Donn. The Burnet-leaved Rose.


Engravings. Our fig. — in p. .


Easily distinguished by the number of its leaflets, the shortness of its peduncles, and by its globose depressed fruit.

B. Species Natives of Siberia.

19. R. grandiflora Lindl. The large-flowered Rose.


Engravings. Bot. Reg., t. 888.; and our fig. 569.


Differs from R. spinosissima, though scarcely so much as to render it a distinct species.

R. aciculáris Lindl., and R. oxyacantha Bieb., are described in our first edition.

C. Species Natives of North America and Siberia.

20. R. lute'escens Pursh. The yellow American Rose.


Engravings. Lindl. Ros., t. 9.; Bot. Mag., t. 1570.; and our fig. 570.

A very distinct variety, or probably species, well deserving a place in botanical collections.


Engravings. Lindl. Ros., t. 16.; and our fig. 571.

Spec. Char., &c. Prickles unequal, larger ones dagger-formed. Leaflets glandular, glabrous, orbicular. (Don's Mill.) A diminutive spiny shrub. Siberia, Tauria, and also Dauphiné, and near Montpelier. Height 1 ft. to 2 ft. Flowers white; May and June. Fruit dark; ripe in September.

Shoots simple and erect, resembling, in many respects, R. spinosissima in a stunted state.

22. R. reversa Waldst. et Kit. The reversed-prickled Rose.


D. Species Natives of Britain.

23. R. spinosissima L. The most spiny, or Scotch, Rose.


Spec. Char., &c. Prickles unequal. Leaflets flat, glabrous, simply serrated. (Don's Mill.) A dwarf compact bush, with creeping suckers. Flowers small, solitary, white or blush-coloured. Fruit ovate, or nearly round, black or dark purple. A very spiny shrub. Europe; plentiful in Britain. Height 1 ft. to 2 ft. Flowers white or blush; May and June. Fruit purple or black; ripe in Sept.

Varieties. A great many varieties, cross-breds, and hybrids have been raised of this rose, with flowers
double, semidouble, white, purple, red, and even yellow. The first double variety was found in a wild state, in the neighbourhood of Perth, by Mr. Brown of the Perth Nursery, who raised a number of others from seed. Mr. Austin of the Glasgow Nursery also raised upwards of 50 select varieties; and, subsequently, the number of these varieties for sale in the nursery has become so great, and they are changing their names so often, that it would be useless to attempt to give a list of them in this work. In Mr. Rivers's Abridged List of Roses, in the Rose Amateur's Guide, the following sorts are recommended: Erebus, Guy Mannering, La Neige, Lady Baillie, Queen of May, True yellow, William the Fourth, and Venus.


A rare species, nearly allied to R. spinosissima

25. R. HIBER'NICA Smith. The Irish Rose.

Spec. Char., &c. Prickles unequal, slightly hooked, smaller ones bristle-formed. Leaflets ovate, acute, simply serrated, with the ribs hairy beneath. Sepals pinnate. Fruit nearly globular, smooth, as well as the peduncles. (Don's Mill.) A prickly shrub. Ireland, in the counties of Derry and Down, in thickets. Height 4 ft. to 6 ft. Flowers small, light blush; June to November. Fruit orange-coloured; ripe Sept.


27. R. INVUL'TA Smith. The involute-petaled Rose.


**Identification.** Woods in Lin. Trans., 12, p. 188; Don's Mill., 2, p. 569.

**Engravings.** Borr. in Eng. Bot. Suppl., t. 2955; and our fig. 578.


An upright branchy shrub. Native of Scotland, near Dunkeld; of England, in Cumberland, Northumberland, and Yorkshire. Height 5 ft. to 8 ft. Flowers red; July. Fruit bright scarlet; ripe in September.

**Variety.** A plant in the Horticultural Society's Garden is named *R. S. gracilis.*


**Synonyme.** *R. Sabini* @ Lindl. *Ros.* p. 99.

**Engravings.** Eng. Bot. Suppl., t. 2901; and our fig. 579.

**Spec. Char., &c.** Peduncles bracteas, bristly, as well as the globular fruit and calyx. Stem bristly and prickly, like the downy petioles. Leaflets elliptical, doubly and sharply serrated, hairy on both sides. Petals spreading. (*Don's Mill.*) Segments of the calyx simple. A large shrub. Highlands of Scotland, particularly on the mountains of Clova, Angus-shire. Height 4 ft. to 5 ft. Flowers pink; June and July. Fruit red; ripe in September.

**Variety.** There is a variety in the Hort. Soc. Garden, called *R. D. hórida*; and Dr. Lindley remarks that *R. Wilsoni* Borr. (Eng. Bot. Suppl. t. 2723.), *R. Sabiniâma,* and *R. involuta* are all some of the endless varieties of *R. mollis,* our *R. villósa,* No. 33. (*Comp. Bot. Mag.,* i. p. 189.)

This rose was named in honour of Mr. Don of Forfar.

§ v. *Centifoliæ* Lindl.

**Derivation.** From *centum,* a hundred, and *fólium,* a leaf; because the species contained in this section agree in character with the hundred-leaved rose, which is so double as to seem to have a hundred petals.

**Sect. Char., &c.** Shrubs all bearing bristles and prickles. Peduncles bracteate. Leaflets oblong or ovate, wrinkled. Disk thickened, closing the throat. Sepals compound.—This division comprises the portion of the genus *Rósa* which has most particularly interested the lover of flowers. It is probable that the earliest roses of which there are any records of being cultivated belonged to this section; but, to which particular species those of Cyrene or Mount Pangæus are to be referred, it is now too late to enquire. The attar of roses, which is an important article of commerce, is either obtained from roses belonging to this division indiscriminately, as in the manufactory at Florence, conducted by a convent of nuns; or from some particular kind, as in India. (*Don's Mill.,* ii. p. 571. adapted.) Deciduous bushes, generally erectish; natives of Syria, Caucasus, and Middle of Europe.


**Identification.** Mill. Dict., No. 15; Don's Mill., 2, p. 571.

**Synonymae.** *R. belgica* Mill. Dict., No. 17; *R. calendàræm* Münch. *Hausw.* ex *Bork. Holz.*, 330; *Rossiæ* *Ros.* t. 8, and t. 33; *R. bifféra* Petr. Suppl., 6, p. 276*, or Ros. 1.* p. 107, and p. 121; *Rosa à quatre Salsins.*

**Engravings.** Redout, Ros., 1, t. 584; *our* fig. 580 of *R. d. coccineâ*; and *our* fig. 581 of *R. d. subfilfa.*

**Spec. Char., &c.** Prickles unequal, larger ones falcate. Sepals reflexed.
Fruit elongated. (Don's Mill.) A bushy shrub. Syria. Height 2 ft. to 8 ft. Introduced in 1573. Flowers large, white or red, single or double; June and July. Fruit red; ripe in September.

**Varieties.** There are nearly 100 varieties which are classed under this species; but it is very doubtful, whether many of them are not hybrids between this and other sorts. Among the names of the varieties classed under this head are, the monthly blush; the blush damask; the red and white damask; the red and white monthly; the incomparable; the crimson perpetual; and, perhaps, the handsomest variety of the species, the quatre saisons, of which there are six or eight subvarieties; the royal; and the York and Lancaster.

The present species may be distinguished from *R. centifolia* by the greater size of the prickles, the greenness of the bark, the elongated fruit, and the long reflexed sepals. The petals of this species, and all the varieties of *R. centifolia*, as well as those of other species, are employed indiscriminately for the purpose of making rose-water. *R. damascena* is extremely beautiful, from the size and brilliant colour of its flowers.


**Engravings.** Rossig. Ros., t. 1.; Red. Ros., 1. p. 20. t. 1.; and our fig. 582. of the double-flowered variety.


*(Don's Mill.)* A bushy shrub. Eastern Caucasus, in groves. Height 3 ft. to 6 ft. Introduced in 1596. Flowers white or red; single, but most commonly double; June and July. Fruit red; ripe in September.

**Varieties.** Above 100 varieties are assigned to this species, which are classed in three divisions:

- R. c. 1 *provincialis* Mill.; the *Provence, or Cabbage, Roses*; among which are the royal and cabbage blush; the car-
mine; the cluster; the Duchesse d'Angoulême, a very handsome white rose; the Provence, of which there are upwards of twenty subvarieties; the prolific; the striped nosegay; and the Versailles.

* R. c. 2 muscosa Mill., the Moss Roses; among which are the common single (*fig. 583.*), the common double, the blush, the dark, the striped, the white, and the crest moss (*R. c. m. cristāta*), and many others.

* R. c. 4 pomponia Dec., the Pomponé Roses N. Du Ham.; *R. pomponia* Redouté Ros. p. 65.; among which are the well-known rose de Meaux, an old inhabitant of the gardens; the mossy de Meaux, the dwarf, and small Provence; the rose de Rheims; and the common and proliferous pomponé. These roses should be cut down every year, when they have done flowering, that they may send up new shoots every spring to produce flowers. If this be not done, the principal branches will dry up, and become bare like those of the bramble.

This species is distinguished from *R.* damascena by the sepals not being reflexed, and the flowers having their petals curved inwards, so as, in the double state, to give the flower the appearance of the heart of a cabbage, whence the name of the cabbage rose. Its fruit is either oblong or roundish, but never elongated. From *R.* gallica it is distinguished by the flowers being drooping, and by the larger size of the prickles, with a more robust habit.


**Engravings.** Mill. lce, t. 271. f. 2.; Red. Ros., l. c. 29.; our *fig. 584.* of the species; and *fig. 585.* which is of the variety called the Bishop Rose.

**Spec. Char., &c.** Prickles unequal. Stipules narrow, divaricate at the tip. Leaflets 3—7, coriaceous, rigid, ovate or lanceolate, deflexed. Flower bud ovate-globose. Sepals spreading during the time of the flowering. Fruit subglobose, very coriaceous. Calyx and peduncle more or less hispid with glanded hairs, somewhat viscosé. A species allied to *R. centifolia* L., but with round fruit, and very coriaceous leaflets, with more numerous nerves, that are a little prominent, and are anastomosing. (*Dec. Prod.*) A bushy shrub. Middle of Europe and Caucasus, in hedges. Height 2 ft. to 3 ft. Introduced ? Flowers red, crimson, or white, single or double; June and July. Fruit red; ripe in August.

**Varieties.** The varieties of this species are very numerous; some of the principal are, the cramoisie, royal crimson, black damask, Fanny Bias, Flanders, giant, gloria mundi, grand monarque, the Dutch, the blush, the bishop (*fig. 585.*), and Singleton’s, all old favourites in our gardens; Malta, marbled, several subvarieties; unimone, six or eight sorts; Morocco, negro, mottled black, Ninon de l’Enclos, Normandy; official, or the rose of the shops, several varieties; purple, 14 sorts; poppy; velvet, several
kinds; ranunculus, rosa mundi, sultana; Tuscany; the Rōsā g. parviflōra, our fig. 586. The village maid, a striped rose, introduced by Mr. Rogers of Southampton, probably belongs to this species. Besides these, there are numerous distinct varieties, which will be found described in our first edition.

The petals of some of the varieties of this rose are used in medicine, particularly of that called officinal; which, thought not so fragrant as those of the Dutch hundred-leaved rose, another variety, are preferred for their beautiful colour and their pleasant astringency.

§ vi. Villōsē.

*Derivation.* From *villosus*, villous; in allusion to the hairiness of the species.

Sect. Char. Surculi erect. Prickles straightish. Leaflets ovate or oblong, with diverging serratures. Sepals connivent, permanent. Disk thickened, closing the throat. — This division borders equally close upon those of Canīnae and Rubīginōsē. From both it is distinguished by its root-suckers being erect and stout. The most absolute marks of difference, however, between this and Canīnae, exist in the prickles of the present section being straight, and the serratures of the leaves diverging. If, as is sometimes the case, the prickles of this tribe are falcate, the serratures become more diverging. The permanent sepals are another character by which this tribe may be known from Canīnae. Rubīginōsē cannot be confounded with the present section, on account of the unequal hooked prickles, and glandular leaves, of the species. Roughness of fruit and permanence of sepals are common to both. (Don's Mill., ii. p. 576.) Deciduous shrubs, mostly with erectish branches. Natives of Middle Europe, or Britain.

A. Natives of Middle Europe, not of Britain.

4 33. *R. turbīnātā* Ait. The turbinate-calyxed, or Frankfort, Rose.


*Varieties.* R. t. 1 francofortiana Ser., and R. t. 2 orbessiana Scr., are the commonest forms of this species.
R. a'leba Lin. The common white Rose.


Synonyms. R. nuditissima Gat. Montaub., t. 94.

Engravings. Lawr. Ros., t. 23, 25, 32. 37; Ed. Fl. Dan., t. 1215.; Red. Ros., 1. p. 17. and p. 97.; Gat. Montaub., t. 94.; our fig. 588. of the species; and fig. 589. of the double variety common in gardens.

Spec. Char., &c. Leaflets oblong, glaucous, rather naked above, simply serrated. Prickles straightish or falcate, slender or strong, without bristles. Sepals pinnate, reflexed. Fruit unarmed. (Don's Mill.) A large shrub. Piedmont, Denmark, France, and Saxony. Height 4 ft. to 10 ft. Introduced in 1597. Flowers large, either white, or of the most delicate blush colour, with a grateful fragrance; June and July. Fruit oblong, scarlet, or blood-coloured; ripe in September.

Varieties. The garden varieties are very numerous; and some of the most beautiful are the double, semidouble, and single blush; the celestial, a well-known favourite; the great, small, and cluster maiden's blush; the double thornless; and the double, semidouble, and single white. The rose blanche à cœur vert, the bouquet blanc, and the blanche de la Belgique, are well-known and beautiful varieties of this species.

B. Natives of Europe and Britain.

R. villo'sa Lin. The villous-leaved Rose.


Varieties. R. gracilis Woods, R. Sherardii Davies, R. sylvestris Lindl., are described in our first edition.

A very variable plant. (See No. 29. p. 332.)

R. tomentosa Smith. The tomentose, or woolly-leaved, Rose.


Spec. Char., &c. Leaflets ovate, acute, more or less downy. Fruit elliptical, hispid. Sepals pinnate.
Prickles slightly curved. Petals white at the base. A rambling shrub. (Don's Mill.) Europe, in hedges and thickets; plentiful in Britain. Height 6 ft. Flowers pink; June and July. Fruit scarlet; ripe in September.

§ vii. Rubiginosae Lindl.

Derivation. From rubiginosus, rusty; the leaves of the species being usually furnished with rust-coloured glands beneath.

Sect. Char., &c. Prickles unequal, sometimes bristle-formed, rarely wanting. Leaflets ovate or oblong, glandular, with diverging serratures. Sepals permanent. Disk thickened. Root-shoots arched. The numerous glands on the lower surface of the leaves will be sufficient to prevent anything else being referred to this section; and although R. tomentosa has sometimes glandular leaves, the inequality of the prickles of the species of Rubiginosae, and their red fruit, will clearly distinguish them. (Don's Mill., ii. p. 577.) — This division includes all the egantine, or sweet-briar roses, which are for the most part erect or erectish bushes with deciduous leaves. Natives of Britain, Middle Europe, and Caucasus.

A. Species Natives of Britain.

§ 37. R. rubiginosa Lin. The rusty-leaved Rose, Sweet Briar, or Eglatine.


Engravings. Eng. Bot., t. 991.; Lawr. Ros., t. 41. 61. 65. 72. and 74.; and our fig. 592.

Spec. Char., &c. Prickles hooked, compressed, with smaller straighter ones interspersed. Leaflets elliptical, doubly serrated, hairy, clothed beneath with rust-coloured glands. Sepals pinnate, and bristly, as well as the peduncles. Fruit obovate, bristly towards the base. (Don's Mill.) A rambling shrub. Europe, and Caucasus; in Britain, in bushy places, on a dry gravelly or chalky soil. Height 4 ft. to 6 ft. Flowers pink; June and July. Fruit scarlet, obovate or elliptical; ripe in September. Leaves sweet-scented when bruised.

Varieties. Eleven are described in our first edition. Some of the best for a rosarium are, the blush, cluster, double, dwarf, semidouble, mossy, scarlet, tree double, and white semidouble.

§ 38. R. micrantha Sm. The small-flowered Rose, or Sweet Briar.


Synonyme. R. rubiginosa β micrantha Lindl. Ros. p. 87., with erroneous synonymes.


§ 39. R. sepium Thunb. The Hedge Rose, or Briar.


40. R. inodo'ræ. The scentless Rose.


The foliage has, notwithstanding the specific name, a scent more or less faint, according to the number of glands developed in different individuals; but it resembles rather the turpentine odour of the plants of the preceding section than the fragrance of the sweet briar.

B. Species Natives of Middle Europe.

41. R. l'utea Dodon. The yellow Eglantine Rose.


Varieties.


R. l. 4 floræ pleco. Williams's double yellow Sweet Briar.—A very beautiful variety, and a fine flowerer, raised from seeds by Mr. Williams of Pitmaston. Horticultural Society's Garden.

American Rose.—Pretty, and a free flowerer. Raised by Mr. Hogg, nurseryman, in New York, from seeds of the single yellow rose. Horticultural Society’s Garden.

Other Species belonging to this Section.—R. ibérica Smith, native of Eastern Iberia; R. glutinosa Smith, native of Greece; R. Klücki Bess., native of Tauria; R. suaveolens Pusch, native of North America; and R. Montezumae Humb., native of Mexico, are described in our first edition.

§ viii. Caninae Lindl.

Derivation. From caninus, belonging to a dog; because R. canina is commonly called the dog rose. The name is applied to this section, because all the species contained in it agree in character with R. canina.

Sect. Char., &c. Prickles equal, hooked. Leaflets ovate, glandless or glandular, with the serratures conniving. Sepals deciduous. Disk thickened, closing the throat. Larger suckers arched. (Don’s Mill.) Deciduous, but some sub-evergreen.—Chiefly bushes, but partly sarmentose and procumbent. Natives of Britain, Middle Europe, and Asia.

A. Species Natives of Britain.

2 42. R. canina Lin. The common Dog Rose.

guensis Bat. Pl. Main. et Lorr. 182., Red. Ros., 2, p. 9. t. 3.; R. gladi-
ed. 8, p. 169.; R. senticosus Achar. Acad. Handl. 34, p. 91. t. 3.


Variety.

R. c. 2 aciphylla Lindl. Ros., p. 99.; R. aciphylla Rau, 69. with a fig., Red. Ros. ii, p. 31. t. 13.; and our figs. 600, 601.; is a very remarkable variety, from the straightness of its shoots, and its singular habit of growth. The leaves are smooth on both surfaces, and the flowers are smaller than those of the species.

Other Varieties. Seventeen are described in our first edition.

Fruit ovate, bright scarlet, of a peculiar and very grateful flavour, especially if the pulp, besides saccharine matter, contains citric acid, which gives it an acid taste. The pulp, before it is applied, should be carefully cleared from the nuts or seeds. Numerous varieties.

43. R. Forsteri Sm. Forster’s Dog Rose.


Leaflets simply serrated, smooth above, but hairy on the ribs beneath. Sepals doubly pinnate. Fruit elliptical, smooth, like the aggregate flower stalks. (Don's Mill.) A large shrub. Native of Europe, in hedges; plentiful in England. Height 6 ft. to 8 ft. Flowers pale red; June and July. Fruit scarlet; ripe in September.

44. R. DUMETORUM Thuill. The Thicket Dog Rose.


Engravings. Eng. Bot. Suppl., t. 2610; and our fig. 603.

Spec. Char., &c. Prickles numerous, scattered, hooked. Leaflets simply serrated, hairy on both surfaces. Sepals pinnate, deciduous. Peduncles aggregate, slightly hairy. Fruit elliptical, smooth, as long as the bracteas. (Don's Mill.) A large shrub. Europe, in hedges; and found in England, in the southern counties, but seldom in any abundance. Height 4 ft. to 6 ft. Flowers reddish; June and July. Fruit scarlet; ripe in September.

45. R. SARMENTACEA Swartz. The sarmentaceous Dog Rose.


Engravings. Curt. Lond., fasc. 5, t. 34; and our fig. 604.


The fruit is as grateful to the palate, probably, as that of R. canina, with which this equally common plant is generally confounded. This is the species most commonly made choice of as a stock for garden roses.

46. R. CAX'SIA Sm. The grey Dog Rose.


Engravings. Eng. Bot., t. 2567; and our fig. 605.

Spec. Char., &c. Prickles hooked, uniform. Leaflets elliptical, somewhat doubly serrated, glaucous, hairy beneath, without glands. Sepals distantly pinnate, deciduous. Flower stalks smooth, solitary. Fruit elliptical, smooth. (Don's Mill.) A rambling shrub. Scotland, in the Highland valleys, but rare; at Taymilt, in Mid-Lorn, Argyleshire; and in Strath Tay, between Dunkeld and Aberfeldie, and by the side of Loch Tay. Height 4 ft. to 5 ft. Flowers generally of a uniform carnation hue, but occasionally white; July. Fruit scarlet; ripe in September.

47. R. RUBRIFOLIA Vill. The red-leaved Dog Rose.


B. Species Natives of Middle Europe.

Stems red. Leaves red at the edges. Flowers small. Sepals narrow, longer than the petals. A shrub, producing a pleasing effect in a shrubbery, from the pinkness of its foliage. At the funeral of Villars, who first named and described this rose, branches and flowers of it were cut and strewn over his grave. There are several varieties described in our first edition.

C. Species Natives of Asia.

60. R. rubrifolia.

**2 48. R. caucasea Pall.** The Caucasian Dog Rose.


synonym. R. leucantha Bob. Fl. Taur. Suppl. 351.;


**2 49. R. indica L.** The Indian, or common China, Rose.


**Spec. Char., &c.** Stem upright, whitish, or green, or purple. Prickles stout, falcate, distant. Leaflets 3—5; ovate-acuminate, coriaceous, shining, glabrous, serrulate; the surfaces of different colours. Stipules very narrow, connate with the petiole, almost entire or serrate. Flowers solitary, or in panicles. Stamens bent inwards. Peduncle sub-articulate, mostly thickened upwards, and with the calyx smooth, or wrinkled and bristly. (Dec. Prod.) Sub-evergreen. China, near Canton. Height 4 ft. to 20 ft. Introd. in 1789.
Flowers red, usually semidouble; April to November. Fruit red; ripe in September.

One of the most valuable of garden roses.

Varieties. There are numerous varieties and hybrids of this beautiful rose. The following are quite distinct; and may each be considered the type of a long list of subvarieties:

- **R. i. 2 Noisettiana** Ser. in Dec. Prod. ii. p. 600., Don's Mill. ii. p. 581.; fig. 609, above. — Stem firm, and, as well as the branches, prickly. Stipules nearly entire. Flowers panicled, very numerous, semidouble, pale red. Styles exerted. Raised in North America, from an accidental cross between *R. indica* and *R. moschata*, and the plants being sold to Philip Noisette, his name was given to this variety. It was first brought to England by Mr. Fraser. This well-known and very beautiful rose is almost invaluable in a shrubbery, from its free and vigorous growth, and the profusion of its flowers, which are continually being produced during the whole summer. Numerous subvarieties have been raised of the Noisette rose, some of the most distinct of which are, the *R. i. N. purpurea* of Redouté, which has red flowers; *R. i. N. nivea*, the Aimé Vilvert of the French nurseries, which has double white flowers; *R. i. N. Smithii*, Smith's yellow Noisette rose, the flowers of which are very double, of a deeper yellow than the double yellow China rose (*R. i. ochroleuca*), and disposed in clustered corymbs of from 10 to 22, and are highly fragrant.

- **R. i. 3 odoratissima** Lindl. Ros. p. 106., Bot. Reg. t. 864., Don's Mill. ii. p. 582.; *R. odoratissima* Sweet Hort. Sub. Lond.; *R. indica* frigrauds Red. Ros. i. p. 6. t. 19.; and our fig. 610.; the sweetest, or tea-scented, China Rose; Rose à Odeur de Thé, Fr.; has semidouble flowers, of a most delicious fragrance, strongly resembling the scent of the finest green tea. There are numerous subvarieties.

- **R. i. 4 longifolia** Lindl. Ros. p. 106.; *R. longifolia* Wild. Enum. ii. 1079.; Red Ros. ii. t. 27.; *R. semperflorae* var. 7. N. Du Ham. vii. p. 22.; *R. salicifolia* Hort.; and our fig. 611.; has the stems nearly unarmed, and long lanceolate leaflets.

- **R. i. 5 pumila** Lindl. Ros. p. 106. is a dwarf variety, with purplish flowers, having ovate petals.

- **R. i. 6 caryophyllacea** Red. Ros. iii. p. 59. has the flowers in a kind of panicle, and the leaflets large and thin.

- **R. i. 7 pannosa** Red. has the stems and branches prickly; the leaflets ovate, and red beneath, with the stipules so finely denticulated as to give them somewhat of a fringed or pannose appearance. Flowers drooping a little, purple on the outside, and with the inner petals rose-coloured.

- **R. i. 8 cruenta** Red., and Don's Mill. ii. p. 582.; differing from the above principally in having the stems and branches almost unarmed, and the stipules almost entire.

R. i. 10 rūga Lindl. Bot. Reg. t. 1389., and our fig. 612., has double, blush changing to white, sweet-scented flowers. It is a hybrid between R. i. odoratissima and R. arvénis, brought from Italy, where it was raised by Mr. Clare. It grows freely, making shoots 10 or 12 feet long in a season.

R. i. 11 ochroleuca Bot. Reg. has large cream-coloured flowers, deepening almost into yellow in the centre. It was introduced by Mr. Parks in 1824, and appears to have been since lost.

R. i. 12 flavescens. — This, Mr. Gordon assures us, is the true tea-scented yellow China Rose, and not the preceding variety, which is generally considered as such, and con-founded with it.

R. i. 13 Blairii D. Don in Swt. Brit. Fl. Gard. t. 405., and our fig. 613. — Raised in 1830, by Mr. Blair, from seeds of the yellow China rose, which had been fecundated by the pollen of the Tuscan rose. A robust plant, remarkable for the size of its leaves and flowers. Petals purple, but yellow at the base, especially towards the centre of the flower. Fragrant, and a free flowerer.

50. R. semperflo'rens Curt. The everflowering China Rose.


Engravings. Law. Ros., t. 23.; N. Du Ham., vii. t. 18.; and our fig. 614. of a double French variety.


There are some very splendid varieties of this species, with semidouble crimson flowers. They are all free growers, and abundant flowerers; and few plants are more ornamental against the walls of a cottage.

51. R. Lawrenceana Swt. Miss Lawrence's China Rose.


Engravings. Red. Ros., 1. p. 53.; and our fig. 615.

1 ft. Introduced in 1810. Flowers small, single or semidouble, pale blush; April to November.

The beautiful little plants called Fairy Roses, or Miniature Roses, in Rivers's Abridged List, are nearly all varieties of *R. Lawrenceana*; and they are well worthy of culture, from their extreme dwarfness (often flowering when not more than 6 in. high), and the beautiful colour of their miniature rose-buds, the petals of which appear of a much darker hue than those of the expanded flower. Rivers enumerates five select varieties, of which he says the Gloire des Lawrencianas is one of the prettiest.

§ 52. *R. sericea* Lindl. The silky Rose.


**Engravings.** Lindl. Ros. Monog., t. 12.; and our fig. 616.


**Derivation.** From sum, together, and status, a stile; in reference to the styles being connected.

**Sect. Char.** Styles cohering together into an elongated column. Stipules adnate. The habit of this section is nearly the same as that of the last division. The leaves are frequently permanent. (*Don's Mill.,*) Deciduous, evergreen, or sub-evergreen, and mostly climbing. Natives of Britain, Middle Europe, Asia, Africa, and North America.

A. *Species Natives of Britain, and other Parts of Europe.*


**Engravings.** Eng. Bot., t. 1895.; and our fig. 617.


There are several varieties, but they do not differ materially from the species.


**Engravings.** Eng. Bot., t. 188.; Bot. Mag., t. 2064.; and our fig. 618.

**Spec. Char., &c.** Shoots cord-like. Prickles unequal and falcate. Leaves deciduous, and composed of 5—7 glabrous, or indistinctly ciliated, leaflets, glaucescent beneath. Stipules diverging at the tip. Flowers solitary or globose.
Sepals almost entire, short. Styles cohering into an elongated glabrous column. Fruit ovate, or ovate-globose, coriaceous, crimson, glabrous, or a little hispid, as well as the peduncles. (Dec. Prod.) Trailing, or climbing, deciduous; in some situations sub-evergreen. Europe, in many places; in England, in hedges and thickets and the borders of fields, chiefly in the midland counties. Stems 20 ft. to 40 ft. Flowers white; July. Fruit dark blood-coloured; ripe in September.

Varieties. Several varieties are enumerated in catalogue; the following appear distinct, and of general interest: —

\[ R. \ a. \ 2 \ ayreshirea \ Ser. \ R. \ capreolata \ Neill \ in \ Edin. \ Phil. \ Journ. \ No. \ 3. \ p. \ 102. \] —

Sub-evergreen. Prickles slender, very acute. Leaflets ovate, sharply serrated, thin, nearly of the same colour on both surfaces. Peduncles hispid with glanded hairs, or wrinkled. A vigorous-growing climber, producing shoots sometimes 20 ft. in length in one season, and flowering profusely from the middle of May to the middle of September. One of the hardest of climbing roses, and particularly useful for covering naked walls, or unsightly roofs. Cultivated in British gardens under the name of the Ayshire Rose.

\[ R. \ a. \ 3 \ hibrida \ Lindl. \ Ros. \ 113. \ has \ semidouble \ flowers, \ of \ a \ most \ delicate \ flesh \ colour, \ and \ is \ called, \ in \ the \ nurseries, \ the \ double \ hip \ rose; \ the \ term \ hip \ rose \ being \ applied \ by \ gardeners \ to \ the \ commonest \ wild \ roses. \]

In open situations, a trailing plant, sometimes rooting at the joints; but, in hedges and among bushes, a climber by elongation; reaching to their tops, and covering them with tufts of foliage and flowers; the leaves remaining on late in the season; and the fruit often remaining on all the winter. The shoots are, in general, feeble, much divided, and entangled; and they generally produce, here and there, unsightly excrescences, which readily take root.

B. Species Natives of Middle Europe.

\[ R. \ (a.) \ semperivrens \ Lin. \ The \ evergreen \ (Field) \ Rose. \]


Spec. Char., &c. Evergreen. Shoots climbing. Prickles pretty equal, falcate. Leaves of 5–7 leaflets, that are green on both sides, coriaceous. Flowers almost solitary, or in corymb. Sepals nearly entire, longish. Styles cohering into an elongate pilose column. Fruit ovate or ovate globose, orange-coloured. Peduncles mostly hispid with glanded hairs. Closely allied to R. arvensis, but differing in its being evergreen, in its leaves being coriaceous; and in its stipules being subfalcate, and more acute at the tip. (Dec. Prod.) A vigorous evergreen climber. France, Portugal, Italy, at Pæstum and other places, Greece, and the Balearic Islands. Stem 20 ft. to 40 ft. Introduced in 1629. Flowers white or pale rose-coloured; June to August. Fruit orange-coloured; ripe in September.

Varieties. Several varieties are enumerated in catalogue; those which we consider best worth mentioning are,—
ARBORETUM ET FRUTICETUM BRITANNICUM.

1. R. (a.) s. 2 Russelliana, raised from seed by Mr. Sinclair of the New Cross Nursery. A very strong-growing variety, quite deciduous, with blush flowers.

2. R. (a.) s. 3 Clarei. The Rose Clare. (Bot. Reg., t. 1438.)—An elegant variety, with deep red flowers. Both these varieties are as much entitled to be considered species, as many so designated in this enumeration.

Used for the same purposes as the Ayrshire rose; from which it differs in retaining its leaves the greater part of the winter, and in its less vigorous shoots.

C. Species Natives of Asia, and One of them of Africa.


**Engravings.** Bot. Mag., t. 1699; Bot. Reg., t. 425; and our fig. 620.


**Varieties.**

1. R. m. 2 Grevillea Hort, R. Roxbúrghii Hort.; R. platyphylla Red. Ros. p. 69. ; The Seven Sisters Rose. (Our fig. 621.)

—A beautiful variety, with much larger and more double flowers, of a purplish colour. No climbing rose better deserves cultivation.
against a wall. It is easily known from *R. multiflora* by the fringed edge of the stipules; while those of the common *R. multiflora* (fig. 621. a) have much less fringe, and the leaves are smaller, with the leaflets much less rugose. The form of the blossoms and corymbs is pretty nearly the same in both. A rapid-growing variety, producing shoots 15 ft. to 20 ft. long in a season, flowering profusely for two or three months, but only of three or four years duration.

R. m. 3 Boursault Hort., Boursault's Rose, is placed, in Don's *Miller*, under this species; though it differs more from the preceding variety than many species do from each other. It is comparatively a hard-wooded durable rose, and valuable for flowering early and freely. This is a very remarkable rose, from its petals having a reticulated appearance.

The species is very distinct, and produces numerous blossoms, which continue expanding for two months. The first variety, when well grown against a wall, forms one of the most beautiful of wall roses. This variety and the species may be considered as rather tender, but they will not thrive under glass.

---


---


**Spec. Char., &c.** Shoots ascending. Prickles upon the stem slender, recurved. Leaflets 5—7, lanceolate, acuminate, nearly glabrous, the two surfaces of different colours. Stipules very narrow, acute. Flowers, in many instances, very numerous; white, with the claws of the petals yellow; very fragrant. Lateral peduncles jointed, and, as well as the calyx, pilose, and almost hispid. Sepals almost pinnately cleft, long. Fruit red, obovate. *(Dec.)* A rambling shrub. North of Africa, extending across the continent from Egypt to Mogador; and in Madeira. Stems 10 ft. to 12 ft. Introduced in 1596. Flowers white; July to October.

**Varieties**

---

### 2. flore pleno G. Don.—Flowers double.
R. m. 3 nivea Lindl. (Bot. Reg., t. 861.; and our fig. 624.) R. nivea Dupont, not of Dec.; R. m. ? var. rosea Ser. in Dec. Prod. — Leaflets 3—5, ovate-cordate, subacuminate, large. Flowers disposed in an imperfectly corymbose manner. Peduncle and calyx a little hispid. Petals white, or pale rose-coloured, large, obcordate. This is a very beautiful variety: the petals are white, with a most delicate, yet rich, tinge of blush.

R. m. 4 nepalensis Lindl. (Bot. Reg., t. 829.; and our fig. 625.) differs from the species in having longer and acuminate sepals. Raised at Claremont, from Nepal seed, in 1824.

Other Varieties. In Rivers's Abridged List of Roses, published in 1840, the kinds recommended are, the Fringed, Princesse de Nassau, and Teascented; the latter a hybrid, with large flowers of a pure white, with a peculiar habit and perfume.

The branches of the musk rose are generally too weak to support, without props, its large bunches of flowers, which are produced in an umbel-like manner at their extremities; and hence the plants require very little pruning. Being rather tender, it does best against a wall. The musky odour is very perceptible, even at some distance from the plant, particularly in the evening; and this musk gives the peculiar odour to the Persian attar of roses.

D. Species Natives of North America.


(Dec.) A shrub. North America. Height 3 ft. to 4 ft. Introduced in 1830. Flowers pale red; August and September. Fruit scarlet; ripe in October.

§ x. Banksiæ Lindl.

Spec. Char., &c. Stipules nearly free, subulate, or very narrow, usually deciduous. Leaflets usually ternate, shining. Stems climbing. The species of
this section are remarkable for their long, graceful, and often climbing shoots, drooping flowers, and trifoliolate shining leaves. They are particularly distinguished by their deciduous, subulate, or very narrow stipules. Their fruit is very variable. *(Don's Mill.) — Rambling shrubs, deciduous, or sub evergreen; somewhat tender in British gardens, where they only succeed when planted against a wall. Natives of China.

\[60. R. sinesis\] 

**The trifoliolate-leaved China Rose.**


*Synonyms.* R. trifoliata Rose


\[61. R. Banksiae B. R. Lady Banks's Rose.**


*Synonyms.* R. Banksiana Abel Chinn. 160.; R. inermis Roxb. ?


**Variety.**

\[A R. 2 lutea\] Lindl. (Bot. Reg., t. 1105., and our fig. 630.) has the flowers of a pale buff colour, and is a very beautiful variety.

This is an exceedingly beautiful and very remarkable kind of rose; the flowers being small, round, and very double, on long peduncles, and resembling in form the flowers of the double French cherry, or that of a small ranunculus, more than those of the generality of roses. The flowers of *R. Banksiae* alba are remarkably fragrant; the scent strongly resembling that of violets. Plants of neither variety thrive in the atmosphere of the metropolis.
Some which had attained a large size at Kew, and other places in the neighbourboudry of London, were killed by the winter of 1837-8.


Engravings. Lindl. Rosar. Monog. t. 18.; and our fig. 631.


63. R. Hystrich Lindl. The Porepine Rose.


Engravings. Lindl. Ros Monog. t. 17.; and our fig. 632.

Spec. Char., &c. Prickles on branches unequal, crowded, larger ones falcate, small ones straight. Stipules very narrow, united half way, the free part deciduous. Leaflents three, smooth, ovate, shining, simply serrated, with a few prickles on the middle nerve. Sepals nearly entire; permanent. Fruit bristly. (Don's Mill.) A rambling shrub, with flagelliform branches. China and Japan. Flowers large, solitary. Fruit oblong purple.

Other Species and Varieties of Rosa.—In the catalogue of Messrs. Loddiges, 147 species are registered, of all of which, with one or two exceptions, there are living plants. The garden varieties in the same collection amount to about 1,500. There is indeed no end to the garden varieties, new ones being every year raised from seed, and old varieties every year disappearing. New species are also occasionally introduced, and several have been lately raised in the Hort. Soc. Garden from Himalayan seeds. For species we recommend the cultivator to have recourse to the collection of Messrs. Loddiges, and for garden varieties to the most fashionable nurserymen of the time. In Rivers's Abridged List of Roses, 1840, he recommends, as a selection for small gardens: - Provence roses, 7; moss roses, 8; hybrid Provence roses, 7; hybrid China roses, 20; French roses, 16; Rosa alba, 9; damask roses, 6; Scotch roses, 8; sweet briars, 5; Austrian briars, 2; Ayshire roses, 6; Rosa multiflora, 3; evergreen roses, 7; Boursault roses, 4; Bankian roses, 2; hybrid climbing roses, 4; perpetual roses, 12; Bourbon roses, 7; China roses, 15; tea-scented roses, 11; miniature roses, 5; Noisette roses, 12; musk roses, 3; Macartney roses, 3; Rosa microphylla, 3. In all, 185 sorts; which would form a very efficient rosarium.

Soil and Situation adapted for Roses.

The common wild roses will grow in very poor soil, provided it be dry; but all the cultivated sorts require a soil naturally light and free, and more or less enriched. The situation should be open and airy, exposed to the east, or, in warm situations, to the north, rather than to the south; because the intensity of the sun's rays accelerates too rapidly the expansion of the flowers, and also diminishes the colour and fragrance of the petals. A rose-garden,
fully exposed to the sun during the whole day, may have a useful degree of shade given to it by the distribution of a few standard roses of not less than 8 or 10 feet in height; or by the introduction of frames of wood or wire, in the forms of obelisks, gnomons, crosses, columns surmounted by globes, or cones, on which climbing roses may be trained. These would produce no bad effect by their drip, and yet by their shadow, which would vary with the position of the sun, they would afford a salutary protection to the dwarf roses by which they were surrounded; and thus produce, in some degree, the same object as a cool situation and exposure. The rose is one of those plants that will not thrive in the neighbourhood of towns where the prevailing fuel is pit-coal; hence the roses grown within a circle of ten miles of the metropolis are much inferior in beauty to those grown at double that distance.

In country residences, roses are generally distributed in the margins of shrubberies along with other flowering shrubs: but, considering the culture they require, it is impossible they can thrive in such a situation; and, even if they did thrive, the kind of beauty which they would produce would be of a character so different from that of a general shrubbery, as to require their exclusion from it. The only roses fit to be planted in a shrubbery are the single kinds, in their wild state. Roses, and all other kinds of shrubs or trees, that are far removed from a state of nature, and valued for something produced by art, either in their flowers, fruit, habit, or leaves, should be grown in situations where the art which produced the artificial effect can be employed. Hence all fruit-bearing trees and shrubs should be grown in orchards, in kitchen-gardens, or in some place by themselves, so as to admit of properly cultivating the soil, and managing the plants. Roses, and all double-flowering shrubs, ought, in like manner, to be grown by themselves; and the same principle will apply to shrubs having any peculiarity in their foliage, and even in their mode of growth. The continuation of the peculiarity may not always require a rich soil; on the contrary, it will generally be found to have been produced by a soil and situation of a peculiar nature: but that peculiarity of soil it is as much the object of art to imitate, as it is to form the rich soil, and favourable situation, which produce large or double flowers, or large and succulent fruit, or variegated leaves. Hence, to cultivate roses properly, they must be grown either in groups by themselves on a lawn, or in a flower-garden; or be connected into a system of groups or beds, in a rosarium, or rose-garden. On this subject, and on the pruning, and general treatment of roses, we must refer to the first edition of this work, where it will be found given at great length, illustrated with numerous diagrams, having reference to propagation, training, pruning, the formation of rosariums, for which several plans are given, and the destruction of insects.

*Rosarium, or Rosetum.—* Where it is intended to plant a collection of roses, the best effect will be produced by devoting a group to each section; such as one to moss roses, another to Noisettes, a third to Scotch roses, &c. These groups ought generally to be planted with dwarfs rather than standards; because the former are more conveniently looked upon by the spectator; but a handsome standard may, frequently, occupy the centre of each group, if it is a circle or a square; and two or three in a line, or radiating from a point, if it is of a long or an irregular form. Sometimes a group may be surrounded by a row of standards, which, in that case, should have clear stems, not less than 7 ft. high, through which the dwarf roses may be seen by persons walking round the group. Standard roses, in general, have the best effect when formed into an avenue along the margin of a walk; and for this purpose they are very suitable for common flower-gardens, where the groups, instead of being planted with dwarf roses, are filled with herbaceous plants. The sizes of the different groups in a rosarium ought to be proportioned to the number of varieties belonging to the section to be planted in each, the bulk which they attain, and their habit of growth. For these purposes, the *Abridged List* of Messrs. Rivers may be taken as a basis; and, as it contains 27 groups, these may be represented by 27 beds of different dimensions.
Genus XIII.


Synonyme. Rosa sp. Pall. and Lindl. in Ros. Monog.
Derivation. In compliment to the Rev. Mr. Lowe, Travelling Bachelor of the University of Cambridge. (Lindley in Bot. Reg. t. 1261.)

Gen. Char., &c. Calyx with the tube contracted at the mouth. Petals 5. Stamens and Carpels numerous as in Rosa. Leaf simple, exstipulate. Prickles often compound. (Lindl.)

Leaves simple, alternate, exstipulate, deciduous; serrated. Flowers yellow, marked with purple.—An undershrub. Native of Persia.

1. L. BERBERIFOILIA Lindl. The Berberry-leaved Lowea.

Engravings. Bot. Reg., t. 1261; Redouté Ros., 1. t. 2; and our fig. 633.

Spec. Char., &c. Leaves undivided, without stipules, obovate-cuneate, serrated at the tip. Prickles decurrent, and of the colour of ivory. Sepals entire, subspathulate. Petals yellow, marked with purple at the base. (Dec. Prod.) An undershrub. Persia, near Amadan, where it abounds in saltish soil; and also in fields at the bottom of Mount Elwend, and in the Desert of Soongaria. Height 2 ft. Introd. in 1790. Flowers yellow and purple; June and July. Somewhat difficult of culture, and not a free flowerer; but it is readily propagated by budding on the dog rose, or by seeds, which it produces on the Continent in abundance in common soil.

Varieties. Several are described in Dec. Prod., and some hybrids have recently been raised between this species and some kinds of Rosa.

Sect. V. PO'MEÆ Lindl.

Genus XIV.


Synonyme. Crataegus and Mespilus sp. of Lou, and others; Nelder, Alisier, and Aubépine, Fr.; Dooren, Ubbeir, and Mispel, Ger.; Dooren, Dutch; Cratáego, Ital.; and Espina, Span.
Derivation. From kratos, strength; in reference to the hardness and strength of the wood.

Gen. Char. Calyx with an urceolate tube, and a 5-cleft limb. Petals orbicular, spreading. Ovarium 2—5-celled. Styles 2—5, glabrous. Pome fleshy, ovate, closed; the calyceine teeth, or the thickened disk, containing a bony putamen. (Don's Mill.)

Leaves simple, alternate, stipulate, chiefly deciduous, but in part evergreen; angular or toothed. Flowers in corymbs, usually white. Bracteae subulate deciduous. Fruit red, yellow, or black. Decaying leaves yellow, or reddish yellow.
Trees or shrubs, small, deciduous, sometimes evergreen; mostly natives of Europe and North America, and some of them of Asia and the North of Africa. One of them, the common hawthorn, is well known throughout the Middle and North of Europe, as a hedge plant. The species all flower and fruit freely; and the wood of all of them is hard and durable, and the plants of considerable longevity. Almost all the flowers are white, and the fruit is generally red; though in some sorts it is yellow, purple, black, or green. All the species ripen fruit in the neighbourhood of London, most of them abundantly; by which, or by grafting or budding on the common hawthorn, they are generally propagated. When the species which have naturally a dwarf habit of growth are intended to assume the character of low trees, they are grafted standard high upon C. Oxyacantha, C. coccinea, or on some other of the strong-growing kinds; in consequence of which practice, this genus furnishes a greater number of handsome small trees for ornamental grounds than any other ligneous family whatever. All the species will grow on any soil that is tolerably dry; but they will not grow vigorously in a soil that is not deep and free, and rich rather than poor. Whether as small trees or as shrubs, they are all admirably adapted for planting grounds of limited extent; and especially for small gardens in the neighbourhood of large towns.

§ i. Coccinea.

Sect. Char., &c. Leaves cordate, lobed, acutely serrated. Flowers and fruit large. The plants also large, and of free and vigorous growth.

† 1. C. coccinea L. The scarlet-fruited Thorn.


Engravings. Pluk., t. 46. f. 4.; Dend. Brit., t. 62; Bot. Mag., t. 3432; our fig. 677. in p. 386.; the plate in Arb. Brit., 1st edit., vol. vi.; and our fig. 634.

Varieties. It would be easy to procure as many varieties of this species as there are of the common hawthorn, by raising some thousands of plants every year from seed, and selecting from the seed-beds plants indicating any peculiarity of leaf or of habit; but, as in the nurseries the most rapid way of producing saleable plants of this, and all the other species and varieties of Crataegus, is found to be by grafting on the common hawthorn, very few seedlings are raised, and the varieties in cultivation are only the three or four following:—

XX C. c. 2 corállina. C. corállina Lodd. Cat.; the C. pyriformis and C. pec-tinata of some collections. (fig. 678. in p. 387.)—The leaves and the entire plant are, perhaps, rather smaller in the species; the habit of the tree is decidedly more upright and fastigate; and the fruit is smaller, long, and of a fine coral red; whence the name is probably derived, though, in the first edition of the Hort. Soc. Catalogue, it is called the red-branched hawthorn. The plants at Messrs. Loddiges's, however, exhibit only a slight degree of redness in the branches of the young wood.

XX C. c. 3 indentátà. C. indentátà Lodd. Cat.; C. geórgica Doug. (fig. 678. in p. 387.)—The leaves are smaller, and less lobed, than those of the species; the plant is also weaker, of upright habit, and with a smooth clear bark. It is very prolific in flowers and fruit.

XX C. c. 4 máxima Lodd. Cat. C. c. spinósà Godefroy; C. acerifólià Hort.; C. ? flabellátà Hort.—The leaves are larger than those of any other variety, and the fruit is also large. As we have not seen living plants of C. flabellátà, but only dried specimens sent from Terenure and the Humbeque Nursery, we are not absolutely certain that C. flabellátà and C. c. máxima are the same; but we feel quite certain that they both belong to C. coccínea. We are informed that the C. flabellátà of some nurseries is C. tantacetiòlià; which certainly has its leaves more or less fan-like, than any variety of C. coccínea.

XX C. c. 5 neapolitána Hort. Méspilus constantinopolitána Godefroy.

Plants were in Messrs. Loddiges's collection in 1837.

XX 2. C. GLANDULO'SA W. The glandular Thorn.


Varieties. XX C. g. 2 succuléntà Fisch., Méspilus succulénta Booth, has the fruit larger than that of the species, and succulent, juicy, and eatable. We have seen only one plant of this variety; but we were assured by the late M. Fischer of Göttingen, that there are several in the botanic garden there, and in various other collections in Germany.
C. g. 3 subvillosa, C. subvillosa Fisch., (our fig. 636., and fig. 681. in p. 388.) is apparently another variety of the preceding sort, or, perhaps, of C. coccinea. It is very distinct in appearance, from its villous twisted leaves, and stunted tortuous shoots; but, from its having been only three or four years in the country, very little is known of its habit of growth, which seems to be rather more loose than that of C. glandulosa. There are plants in the Horticultural Society’s Garden, and in Messrs. Lodigies’s arboretum.

Differs from the preceding sort in the stipules and calyxes being glandular, and in the head of the tree forming a dense mass of small twigs. Being a small compact tree, of somewhat conical or fastigiate habit, and of comparatively low growth, and yet very prolific in flowers and fruit, it is well adapted for small gardens; and, being at the same time full of branches and very spiny, it is better calculated than many other kinds of American Cratae’gus for forming field hedges.

§ ii. Punctatae.

Sect. Char. Leaves not lobed, large, with many nerves. Bark white, or ash-coloured. Fruit large, or small.

3. C. PUNCTATA Ait. The dotted-fruited Thorn.


Spec. Char., &c. Leaves obovate-wedge-shaped, glabrous, serrated. Calyx a little villose; its sepals awl-shaped, entire. Fruit usually dotted. (Dec. Prod.) A small tree. North America, in the woods and swamps of Virginia and Carolina; where, according to Pursh, it grows to a handsome size, particularly the variety having yellow fruit. Height 15 ft. to 30 ft. Introduced in 1746. Flowers white; May and June. Fruit scarlet; ripe in September. Leaves dropping yellow. Naked young wood grey.

Varieties. There are four forms of this species in British gardens.

\[ 1 \] C. p. 2 rubra Pursh, C. edulis Ronalds (fig. 682, in p. 389.) is the most common, and is a spreading tree, growing to the height of from 15 ft. to 30 ft., with red fruit, and, when old, with few thorns.

\[ 2 \] C. p. 3 rubra stricta Hort., C. p. stricta Ronalds, has the fruit red, like the preceding sort; but the general habit of the plant is fastigiate, like that of the following sort.

\[ 3 \] C. p. 4 aurea Pursh, C. p. flava Hort., C. dulcis Ronalds, C. edulis Lodd. Cat., C. pentágyna flavâ Godefroy (fig. 682, in p. 389.), is a tree like C. p. rubra, with yellow fruit, and also, when old, with few thorns.

\[ 5 \] C. p. 5 brevispina Doug., and our fig. 638.

— A very handsome fastigiate tree, with large, very dark purplish red fruit. Hort. Soc. Garden.

The wood is so hard that the Indians of the west coast of America make wedges of it for splitting trees.

\[ 4 \] C. pyrifo'lia Ait. The Pear-tree-leaved Thorn.


In some instances spiny, in some without spines. Leaves ovate-elliptical, incisely serrated, obscurely plaited, a little hairy. Flowers 3-styled. Calyx slightly villose; its sepals linear-lanceolate, serrated.

(Dec. Prod.) A low tree, generally spineless. North America, from Pennsylvania to Carolina, in woods and rocky places. Height 20 ft. to 25 ft. Introduced in 1763. Flowers white; June and July, rather later than C. punctata. Fruit small, yellowish red; ripe early in September, and more eagerly sought after by birds than those of any other species.

The leaves of young trees are larger, and the fruit smaller, than those of most other species; the leaves are also more strongly plaited, having the appearance of being furrowed from the midrib to the margin. When the fruit is not eaten by birds, it shrivels, turns black, and remains on the tree throughout the winter. The leaves drop early, of a rich yellow.

§ iii. Macracantha.

Sect. Char. Leaves large, ovate-oblong, slightly lobed and serrated, with numerous nerves, and subplicate. Fruit small. Spines very long. Tree vigorous and spreading.

§ 5. C. macracantha Lodd. Cat. The long-spined Thorn.


Spec. Char., &c. Spines longer than the leaves, and numerous. Leaves ovate-oblong, somewhat acuminate, slightly lobed and bluntly serrated, nerved, and subplicate. Fruit small, or middle-sized, of a shining red, and very succulent when ripe. Tree open, spreading, and of very vigorous
growth. The shoots straight, and tending upwards at an angle of 45°. North America, and the most common species in the northern states. Height 10 ft. to 30 ft. Introduced in 1819. Flowers white; May and June. Fruit scarlet, rather smaller than that of C. coccinea; ripe in September.

Variety.

♀ C. m. 2 minor (fig. 686. in p. 390.) only differs from the species in having smaller fruit. There are plants at Somerford Hall, Staffordshire.

Raised from American seed, in 1819, in the nursery of Messrs. Falla, at Gateshead, near Newcastle; whence it was sent to the Edinburgh Botanic Garden, under the name of the large American azarole.

§ iv. Crús-gálíi.

Sect. Char. Leaves without lobes, obovate-oblung or obovate-lanceolate, more or less serrated, and of a dark shining green, with petioles margined by the decurrence of the leaf. Fruit small, or middle-sized, round, dark green till nearly ripe, and, when ripe, scarlet. Spines very long, and bent like the spur of a cock.


A low tree. North America; common in woods and hedges, and on the banks of rivers, from Canada to Carolina. Height 15 ft. to 20 ft. Intro-
duced in 1691. Flowers white; May and June. Fruit small, green, and at length scarlet; ripe in September and October. Leaves retained longer than in most of the species; so that in the South of England it appears a sub-evergreen, retaining also its showy fruit through the winter.

Varieties.


The lower part tending to wedge-shaped. This forms a low flat-headed tree, like the preceding variety. A plant in Messrs. Lodigues's arboretum, in 1835, after being five years grafted at a foot from the ground, was not quite 5 ft. high. The miniature trees of this variety are admirably adapted for children's gardens.


**C. C. 6 nana Dec. Prod.** Mespilus nana Dum. Cours. Suppl. p. 386. — Branchlets tomentose in some degree. Leaves oval-lanceolate; the under surface paler than the upper. A shrub, or, when trained to a single stem, a miniature tree.

This species, being one of the first introduced into England, has been more cultivated than any other American thorn; and on the whole it is one of the most splendid in appearance, from its smooth, shining, dark green foliage, and the great abundance of its fine white flowers, and dark red fruit which remains long on the tree. In the South of England, and in the climate of London, in warm sheltered situations, where the soil is rich and moist, it retains its leaves and fruit through great part of the winter, so as to appear quite evergreen.

**7. C. (C.) ovalifolia Horn.** The oval-leaved Thorn.


**Engravings.** Bot. Reg., t. 1860.; our fig. 692. in p. 391.; the plate of this species in Arb. Brit. 1st edit., vol. vi.; and our fig. 644.

XXVI. ROSACEÆ: CRATEGUS.

361

**É S. C. (C.) PRUNIFOLIA Bosc.** The Plum-leaved Thorn.


**Engravings.** Bot. Reg., t. 1868.; our fig. 689. in p. 391.; the plate of this tree in Arb. Brit., 1st edit., vol. vi.; and our fig. 645.

Diffs from the preceding variety in having broader and shorter leaves, a more compact and fastigiate habit of growth, and rather more thorns on the branches. The leaves of this and the preceding kinds die off of a much deeper red than the narrow-leaved varieties, which often drop quite green, yellow, or of a yellowish red.

\subsection{V. \textit{nigræ}.}

\textbf{Secl. Char.} Leaves middle-sized, deeply lobed. Lobes pointed. Fruit round, black or purple. Tree rather fastigiate, with few or no spines. Bark smooth.

\textbf{\S 9. C. \textit{nigra} Waldst. et Kit.} The black-fruited Thorn.


\textbf{Synonyms.} \textit{Mespilus nigra} Willd. Enum. 524.; \textit{C. carpatica} Lodd. Cat.


\textbf{Spec. Char., &c.} Leaves sinuately lobed, and serrated, somewhat wedge-shaped, though truncately so, at the base; whitely villose beneath. Stipules oblong, serrately cut. Calyces villose; the lobes slightly toothed. Styles 5. Fruit black. (Dec. Prod.) A low tree. Hungary. Height 15 ft. to 20 ft., throwing up numerous suckers from its widely spreading roots, which soon cover the ground with a forest of bushes. In England, where it is generally propagated by grafting on the common thorn, it forms a very handsome, upright, somewhat fastigiate tree, from 20 ft. to 30 ft. high, putting forth its leaves, in mild seasons, in February or March. Introduced in 1819. Flowers white; April and May. Fruit black; ripe in July and August.

\textbf{Variety.} \textit{C. fusca} Jacq., judging from a seedling plant in the Hort. Soc. Garden, appears to belong to this species.

Nightingales are said to be attracted by this tree, probably because it is particularly liable to be attacked by insects, and because numerous caterpillars...
are to be found on it about the time when the nightingale is in full song. The same property of attracting nightingales is ascribed to the common hawthorn, in *La Théorie du Jardinage*, &c., published in 1709.

† 10. *C. purpurea* Bosc. The purple-branchèd Thorn.


**Synonyme.** C. sanguinea Hort.

**Engravings.** Wats. Dend. Brit., t. 60; our fig. 695 in p. 392; the plate of this species in Arb. Brit., 1st edit., vol. vi.; and our fig. 647.

---

**Spec. Char., &c.** Branches dark purple. Leaves ovate, cuneate at the base, lobed with broad lobes, serrated, glabrous, or pubescent beneath. Stipules somewhat circular, serrated with glanded serratures. *(Dec. Prod.*) A shrub or low tree. Altaic Mountains. Height 6 ft. to 10 ft. Introduced in 1822. Flowers white; early in April; being the very first species of *Crataegus* that comes into flower in the neighbourhood of London, excepting always the Glastonbury thorn. Fruit dark red or purple, sometimes yellow, very succulent; ripe in July.

**Variety.**

† *C. p. 2 altaica*; *C. altaica* Led., *Lod. Cat.* (fig. 696. in p. 393.); has the leaves somewhat larger than the species, and they appear a little earlier.

It forms an upright, rigid, rather slow-growing tree, without thorns. It has a few small branches, and is not densely clothed with leaves. It has a starved and somewhat stunted appearance, and is readily known by the purple colour of its young shoots. The bark of the old wood is of a dark purple or brown colour, and rough and scaly. The fruit is small, round, and most commonly of a dark purple; but it varies to pale yellow, or a milk white, and red, on the same plant. It ripens about the end of July, and is very soft and juicy, but soon drops off. The tree is interesting from its early flowering, and the dark colour of the anthers of its flowers, which contrasts strongly with the whiteness of the petals. The leaves are also large, and of a peculiar shape.

§ vi. *Douglasii.*

**Sect. Char.** Leaves small, and not lobed as in the preceding section; furnished with numerous parallel nerves, somewhat like those of *C. punctata*. Spines
rather numerous and rigid. Fruit small, and dark purple; pulp soft and watery.

**§ 11. C. *DOUGLASHI* Lindl Douglas's Thorn.**


![Image of C. *Douglasii*](image)

**Spec. Char., &c.** Branches ascending. Spines rigid, straightish, now short, now very long. Leaves some obovate, some oval, gaudily serrated, acute; at the base wedge-shaped, glabrous; in the autumn, remarkably leathery, and they then acquire a purplish cast, and are shining. (*Lindl.*) A shrub or low tree. North-West America. Height 10 ft. to 15 ft. Introduced in 1827. Flowers white; May. Fruit small, dark purple; ripe in August. Decaying leaves purplish, leathery, shining, falling off early, like those of *C. punctata* and *C. pyrifolia*. Naked young wood purplish.

This is a very distinct sort, more particularly as it respects the colour of the fruit, and the colour and texture of the leaves. The general habit of the plant is fastigiate; and it is one of the latest kinds in leafing in the spring. The flowers and fruit are produced in great abundance, and both are very ornamental.

**§ vii. FLAVA.**

*Sect. Char.* Leaves small, obovate, slightly lobed, and serrated. Flowers frequently solitary. Spines numerous, straight, and more slender than in any other division. Fruit top, or pear, shaped; yellow, or greenish yellow.

**§ 12. C. *FLAVA* Ait.** The yellow-fruited Thorn.


from Virginia to Carolina. Height 15 ft. to 20 ft. Introduced in 1724.
Flowers white; May. Haws yellow; ripe in October. Decaying leaves rich yellow.

The flowers and the fruit are neither produced in abundance, nor make any great show; but the tree has a marked character from its general form, and the horizontal tendency of its branches.

† 13. C. (f.) lobata Bosc. The lobed-leaved Thorn.

Synonymy. Meopillus lobata Poir. Suppl. 4, p. 71; C. Rites Poir.
Engravings. Fig. 659. In p. 394; and our fig. 650.


Differing from C. flava in having some of the leaves with larger lobes, and some of the spines larger. The flowers are sparingly produced, amongst dense tufts of leaves; and the fruit, which is green when ripe, is still less abundant. It is pear-shaped, and very different from that of every other kind of Crataegus, except C. flava and C. f. trilobata.

**Identification.** Lodd. Cat., edit. 1832.

**Synonyms.** *C. spinosissima* Lec.

**Engravings.** Fig. 700. in p. 395.

pec. Char., &c. Leaves ovate-cuneate, notched and serrated. Petioles slender. Surface flat, shining, somewhat veined. Branches small, thickly beset with slender thorns. Habit spreading. A hybrid, raised from seed in the Hammersmith Nursery, about 1820, or before. It forms a tree in general appearance resembling *C. flava*, but with the branches much less vigorous, and more thorny. The fruit is yellow, slightly tinged with red; and what distinguishes it from the two allied sorts is, that its leaves die off, in autumn, of an intensely deep scarlet.

§ viii. *Apiifo lia*.

**Sect. Char.** Leaves deltoid, or somewhat resembling those of the common thorn. The fruit is also of the same colour; but the tree has a totally different habit, having the shoots loose and spreading, weak, and almost without thorns.


**Synonyms.** *C. oxyacantha* Walt. Carol. 147.; *C. apiifolia major* Lodd. Cat.

**Engravings.** Fig. 702. in p. 395.; the plate in Arb. Brit., 1st edit., vol. vi.; and our fig. 651.


**Variety.**

† C. a. 2 minor, *C. apiifolia* Lodd. Cat. (fig. 701. in p. 395.), has the leaves smaller than those of the species, and more fringed at the
edges, like those of the common parsley; but this fringed appearance is by no means constant, either in the variety or in the species. This variety forms a most ornamental low bush; or, when grafted standard high, a beautiful pendent tree.

§ ix. Microcárpe.

Sect. Char. Fruit small, round, red. Flowers small, produced in corymbs, later in the season than in any of the other species. Spines few, but sometimes very large.

§ 16. C. corda'ta Mill. The heart-shaped-leaved Thorn.


A very distinct and handsome species.

§ 17. C. Spathula’ta Elliott. The spathula-shaped-leaved Thorn.


5-celled; shell thin. (Lindl.) A low tree; in England a shrub, unless when grafted standard high. Georgia and Carolina. Height 12 ft. to 15 ft.; in England 6 ft. to 8 ft. Introduced in 1806. Flowers white; May and June. Fruit bright red; ripe in October.

**Variety.**

♀ *C. s. 2 géorgica.* *C. geórgica Lod.*—Leaves 5-lobed, on longer foot-stalks, and rather smaller than the species. This variety and the species were killed to the ground in the winter of 1837-8. (See Gard. Mag., vol. xvi. p. 3.)

A slow-growing, very neat, little bush or tree, with slender, smooth, drooping branches, and something of the habit of *C. oxyacantha*. Its leaves have a very handsome appearance, and are remarkably shining, and deep green: they usually grow in clusters; have a long stalk, tapering upwards into a blade, which is sometimes nearly entire, with only a tooth or two at the end; sometimes they are 3-lobed, with crenated segments; and occasionally they are deeply 3-parted; their form is always more or less spathulate. The stipules of the more vigorous branches are large and leafy. The flowers are white, and appear at the same time as those of *C. cordata*. The fruit is rather abundant, but small.

♀ *Azaroli.*

**Sect. Char.** Fruit large, round or pear-shaped; good to eat; yellow or red; the yellow fruit generally produced on fastigate species or varieties; and the red on trees with a spreading and rather a drooping head. Leaves wedge-shaped, 3-cleft or more, shining, pubescent or hairy. Spines few or none.


**Spec. Char., &c.** Leaves pubescent, wedge-shaped at the base, trifid; lobes blunt, and with a few large teeth. Branchlets, corymbbs, and calyxes pubescent.
Sepals obtuse. Styles 1—3. Fruit globose, scarlet. Seeds usually two; and hence the name, common at Montpellier, *pommettes à deux closes*. (Dec. Prod.) A low tree, never found wild as a bush. South of France and Italy, in small woods and in rough places. Height 20 ft. to 30 ft.; in England 10 ft. to 20 ft. Introduced in 1656. Flowers white; May and June. Fruit red; ripe in September. Leaves drop with the first frost, without much change of colour.

**Varieties.** In the *Nouveau Du Hamel*, six varieties are enumerated, viz.:—1. *Mesilus Arónia*, with the leaves hairy beneath; 2. Azarole, with large deep red fruit; 3. Azarole, with yellowish white fruit; 4. Azarole, with long fruit of a whitish yellow; 5. Azarole, with double flowers; and, 6. the White Azarole of Italy. With the exception of the first-mentioned, none of these varieties, as far as we know, are in British gardens.

The fruit, when ripe, is mealy, and somewhat acid; and, in Italy and the Levant, it is occasionally sent to table.


*Synonyms.* De Candolle expresses a doubt whether *C. marocca* Lin. fil. Sup. 253. be not a synonyme of this species; Sarroir, Arabian.


Closely resembling *C. Azaróblus*, but smaller in all its parts. It produces its aces very early in the season, in mild winters even in January; and it retains em very late. It is a small, but deeded tree, and may be considered one the handsomest species of the genus. Horticultural Society's Garden
ARBORETUM ET FRUTICETUM BRITANNICUM.

† 20. C. Aro'nia Bosc. The Aronia Thorn.

*Brit., 1st edit., vol. vi.; and our fig. 656.

Spec. Char., &c. Branchlets pubescent. Leaves pubescent on the under sur-
face, wedge-shaped at the base, 3-cleft; lobes obtuse, entire, each ending

Remarkable for the abundance of its large yellow fruit, which are good to eat, and have been made into excellent tarts with Siberian crabs.

**21. C. orientalis Bosc. The Eastern Thorn.**


---

**Spec. Char., &c.** Branches whitely tomentose. Leaves 3-lobed, downy beneath; the two side lobes ovate, and having tooth-like incisions at the tip; the middle lobe trifid. Stipules broad and cut. (Dec. Prod.) A low spreading tree. Levant. Height 15 ft. to 20 ft. Introduced in 1810. Flowers white; May and June. Haws numerous, large, yellowish red or coral colour, very agreeable to the taste; ripe in August and September, and remaining on sometimes after the leaves.

**Variety.**

* C. o. 2 sanguinea, C. sanguinea Schrader Index Sem. Hort. Acad. Gott. 1834, C. orientalis Lindl. Bot. Reg. t. 1852., and fig. 709. in p. 398., has the fruit of a very dark purplish red, or port wine, colour. Dr. Lindley considers this "the genuine Mespilus orientalis of Tournefort, with villous celery-like leaves, and a large, purple, 5-cornered, smooth fruit," which description, we think, indicates rather...
the following species. It is a native of the Crimea, and the parts bordering on the Black Sea; and was introduced in 1810. On account of the colour of its fruit, and the abundance in which it is produced, it deserves a place in every collection.

Readily distinguished from most other species by its very hoary branches, which are loose, rambling, crossing each other, and somewhat pendulous. It is late in producing its leaves, and also its flowers: the latter generally appear with those of C. tanacetifolia, about the end of May (in 1836, on the 17th of June).

† 22. C. tanacetifolia Pers. The Tansy-leaved Thorn.


Varieties.

† C. t. 2 glabra Lodd. (fig. 711. in p. 398.; the plate in Arb. Brit., 1st edit., vol. vi.; and our fig. 659.) has shining leaves, and fruit about half the size of that of the species, of a reddish yellow. A hybrid between C. tanacetifolia and C. Oxyacantha. Introduced from Germany about 1810.

† C. t. 3 Celsiiana. Mespilus Celsiiana Dumont de Cours., vol. vii. p. 286.; C. t. 3 Lecina Arb. Brit. 1st ed.; C. incisa Lee. (fig. 712. in p. 399.; plate in Arb. Brit., 1st edit.; and our fig. 660.)—Somewhat resembling C. orientalis; but the leaves much larger, and more deeply cut, and the trees of a more robust, erect, and fastigate habit. Fruit large, yellow. Cultivated by Cels, and supposed by Dumont de Courset to be a native of Persia or the Levant. Erroneously said to have been raised in the Hammersmith Nursery. A splendid tree,
most striking in appearance, from its large and deeply cut foliage, and its strong, upright, vigorous shoots.
The leaves and calyces are covered on both sides with long hairs. The globular slightly compressed fruit has somewhat the appearance of being ribbed like a melon; is larger than that of any other species of the genus, except C. Arônia and C. mexicâna; greenish yellow when ripe; and easily distinguishable by the bracteas generally adhering to it. The foliage is the latest in appearing of any of the species, except C. orientâlis, frequently equally late.

§ xi. *Heterophylla.*

*Sect. Char.* Leaves cuneate, and sub-persistent. Fruit long, middle-sized, and crimson.

‡ 23. *C. heterophylla Flugge.* The various-leaved Thorn.


*Synonyms.* C. neapolitana Hort.


Spec. Char., &c. Leaves bright, falling off late, lanceolate-cuneate, toothed at the apex, 3-cleft; segments serrate. Tube of the calyx fusiform. Cymes many-flowered. Flowers 1-styled. Fruit ovate, including one nut, with a hard bony shell, and one seed. Stipules large, pinnatifid. (Lindl.) A low tree, with ascending branches. Native country uncertain, most probably the South of Europe; possibly a hybrid between the common hawthorn, and the aazarole, or some other species. Height 10 ft. to 20 ft. Cultivated in 1816. Flowers white, produced in great abundance; May. Fruit rich crimson, resembling in shape that of the common hawthorn, but narrower; ripe in September and October.

A very handsome and most desirable species; producing its leaves and flowers early in the spring, and retaining its leaves and fruit till the first autumnal frosts.
XXVI. ROSA'CEÆ: CRATÆ'GUS. 375

§ xii. Oxyacanthæ.

Sect. Char. Leaves obovate, trifid, or variously cut. Flowers numerous, in corymbs. Fruit generally red.

† 24. C. OXYACA'NTHA L. The sharp-thorned Crataegus, or common Hawthorn.


Synonymes. The Pyracantha of the Greeks; Mespilus Oxyacantha Garin. and N. Du Ham.; Épine blanche, noble Épine, Bois de Mai, Scuelleir Aubépine, Néflier Aubépine, Fr.; Hagedorn, gemeiner Weisstorn, Azzarolo sal-vatico, and Bianco Spino, Ital.; Espino blanco, Span.; Hagedorn, gemeiner Weisstorn, Ger.; Hagetoan, Dan.; Hagetoan, Swed.; Acanta da siepe, May and Mayhush have reference both to the time of flowering of the plant, and to its use in the May or floral games. The French name Aubépine, refers to its flowering in spring, or in what may poetically be called the morning of the year; aube signifying the dawning of the day.


662. C. Oxyacantha.


Varieties. These are very numerous, and some of them very distinct. In the following enumeration we have confined ourselves to such as we have actually seen in the Hort. Soc. Garden, or in the arboretum of Messrs. Loddiges.

A. Varieties differing from the Species in the general Form and Mode of Growth.

* C. O. 2 stricta Lodd. Cat., C. O. rigida Ronalds, (the plate in Arb. Brit.,...
1st edit., vol. vi.; and our fig. 663.) has the shoots upright, and the general habit as fastigiate as that of a Lombardy poplar. It was discovered in a bed of seedlings in Messrs. Ronald's Nursery, about 1825, and forms a very distinct and desirable variety.

† C. O. 3 pendent Lodd. Cat. has drooping branches. A very marked variety of this kind, which was selected from a bed of seedlings by General Monckton, is said to be in the collection of thorns at Somerford Hall.

† C. O. 4 regiae Hort. Queen Mary's Thorn. (The plate of the tree in Arb. Brit., 1st edit., vol. vi.; and our fig. 664.)—The parent tree is in
a garden near Edinburgh, which once belonged to the Regent Murray. It is very old, and its branches have somewhat of a drooping character; but whether sufficiently so to constitute a variety worth propagating as a distinct kind appears to us very doubtful. (Lodd.)

† C. O. 5 Celsiana Hort. is also somewhat fastigate in its habit; but it is a much more slender-growing plant; and we have never seen a specimen in a situation where it could display its natural form and mode of growth.

‡ C. O. 6 capitâta Smith of Ayr differs from the species chiefly in being of a somewhat more fastigate habit, and in producing its flowers in close heads, mostly at the extremities of its branches.

‡ C. O. 7 flexuosa Smith of Ayr has the small branches twisted in a zigzag manner. Horticultural Society’s Garden.

B. Varieties differing in the Colour of the Flowers.

† C. O. 8 rôsea Hort.; E’pinier Marron, Fr. (fig. 725. in p. 401.); has the petals pink, with white claws, and is a well-known and very beautiful variety.

‡ C. O. 9 punicea Lodd. Cat., C. O. rôsea supérba Hort., has larger petals, which are of a dark red, and without white on the claws.

C. Varieties differing in the Developement or Structure of the Flowers.

† C. O. 10 mûltiplex Hort., C. O. flôre plêno Hort. (fig. 722. in p. 401.), has double white flowers, which die off of a beautiful pink; and which, being produced in great profusion, and lasting a long time, render this a most desirable variety: accordingly, it is to be found in almost every shrubbery and garden.

† C. O. 11 punicea, flôre plêno Hort.—Flowers double, nearly as dark and brilliant as C. O. punicea. Imported in 1832, by Mr. Masters of Canterbury.

‡ C. O. 12 monôgyna, C. monôgyna Jacob., has flowers with only one style, like C. O. sibrica, but does not flower early like that variety.

‡ C. O. 13 apêíala Lodd. Cat.—This remarkable variety has the flowers without petals, or very nearly so.

D. Varieties differing in the Time of Flowering.

† C. O. 14 praécœor Hort., the Glastonbury Thorn, comes into leaf in January or February, and sometimes even in autumn; so that occasionally, in mild seasons, it may be in flower on Christmas-day.

‡ C. O. 15 sibirica, C. sibirica Lodd. Cat., C. monôgyna L. (fig. 665.), is an early leafting variety, a native of Siberia. In mild seasons, it begins to put forth its leaves in January; and in dry summers it loses them proportionately soon in the autumn. On account of its early leafting and flowering, it well merits a place in collections. The flowers have only one style; but, as there are other varieties having only one style which do not flower early, we have not adopted Linnaeus’s name of C. monôgyna to this variety, but to another, a native of Britain, which does not flower earlier than the common hawthorn.

‡ C. O. 16 transylvôicina Booth, from the plant in the Hort. Soc. Garden, appears to be nearly, if not quite, the same as C. O. sibirica.
E. Varieties differing in the Colour of the Fruit.


C66. C. O. melanocarpa.

also has the fruit black, as the name implies. It differs from the preceding variety chiefly in being of more vigorous growth; in having its leaves of a deep rich green, and in flowering a week later. A splendid low tree, deserving a place in every collection.

607. C. O. Oliveriana

18 Oliveriana. C. Oliveriana Bosc, Dec. Prod. ii. p. 630., and
† C. O. 19 aèrea Hort., C. flava Hort. (fig. 723. in p. 401.), has the leaves like C. O. obtusita, and the fruit roundish, and of a golden yellow. This is a very distinct variety, and ought never to be omitted in collections.

† C. O. 20 aurantiaca Booth is said to have orange-coloured fruit; but there are only small plants of it in the London gardens. Mr. Wilson found, in Ayrshire, a variety with greenish orange fruit. (Hook.)

† C. O. 21 leucocárpa, a variety with white haws, is said to have been discovered in a hedge near Bampton, in Oxfordshire; but we have never seen it.

F. Varieties differing in having the Fruit woolly.

† C. O. 22 eriocárpa Lindl., C. eriocárpa Lodd. Cat. (fig. 720. in p. 400.; the plate in Arb. Brit., 1st edit., vol. vi.; and our fig. 668.), is a robust rapidly growing variety, with large leaves, and strong thick shoots; a clear white bark, and few thorns. It is very prolific in flowers, and the fruit which succeeds them is woolly in its young state, but not large. If ever the hawthorn should be cultivated for its timber, to supply the wood-engravers as a substitute for box, this variety and C. O. melanocárpa will deserve the preference. Hort. Soc.

G. Varieties differing in the Form of the Leaves.

Crenate, of the same colour on both surfaces. Styles 1—3. Fruit containing more than 1 seed. Distinguished from the species by its smaller, obovate, less cut, flat, and shining leaves. *C. lucida Smith of Ayr, C. oxyacanthoides lucida Sweet*, is scarcely or not at all different from this variety.

† *C. O. 24 quercifolia* Booth (fig. 721. in p. 401.) appears very distinct in regard to foliage.

‡ *C. O. 25 laciniata, C. laciniata Lodd. Cat* (fig. 716. in p. 400.; the
plate in Arb. Brit., 1st edit., vol. vi.; and our fig. 670.), has finely cut leaves; the shoots are comparatively slender, the plant less robust, and the fruit smaller, than in the species. It is a very distinct and elegant variety.

† C. O. 26 pteridifolia, C. pterifolia Lodd. Cat. (fig. 717. in p. 400.), resembles the preceding, but the leaves are longer in proportion to their breadth, and more elegantly cut.


H. Varieties differing in the Colour of the Leaves.

† C. O. 28 folia aurea Booth. Cat., C. lutiscens Booth, has leaves variegated with yellow; but they have generally a rugged and diseased appearance, when fully expanded; though, like those of most other variegated deciduous plants, when first opening in spring, they are strikingly showy and distinct.

† C. O. 29 fóliis árgéntis Hort. has leaves variegated with white; but, like the preceding variety, it cannot be recommended as handsome at any other period than when the leaves are first expanding.

† C. O. 30 lucida.—We apply this name to a very distinct and very beautiful-leaved variety, which forms a standard in the southern boundary hedge of the Hort. Soc. Garden, and which, we trust, will soon be propagated in the nurseries. The leaves are large, regularly cut, somewhat coriaceous in texture, and of a fine shining green. The plant is of vigorous growth.

The common hawthorn, in its wild state, is a shrub or small tree, with a smooth bark and very hard wood. The rate of growth, when the plant is young, and in a good soil and climate, is from 1 foot to 2 or 3 feet a year, for the first three or four years; afterwards its growth is slower, till the shrub or tree has attained the height of 12 or 15 feet, when its shoots are produced chiefly in a lateral direction, tending to increase the width of the head of the tree rather than its height. In a wild state, it is commonly found as a large dense bush; but, pruned by accident or design to a single stea, it forms one of the most beautiful and durable trees of the third rank that can be planted: interesting and valuable for its sweet-scented flowers in May, and for its fruit in autumn, which supplies food for some of the smaller birds during part of the winter. In hedges, the hawthorn does not flower and fruit very abundantly when closely and frequently clipped; but, when the hedges are only cut in at the sides, so as to be kept within bounds, and the summits of the plants are left free and untouched, they flower and fruit as freely as when trained as separate trees. The plant lives for a century or two, and there are examples of it between 40 ft. and 50 ft. in height, with trunks upwards of 3 ft. in diameter at 1 ft. from the ground.

The wood of the hawthorn is very hard, and difficult to work: its colour is white, but with a yellowish tinge; its grain is fine, and it takes a beautiful polish; but it is not much used in the arts, because it is seldom found of sufficient size, and is, besides, apt to warp. It weighs, when green, 68 lb. 12 oz. per cubic foot; and, when dry, 57 lb. 5 oz. It contracts, by drying, one eighth of its bulk. It is employed for the handles of hammers, the teeth of mill-wheels, for flails and mallets, and, when heated at the fire, for canes and walking-sticks. The branches are used, in the country, for heating ovens; a purpose for which they are very proper, as they give out much heat, and possess the property of burning as readily when green, as in their dry state. They are not less useful in the formation of dead hedges, for the protection of seeds, or of newly planted live hedges or single trees; and they will last a considerable time without decaying; especially when they have been cut in autumn. The leaves are eaten by cattle, which, nevertheless, pav
some regard to the spines by which they are defended. The fruit is astringent. By far the most important use of the hawthorn is as a hedge plant. For this purpose, it is planted in single or in double lines, most commonly along the margin of a ditch; though, however convenient this may be with respect to fencing the plants when young, and draining the soil, it is a great drawback to their progress afterwards, by preventing their roots from extending themselves, except on one side; and, by the drainage of the ditch, it also deprives them of their natural share of moisture. Wherever thorn hedges are planted, and intended to thrive, the ground ought to be trenched at least 2 ft. in depth, manured if poor, and the plants inserted on a flat surface, so as to receive and retain the whole of the moisture that falls from the heavens.

The hawthorn will do no good unless planted in a soil naturally dry and fertile, or that has been rendered so by art. The plant is never found naturally on a wet soil; and, if planted on such a soil, it soon becomes stunted, and covered with lichens and moss. The situation should be airy; but it will grow either in exposed places, or in such as are sheltered, and even somewhat shaded, by other trees. In cases of this kind, however, it neither forms a handsome tree, nor a close thick hedge.

The species is almost always propagated by seeds, but sometimes by cuttings of the roots; which, when about half an inch in thickness, and 1 ft. or 18 in. in length, and planted with the root end underneath, speedily make large plants. Where old thorn plants are taken up, the roots may always be used for forming new hedges; but it must be acknowledged that, as they do not all send up shoots equally, some remaining a year in the ground before they do so, the preferable mode is to plant them in a nursery for the first year; or, if this is not done, they ought to be planted thick, so as to make allowance for some not pushing till the second year, and some not pushing at all.

When the hawthorn is to be raised from seed, the haws should not be gathered till they are dead ripe; which will be in October or November. As many haws contain more than one seed, they ought not to be put in the ground entire, but, if they are to be sown immediately, they must be macerated in water till the pulp is separated from the nuts; and the latter should then be mixed with dry sand, to keep them separate, and to enable the sower to scatter them equally over the surface. But, as the seeds do not come up till the second year, a saving of ground is made by keeping them the first year in a heap, technically called a rot-heap, mixed with a sufficient quantity of soil, to prevent them from heating, and to facilitate the decomposition of the pulp. These heaps are kept in the open air, and exposed to the full influence of the weather; care being taken to turn them over frequently, at least, once a month, so as to equalise this influence. When the seeds are not to be prepared in a heap, they should be sown in November or December, as soon as separated from the pulp; but, when they are to be separated by decomposition in a heap, they need not be sown till the February, or even the March, of the second year; by which means fifteen or sixteen months' use of the soil is saved. They may be sown thinly in beds, the seeds being scattered so as to lie about 1 in. apart every way, and covered about a quarter of an inch. The nursery culture required is mere routine. Hawthorns ought always to be two years transplanted before they are employed for hedges; younger and untransplanted plants, though cheaper to purchase, are always the most expensive to the planter, as they require temporary protection for a longer period. As stocks, hawthorn plants may be treated like stocks for fruit trees; and the different species and varieties may be budded and grafted on them, either for dwarfs or standard high, in a similar manner. Not only the different species of Crataegus, but those of Mespilus, Sorbus, Pyrus, and even Malus, Cydonia, Aucelânger, Eriobôrya, and others, may be grafted on the common hawthorn; and in this way field hedges might be rendered ornamental, and even productive of useful fruits.
§ xiii. Parvigl glie.

Sect. Char. Leaves small, ovate, serrated or notched, but scarcely lobed. Fruit green, or greenish yellow; rather large, hard.

25. C. PARViFÖLI A Ait. The small-leaved Thorn.


Engravings. Trew Ehr., t. 17.; and Trew Ehr., t. 69.; in p. 402.


North America, New Jersey to Carolina, in sandy shady woods. Heigh 4 ft. to 6 ft. Introduced previously to 1713. Flowers white; May and June, rather later than in most other species. Haws large, greenish yellow; ripe in November, often hanging on the tree all the winter.

Varieties.

2. C. p. 2 florida, C. florida Lodd. Cat. (fig. 726, in p. 402., and our fig. 672.), has the leaves and fruit somewhat smaller and rounder than those of the species.

2. C. p. 3 grossulariacefolia, C. linearis Lodd. Cat. (fig. 728, in p. 402., and our fig. 673.), has the leaves lobed, and somewhat like those of the gooseberry.

These varieties run so much into one another, that, unless they are seen together in a living state, as in Messrs. Loddiges's arboretum, it is difficult to distinguish them from the species, or from each other; for, however different the leaves may appear in our figures (see p. 402.), all the forms of these may occasionally be found on the same plant: and some plants of each variety are wholly without spines, while in others the spines are very numerous. As all of them are small plants, with flowers large in proportion to the size of the leaves, they are well adapted for exemplifying the genus Cratægus in a miniature arboretum.
§ 26. C. virginica Lodd. The Virginian Thorn.


Spec. Char., &c. Leaves obovate, cuneate, glabrous, shining, notched, but not lobed; small. Fruit round, rather larger than a common haw, green. A low shrub. Virginia. Height 4 ft. to 5 ft. Introduced in 1812. Flowers white; June. Fruit green; October, often remaining on the branches during the winter.

674. C. virginica.

The plant bears a general resemblance to C. spathulata (No. 17.) in its foliage and habit of growth; but the foliage of the latter is lobed, while that of the former is entire. The fruit of C. virginica is, also, six times larger than that of C. spathulata; and is of a dark green, while the other is of a bright red. The blossoms and fruit of C. virginica are, also, produced in cyornbs of twos and threes; while those of C. spathulata consist of a considerable number of flowers. The species differ, also, in the foliage; which in C. spathulata has long winged footstalks, while in C. virginica the footstalks are short and slender. (See the leaves of C. virginica fig. 720. in p. 402., and of C. spathulata fig. 704. in p. 396.)

§ xiv. Mexicana.

Sect. Char. Leaves large, oval-lanceolate, notched and serrated. Fruit large, green or greenish yellow.

‡ 27. C. mexicana Moc. et Sesse. The Mexican Thorn.


Spec. Char., &c. Leaves oval-lanceolate, notched and serrated; acuminate, somewhat ciliated at the base. Petioles short, channeled, and with a winged margin. Stipules stalked. Corymbs terminal. Petals scarcely longer than the calycine teeth. Stamens varying from 10 to 15. Styles 2, or rarely 4. Fruit large, pale green, or yellowish, when ripe; and, with the leaves, remaining on the tree all the winter in sheltered situations. Handsome, and resembling a small apple, but not good to eat. A low tree; evergreen against a wall, and sub-evergreen as a standard in the climate of London, and southwards. Mexico, on table lands. Height 20 ft. to 30 ft.; in British gardens 10 ft. to 15 ft. Introduced in 1824. Flowers large, white; June. Fruit large, pale green, ripening against a wall in October.
A remarkable and very handsome species, resembling, in general appearance, Mespilus grandiflora.

§ xv. Pyracantha.

Sect. Char. Leaves oval-lanceolate, glabrous, entire, small, evergreen. Fruit numerous, of a bright coral colour.


Spec. Char., &c. Evergreen. Leaves glabrous, ovate-lanceolate, crenate. Lobs of the calyx obtuse. Styles 5. Fruit globose, scarlet, ornamental; continuing a good while upon the plant; which, on account of the colour of its fruit, and of its being a shrub, is called in France Buisson ardent. (Dec. Prod.) An evergreen shrub. South of Europe, in rugged places and hedges. Height 4 ft. to 6 ft. Introduced in 1629. Flowers white; May. Fruit red; ripe in September.

Variety.

• C. P. 2 crenulata. C. crenulata Hort. — A plant bearing this name in the Hort. Soc. Gard. differs very little from the species.

The flowers and fruit are produced in large corymbs, which are very ornamental; and the fruit remains on all the winter, especially when the shrub is rained against a wall. The berries are bitter, and are not so greedily eaten by birds as those of some other kinds, unless in very severe winters. The plant is very hardy, and, in the open garden, forms a handsome evergreen bush; and, if grafted standard high on the common hawthorn, it would form a most desirable evergreen low tree.
Crataegus coccinea. The scarlet-fruited Thorn.
Leaves and fruit of the natural size.
Crataegus coccinea corallina, and C. c. indentata. The coral-fruiting Thorn, and the indented-leaved Thorn.

Leaves and fruit of the natural size.
Crateagus glandulosus, and C. g. subvillosa. The glandular Thorn, and the subvillose-leaved glandular Thorn. Leaves and fruit of the natural size.
Crataegus punctata, and C. pyrifolia. The dotted-fruited Thorn, and the Pear-leaved Thorn.

Leaves and fruit of the natural size.
Crataegus macracantha. The long-spined Thorn.
Leaves and fruit of the natural size.

C. macracantha.
Crataegus nigra, and C. purpurea. The black-fruited Thorn, and the purple-branched Thorn.

Leaves and fruit of the natural size.
Crataégus purpurea altaica, and C. Douglasii. The Altaic purple-branched Thorn, and Douglas's Thorn.
Leaves and fruit of the natural size.
Crataegus flava, and C. lobata. The yellow-fruited Thorn, and the lobed-leaved Thorn.
Leaves and fruit of the natural size.
Crataegus triloba, and C. apiifolia. The three-lobed-leaved Thorn, and the Parsley-leaved Thorn.

Leaves and fruit of the natural size.
Crataegus cordata, and C. spathulata. The heart-shaped-leaved Thorn, and the spathula-shaped-leaved Thorn.
Leaves and fruit of the natural size.
Crataegus Azarolus, C. Aronia, and C. maroccana. The Azarole Thorn, the Aronia Thorn, and the Morocco Thorn. Leaves and fruit of the natural size.
Crataegus orientalis, et var., and C. tanacetifolia, et var. The Eastern Thorn, and the Tansy-leaved Thorn, with Varieties. Leaves and fruit of the natural size.
Crae'gus tanacetifolia Lee'nà, C. heterophylla, and C. Oxyacántha obtusàta. Lee's Tansy-leaved Thorn, the various-leaved Thorn, and the obtuse-leaved Hawthorn.

Leaves and fruit of the natural size.
Crataegus Oxyacantha, et var. The common Hawthorn, and Five of its Varieties.
Leaves and fruit of the natural size.
Crataegus Oxyacantha var Five Varieties of the Hawthorn. Leaves and fruit of the natural size.
Crataegus parvifolia, C. p. flórida, C. p. grossulariaefólia, C. virgínica, C. mexícána. The small-leaved Thorn, the Florida Thorn, the Gooseberry-leaved Thorn, the Virginian Thorn, and the Mexican Thorn.

Leaves and fruit of the natural size.
Genus XV.

**STRANVÆSIA** Lindl. The **STRANVÆSIA**. Lin. *Syst. Icosändria* Di-Pentagýnia.

**Identification.** Lindl. in *Bot. Reg.*

**Synonyme.** Crataegus in part.

**Derivation.** In honour of the Hon. W. T. H. Fox Strangways, F.H.S., &c., a botanical amateur, who possesses a rich collection.

**Gen. Char.** Calyx 5-toothed. Petals 5, concave, sessile, spreading, villous at the base. Stamens 20, spreading. Ovary villous, superior, 5-celled; cells containing 2 ovules. Fruit spherical, enclosed by the calyx, containing a superior, 5-valved, hard, brittle, dehiscent capsule. Seeds oblong. Testa cartilaginous. (Lindl.)

Leaves simple, alternate, stipulate, evergreen; lanceolate, serrated. Flowers corymbose.—An evergreen tree; native of the temperate parts of Asia; in Britain a rather tender shrub.

1. **S. GLAUCE'SCENS** Lindl. The glaucous-leaved Stranvæsia.

**Identification.** Lindl. in *Bot. Reg.*, t. 1956.

**Synonyme.** Crataegus glauca Wall. *Cat.* 673.

**Engravings.** *Bot. Reg.*, t. 1956; and our figs. 731. and 732.

**Spec. Char., &c.** Leaves lanceolate, coriaceous, serrated, pointed at the base; midrib and nerves on the under side, as well as the young twigs, hairy. Corymbs somewhat woolly. Pedicels 3 or 4 times as long as the bud. (Lindl.) An evergreen shrub; in Nepal, a tree 20 ft. high. Introduced in 1828. Flowers white; July. Fruit small, yellowish red; ripe in October.

Somewhat tender when treated as a standard in the open garden but, when trained against a wall, forming a very handsome evergreen. Propagated by grafting on Crataegus.

Genus XVI.

**PHOTI'NIA** Lindl. The **PHOTINIA**. Lin. *Syst. Icosändria* Di-Pentagýnia.


**Synonyme.** Crataegus sp. l.

**Derivation.** From φωτεινος, shining; in allusion to the lucid surface of the leaves.


Leaves simple. alternate, stipulate, evergreen; quite entire, or serrated.
Flowers white, disposed in terminal corymbose panicles. Fruit small, smooth. — Evergreen trees; natives of Asia and America, requiring the same garden treatment as Crataegus (on which all the species may be grafted), except that the species are somewhat more tender, and are best grown against a wall even in the climate of London.

1. P. serrula'ta Lindl. The serrulate-leaved Photinia.


Engravings. Bot. Reg., t. 491.; and our fig. 733.


The young shoots and leaves are remarkable for their deep red, or mahogany colour; and the decaying leaves exhibit this colour much more intensely, mixed with a fine yellow or scarlet. Altogether it forms a very splendid plant, when trained against a wall; or, in warm sheltered situations, as a standard. It is commonly grafted or budded on thorn stocks; and it also does well upon quince stocks. In the neighbourhood of London it flowers between the middle of April and the middle of May; but it has not yet produced fruit in England. The largest and oldest plants are at White Knights, where it was planted in 1804; and, in 1835, formed a large bush or tree, nearly 15 ft. high.


Engravings. Bot. Reg., t. 491.; and our fig. 734.
Spec. Char., &c. Leaves with the disk oblong-lanceolate, acute, distantly serrated, six times longer than the petiole, which is red. The panicle, in this species, is not corymbose. (Dec. Prod.) An evergreen shrub or low tree. California. Height 10 ft. to 20 ft. Introduced in 1796. Flowers white; July and August. Fruit ?.

A very desirable evergreen for walls, hitherto comparatively neglected in British gardens. Horticultural Society's Garden.


Engraving. Our fig. 735. from a specimen in the Linnaean herbarium.


Requires the protection of a wall, which it well deserves, on account of the beauty of its foliage.

4. P. DU'BIA Lindl. The doubtful Photinia.


Engraving. Lin. Trans., 13. t. 10.; and our fig. 736.


It appears nearly allied to Raphiolepis. Hamilton states that the bark is used, in Nepal, to dye cotton red. Culture and management as in the preceding species.

Genus XVII.


Derivation. Cotoneaster, a sort of barbarous word signifying quince-like. The quince was called Coloea by Pliny; and aster, a corruption of ad instar, is used occasionally to express similitude.
The genus, and C. frigida in particular, is not unlike the quince in its leaves. (Lindley in Bot. Reg. t. 1187. and 1229.)

**Gen. Char.** Flowers polygamous from abortion. **Calyx** turbinate, bluntly 5-toothed. **Petals** short, erect. **Stamens** length of the teeth of the calyx. **Styles** glabrous, shorter than the stamens. **Carpels** 2—3, parietal, biovalve, enclosed in the calyx. (Don's Mill.)

**Leaves** simple, alternate, stipulate or exstipulate, deciduous or evergreen; generally woolly beneath. **Flowers** in corymbs, lateral, spreading, furnished with deciduous subulate bracteas. **Petals** small, permanent.—Shrubs or low trees. Natives of Europe, America, and Asia.

The species are very desirable garden shrubs or low trees, from the beauty of their foliage, their flowers, and their fruit; the fruit of **C. frigida** and **C. affinis**, in particular, being produced in great abundance, and being of an intense scarlet colour, have a very splendid appearance, and remain on the trees the greater part of the winter. The cotoneasters are all readily propagated by seeds, cuttings, layers, or grafting on **C. vulgaris**, on the common quince, or on the hawthorn. Though the greater part of the species are natives of Asia, yet in Britain they are found to be as hardy as if they were indigenous to the North of Europe, more especially those of them that are true evergreens. Not one of them was killed by the winter of 1837–8 in the Hort. Soc. Garden.

§ 1. **Leaves deciduous. Shrubs.**

1. **C. vulgaris** Lindl. The common Cotoneaster.


**Spec. Char., &c.** Leaves ovate, rounded at the base. Peduncles and calyces glabrous. (Dec. Prod.) A deciduous shrub. Europe and Siberia, on the sunny parts of subalpine hills. Height 2 ft. to 3 ft. in a wild state; in cultivation 4 ft. to 5 ft. Cultivated in 1656. Flowers white, slightly tinged with pink; April and May. Fruit red or black; ripe in July and August.

**Varieties.** The following three forms of this species are to be met with, both in a wild state, and in gardens:—

2. **C. v. 1 erythrocarpa** Led. Fl. Alt. ii. p. 219. has the fruit red when ripe.


4. **C. v. 3 depressa** Fries Nov. Svec. p. 9., Dec. Prod. ii. p. 632., is rather spiny, with lanceolate acutish leaves, and fruit including 4 carpels. It is a native of the rocks of Sweden near Warberg.

2. **C. (v.) tomentosum** Lindl. The tomentose, or woolly, Cotoneaster.


**Engravings.** Our fig. 738. from a specimen in the British Museum

**Spec. Char., &c.** Leaves elliptical, obtuse at both ends. Peduncles and calyces woolly. (Dec. Prod.) A deciduous shrub, like the preceding species, of which it appears to us to be only a variety, found wild on the rocks.
of Jura, and in other parts of the Alps of Switzerland; and in cultivation in British gardens since 1759.

\(\text{Spec. Char., &c.}\) Leaves oblong, obtuse at both ends, smooth above, and woolly beneath. Cymes panicled, pilose. Calyces quite smooth. Flowers pink. (\textit{Don's Mill.})

Branches brownish purple, with an ash-coloured cuticle, which peels off. A deciduous shrub, flowering in April, and having the same general appearance and habit as \textit{C. vulgaris}, but differing from it in having large loose racemes, and in the colour of its flowers, and their greater number. It was raised in the Garden of the Horticultural Society, from seeds sent by Professor Jacquin of Vienna, in 1826. Its native country is unknown.

\textit{Variety.}

\textit{C. (v.) l. 2 uniitora} Fischer.—Flowers solitary. Horticultural Society's Garden.

\textit{Spec. Char., &c.} Leaves elliptic, or obovate-elliptic, rounded on both sides, mucronate-cuspidate, dentilicate at the apex, coriaceous, smooth above, tomentose, pubescent and hoary beneath. Corymbs simple. Flowers sub-dodecandrous, with \(1-2\) stigmas. Calyx woolly tomentose. (\textit{H. et B.}) A shrub, apparently sub-evergreen, and very like \textit{C. vulgaris}. Mexico, on elevated plains near Actopan, at the height of 6000 ft. Height \(\frac{5}{2}\) ft. to 6 ft. Introduced in 1839. Flowers white; September. Fruit 

\(\text{§ ii. Sub-evergreen or deciduous. Tall Shrubs or low Trees.}\)

\textit{C. Frigida Wall.} The frigid Cotoneaster

\textit{Spec. Char., &c.} Branchlets woolly. Leaves elliptical, mucronate, coriaceous, crenulated, glabrous, woolly beneath when young. Corymbs paniculate, terminal, white, and woolly. Pomes spherical. (\textit{Dec. Prod.}) A sub-evergreen shrub or low tree. Nepal, on the higher mountains of the northern region. Height \(10\) ft. to \(20\) ft. Introduced in 1824. Flowers of a snowy white, produced in great abundance; April and May. Fruit crimson, or bright red; ripe in September, and generally remaining on the trees great part of the winter.

A remarkably robust-growing, sub-evergreen, low tree, producing shoots 3 or 4 feet long every season, when young; and, in 3 or 4 years from the seed, becoming very prolific in flowers and fruit. As the fruit, with the greater part...
of the leaves, remains on all the winter, the tree makes a splendid appearance at that season; and, in sheltered situations, in the neighbourhood of London, it may be considered as an evergreen. It is very hardy; the specific name of frigida being given to it on account of the coldness of the locality in which it was found. It is propagated by grafting on the common hawthorn.


Spec. Char., &c. Leaves ovate, with a small mucro at the tip, and tapered at the base. Peduncles and calyces woolly. (Dec. Prod.) A sub-evergreen shrub or low tree. Nepal, at Chittong, in the lower country. Height 10 ft. to 20 ft. Introduced in 1828. Flowers white; April and May. Fruit bright red, or deep crimson; ripe in September, and remaining on the trees great part of the winter.

A robust shrub or low tree, in general habit and appearance so like the preceding sort, as to induce us to think that they are only different forms of the same species. They are, however, different in foliage, and on that account worth keeping distinct.

17. C. ACUMINATA Lindl. The acuminate-leaved Cotoneaster.


A vigorous-growing, fastigate, leathery-leaved shrub, or very handsome sub-evergreen low tree; very distinct, and a most desirable species.

18. C. NUMMULÁRIA Lindl. The money-like-leaved Cotoneaster.


Derivation. Probably from the roundness of the leaf, resembling the general form of coins.

Spec. Char., &c. Disk of leaf flat, orbicular, or elliptical, ending in a mucro, in some instances emarginate. Petiole of about the length of the stipules, which are linear-lanceolate, membranous, and soon fall off. Bark, buds, flower buds, stipules, petiole, the under surface of the disk of the leaf, and part of the upper surface of the midrib, tomentosely hairy, while in a young state; the bark, petioles, midrib on its upper surface, and calyx, become glabrous when old. Flowers in axillary cymes, few in a cyme. Style and carpel, which has a bony shell, mostly solitary. Erect, branched in a spreading manner; branchlets straight, slender. An elegant low sub-evergreen tree. Nepal, in the mountainous region. Height 10 ft. to 15 ft. Introduced in 1824. Flowers white; April and May. Berries numerous, black; ripe in September.

A very handsome species, distinguished at first sight from the others by its spreading habit of growth and smaller leaves.

§ iii. Leaves evergreen, leathery. Low Shrubs, with prostrate Branches; Trailers, but not properly Creepers.

n. 9. C. rotundifolia Wall. The round-leaved Cotoneaster.

Spec. Char., &c. Leaves roundish, pilose beneath, evergreen. Peduncles 1-flowered. Producing its white flowers in April and May. (Don's Mill.) An evergreen shrub. Nepal, on mountains. Height 3 ft. to 4 ft. Introduced in 1825. Flowers white, with the backs of the petals often
pinkish; April and May. Fruit bright scarlet; ripe in August, and remaining on all the winter.

A most desirable shrub for a small garden, for clothing a naked wall, covering rockwork, or grafting standard high, so as to form a pendent evergreen tree.

**n. 10. C. (r.) microphylla Wall.** The small-leaved Cotoneaster.


*Engravings.* Bot. Reg., t. 1114.; and our fig. 748.

*Spec. Char., &c.* Leaves oblong, obtuse, pubescent beneath, evergreen. Peduncles usually 1-flowered. (Don's Mill.) A prostrate evergreen shrub, closely resembling the preceding species, and in our opinion only a variety of it. Nepal. Height 2 ft. to 3 ft. Introduced in 1824. Flowers white; May and June. Berries bright scarlet; ripe in August, and remaining on all the winter.

It is exceedingly hardy, and forms a fine plant on rockwork, or on a lawn, where it has room to extend itself. A plant of C. microphylla, at High Clere, of about 10 years' growth, was, in 1835, 6 ft. high, and formed a dense bush, covering a space 21 ft. in diameter. Another, at Redleaf, was, in 1837, nearly as large. Grafted standard high on the thorn, or any of its congeners, this shrub forms a singular and beautiful evergreen drooping tree; or it will cover a naked wall nearly as rapidly as ivy; and it possesses a decided advantage over that plant, and particularly over the variety called the giant ivy, in its shoots, which may be prevented from extending many inches from the face of the wall, and, consequently, being not likely to injure the plants growing near it. Were the practice of training trees and shrubs in architectural or sculptural shapes again to come into fashion, there are few plants better adapted for the purpose than this and the preceding sort of Cotoneaster.

**n. 11. C. (r.) buxifolia Wall.** The Box-leaved Cotoneaster.


*Engravings.* Our fig. 749, from a living specimen.

*Spec. Char., &c.* Leaves ovate, woolly beneath, evergreen. Peduncles 2—3-flowered, woolly. Flowers white. (Don's Mill.) A native of Neelgherry; introduced in 1824; and apparently a variety of C. rotundifolia, from which it differs in having the peduncles 2- and 3-flowered, but scarcely in any thing else.

**Variety.**

**n. C. (b.) 2 marginata, C. marginata** Lindl., has rather larger leaves, which are covered thickly on the under side and margin with a dense white tomentum. Raised in the Horticultural Society's Garden in 1838, from seeds received from Dr. Falconer of Saharanpore.

**Genus XVIII.**


Arboretum

Pyrus and
Leaves

Alisier

for

Hook.

in our collection.

Don's Arboretum.

P. domestica

Don's

Crataegus

Pero

Dec.

P. Felsenbirne,

March

Willd.

Don's Crataegus.

Engravings.

abundant,

Synonymes.

Ripens

Sp. 185.

Identification.

in

Europe,

Pome,

In

751.

its

a

in

a

July.

Botryapium.

showy,

and,

desirable

the

tree.

canadensis

Botryapium

Lin.

Sp. 185.;

M. arborea

Michx. Arb. 2. t. 66.;

Crataegus

race-mosa

Lam.

Sp. 186.;

fruits.

P. domestica

Lin.

Sp. 186.;

Arboretum.

Et Fl.

Mespilus

Fl.

the

Bois,

Nelder à Feuilites rondes,

fr.;

Felsenbirne,

ger.;

Pero cervino,

Mit.

Engravings.

Jacq. Fl. Austr., t. 300.;

Bot. Mag., t. 2430.; and our fig. 750.

A. vulgaris

Mench.

The common Amelanchier.

Identification.

Dec. Prod., 2 p. 632.;

Hook. Fl. Bor. Amer., 1 p. 202.;

Don's Mill., 2 p. 694.

Synonymes.

Mespilus

Amelanchier

Lin. Sp. 685.;

Jacq. Fl. Austr. t. 300.;

Pyrus

Amelanchier

Wild. Sp. 2 p. 1015.;

Arômia rotundifolia

Pers. Syn. 2 p. 39.;

Crataegus rotundifolia

Lam.;

Sorbus Amelanchier

Crantz; Alisier Amelanchier,

Amelanchier des Bois,

Nelder à Feuillets ronds,

fr.;

Felsenbirne,

ger.;

Pero cervino,

Mit.

Spec. Char., &c. Leaves roundish-oval,

bluntish,

downy below,

afterwards glabrous.

Flower dark blue. (Dec. Prod.)

A deciduous low tree. Continent of

Europe, the Alps, Pyrenees, and at Fontainebleau in France. Height 15 ft. to

20 ft. Introduced in 1596. Flowers white; March and April.

Flower black,

soft and eatable; ripe in July.

Decaying

leaves bright yellow.

A most desirable low tree, on account

of its early and numerous flowers,

which cover the tree like a white sheet, about the middle of April, and, in very mild seasons,

even in March.

A. (v.)

Botryapium

Dec.
The Grape-Pear, or Snowy-blossomed

Amelanchier.

Identification.

Dec. Prod., 2 p. 632.;

Hook. Fl. Bor. Amer., 1 p. 202.;

Don's Mill., 2 p. 694.

Synonymes.

Mespilus canadensis

Lin. Sp. 185.;

M. arborea

Michx. Arb. 2. t. 66.;

Crataegus race-mosa

Lam. Dict. 1 p. 81.;

Pyrus Botryapium

Lin. fil. Suppl. p. 285.;

Arômia Botryapium

Pers Syn. 2 p. 39.; the Canadian Medlar, Snowy Mespilus, June Berry, wild Pear Tree; Alisier de

Choisy, Amelanchier de Choisy, Alisier à Grappes, fr.;

Traubenbirne, ger.

Engravings.

Schm. Arb., t. 84.;

Wild. Abbald, t. 75.;

Krause, t. 56.;

the plates of this species,

in a young and an old state, in Arb. Brit., 1st edit., vol. vi.; our fig. 751.; from a specimen taken from the tree in the Horticultural Society's Garden, with the leaves and flowers fully expanded;

and figs. 752. and 753., copied from Michaux's North American Syllis;

fig. 781. showing the plant in spring before the flowers are fully opened;

and fig. 752. showing the plant in fruit. Both differ in some respects from fig. 783. See Sir W. J. Hooker's

remarks under A. ovalis, No. 4.

Spec. Char., &c. Leaves oblong-elliptical,

cuspidate,

somewhat villous when young, afterwards glabrous.

(Dec. Prod.)

A deciduous

shrub or low tree, closely

412  Arboretum et fruticetum Britannicum.
resembling the preceding species; and by some botanists considered as only a variety of it. America. Height in America 30 ft. to 40 ft., with a trunk 10 in. to 12 in. in diameter; in England 20 ft. to 30 ft. Introduced in 1746. Flowers white; April. Fruit purple, agreeable to eat; ripe in the beginning of June. Decaying leaves rich yellow.

A very ornamental tree, from its profusion of blossoms early in April, and from its rich autumnal foliage; and even the fruit is not altogether to be despised, either eaten by itself, or in tarts, pies, and puddings. The wood is white, and it exhibits no difference between the heart and the sap: it is longitudinally traversed by small bright red vessels, which intersect each other, and run together; a physiological peculiarity which, Michaux observes, occurs also in the red birch.


This plant differs from A. (v.) Botryapium in the fewer flowers, much shorter raceme, and shorter, broader, and more ovate petals; in the young leaves being perfectly destitute of pubescence, and the head somewhat fastigate.


Engraving. Fig. 756. from a living specimen.

the Rocky Mountains. Height 10 ft. to 20 ft. Introduced in 1800. Flowers white; April. Fruit purple; ripe in July. Decaying leaves rich yellow.

Varieties.


A. (v.) o. 3 semi-integri folia Hook. Fl. Bor. Amer. p. 201.—Leaves for the most part separated at the apex. A native about the Grand Rapids, and at Fort Vancouver, on the Columbia.

Sir Wm. J. Hooker is disposed to agree with Dr. Torrey, who suspects this to be only a variety of A. Botryapium; and he adds that Michaux seems to have included A. Botryapium and A. vulgaris under his A. canadensis. The wood of A. ovalis, according to Dr. Richardson, is prized by the Cree Indians for making arrows and pipe stems; and it is thence termed by the Canadian voyagers Bois de flèche. Its berries, which are about the size of a pea, are the finest fruit in the country; and are used by the Cree Indians both in a fresh and in a dried state. They "make excellent puddings, very little inferior to plum-pudding." (Hook. Fl. Bor. Amer., 1. p. 203.)

A. (v.) f. 5. Flora Lindl. The flowery Amelanchier.


Engravings. Bot. Reg., t. 1589.; and our figs. 757. to a scale of 2 in. to 1 ft., and fig. 755. of the natural size.

Spec. Char., &c. Leaves oblong, obtuse at both ends, coarsely serrate in the terminal portion, glabrous in every state. Bracteas and stipules feathery at the tip, soon falling off. Flowers in upright racemes, many in a raceme. Calyx glabrous externally; its segments longer than, or at least as long as, the stamens. (Lindl.) A handsome hardy deciduous shrub or low tree, in habit and general appearance like A. (v.) Botryapium, but at once recognised as distinct by its fastigate habit of growth, and by the shortness of its stamens. North America, on the north-west coast. Height 10 ft. to 20 ft. Introduced in 1826. Flowers white; May. Fruit purple; ripe in August. Decaying leaves rich yellow.

Variety.

A. (v.) f. 2 parvifolia, the A. parvifolia of the Horticultural Society’s Garden, is of a dwarf habit, not growing above 3 or 4 feet high, and has smaller leaves.

The leaves somewhat resemble those of the hornbeam; the petals vary in length, some having measured more than ¾ of an inch. In general habit, it is somewhat more fastigate than the other sorts, unless we except A. sanguinea, to which, Dr. Lindley observes, it is very near akin. Possibly a distinct species, but we doubt it.

Genus XIX.


Synonymes. Mespilus sp. of Lin. and others; Mespilophora sp. of Neck.; Neillier, Fr.; Mispel. Ger.; Nepolo, Ital.

Derivation. From μυος, a half, and πιλος, a bullet; fruit resembling half a bullet.

Leaves simple, alternate, stipulate, deciduous; lanceolate, serrulated. Flowers large, nearly sessile, usually solitary, white. Bracteas permanent.—Trees; in a wild state furnished with spines. Natives of Europe.

The first species is cultivated for its fruit, which is eatable, and the seeds of which are accounted anti-lithic. The second species is an ornamental shrub or low tree, of the general character of a Crataegus. Both are propagated by grafting on the quince, the wild pear, or the common hawthorn; and both grow freely in any common soil, rather moist than dry.

**1. M. GERMANICA L.** The German, or common, Medlar.


Spec. Char., &c. Leaves lanceolate, tomentose beneath, undivided. Flowers solitary. (Dec. Prod.) A deciduous tree of the second rank. Europe and the West of Asia, in bushy places and woods; and said to be found, also, in Kent, Sussex, Surrey, and about Chester, in England; apparently in a truly wild state in Sussex. Cultivated in 1596. Flowers white; May and June. Fruit brown; ripe in October and November. Decaying leaves dark brown, or yellow.

Varieties. De Candolle gives the following forms of this species, which may be considered as natural varieties:—
M. g. 1 sylvéstris Mill. Dict. No. 1. — Spiny. Fruit small. It loses its spines in a state of cultivation.


In the Horticultural Society's Fruit Catalogue, the following four cultivated sorts are given, which may be considered as artificial varieties:

1. Blake's large-fruited Medlar.
2. Dutch Medlar. — Fruit the largest of any.
3. Nottingham, or common, Medlar. — Fruit obovate, middle size, and of the best quality: the only sort worth cultivating for its fruit in England.
4. The stoneless Medlar. — Fruit small, and of little merit.

The fruit of the medlar is not eaten till in a state of incipient decay, when it is very agreeable to some palates; though it is, as Du Hamel observes, more un fruit de fantaisie, than one of utility. A number of trees of the different varieties may be seen in the orchard of the Horticultural Society's Garden, where they have taken very picturesque shapes.


As hardy as the common medlar, and well deserving a place in ornamental plantations for the beauty of its flowers, which are produced in great profusion. The general aspect and habit of the tree are those of a Craté'gus and, indeed, it is by many persons considered as more properly belonging to that genus than to Mésplius.
Genus XX.


Leaves simple, alternate, stipulate, deciduous, or sometimes sub-evergreen; entire, serrated, or pinnately divided. Flowers numerous, in cymes. Bracteas subulate, deciduous.

Low trees, and some shrubs; almost all deciduous; natives of Europe, Asia, and North America. Some of them are in great estimation throughout the world for their fruit; and others are cultivated chiefly for their flowers. Under the genus Pyrus, botanists have lately united the Linnaean genera Pyrus and Sorbus, together with several species formerly included under Mespilus, Crataegus, and other genera.

Some of the species of Pyrus are, and have been for ages, the most universally cultivated of all ligneous plants; the apple and the pear being highly esteemed fruits, both in the temperate and transition zones of both hemispheres. These, and all the species of the genus, are propagated by grafting on the wild varieties of each division.

§ 1. Pyrophorum Dec.

Sect. Char. Petals spreading, flat. Styles 5, distinct. Pome more or less top-shaped, or subglobose, without a concavity at the base. Pedicels simple, unbladed. Leaves simple, not glabrous; (Dec. Prod., ii. p. 633.) This section comprehends all the pears, properly so called.

‡ 1. P. communiis L. The common Pear Tree.


Spec. Char., &c. Branches and buds glabrous. Leaves ovate, serrated, glabrous upon both surfaces. Flowers corymbose. (Dec. Prod.) A deciduous tree of the middle size. Europe, in woods and waste places, from the east of Russia to the west of England. Height 30 ft. to 50 ft. rarely 70 ft. In cultivation from time immemorial. Flowers white, never tinged with pink like those of the apple; April and May. Fruit in a wild state green, turning yellowish in November. Decaying leaves rich yellow or reddish yellow.

Varieties. De Candolle mentions two forms of the wild species, comparatively permanent; to which we have added several others. the result of cultivation, and which are more or less accidental or temporary. To these we might have subjoined a class of wild pears with hoary leaves, such as P. nivalis, P. salicifolia, &c., which we consider as varieties, or races, though commonly treated as species; but we have preferred giving them afterwards as distinct sorts.

‡ P. c. 1 Aichras Wallr. Sched. p. 213. — Spiny. Leaves woolly when young, but afterwards glabrous; the disk ovate, acuminate, entire; the petiole long. Tube of the calyx woolly when young, afterwards becoming glabrous. Pome with its basal part long.
P. c. 2 Pyraster Wallr. Sched. p. 214., Gärtn. Fr. t. 87. f. 2. — Spiny. Leaves roundish, acute, sharply serrated, glabrous even when young. Tube of the calyx, while young, glabrous. Pome rounded at the base.

P. c. 3 fólis variegátis has variegated leaves.

P. c. 4 frúctu variegató has the skin of the fruit variegated with yellow and white.

P. c. 5. sanguínolénta, the sanguinele Pear, has the flesh of the fruit red or reddish; and, though small and gritty, is not bad to eat when ripe.

P. c. 6 floré plénō, Poire de l'Arménie Bon. Jard. p. 43., has double flowers.

P. c. 7. jáspida ; Bon Chrétien à Bois jaspé Bon. Jard. edit. 1836, p. 424.; has the bark of the wood striped with yellow.

P. c. 8 salíva Dec.—Without spines. This is the cultivated variety, of which there are very numerous subvarieties in gardens. For these De Candolle refers us to Miller's Dictionary, and to Du Hamel's Des Arbres Fruitiers; but, at the present time, by far the most complete collection in the world, of cultivated pears, is in the garden of the London Horticultural Society; and they are described in the Fruit Catalogue (edit. 1831) of that body. From this catalogue Mr. Thompson has made for us the following selection of sorts which are at once deserving of culture as ornamental trees, and as producing fruit of first-rate excellence.

Subvarieties.

Beurré Diei.—Leaves large, and flowers very large. A hardy tree, somewhat fastigiate in its shape; a great bearer, and deserving of extensive cultivation on account of its fruit, independently altogether of its handsome shape and large flowers.

Beurré de Ranc (not Beurrée rance, as commonly written, which means rank, or rancid).—Branches spreading, or pendulous. The best very late pear yet known. It bears very well as a standard.

Bezi de la Motte.—Leaves remarkably narrow.

Glout Morceau. (fig. 762.)—Branches spreading. Head pyramidal. A hardy tree, and a great bearer. The fruit of most excellent flavour,
and hanging late on the tree. There is a plate of this variety in the Arb. Brit., 1st edit., vol. vi.

Napoleon.—Leaves broad and shining. Blossoms large. The tree vigorous, and a good bearer. The fruit excellent.

Swan's Egg.—A handsome pyramidal tree, and an excellent bearer. The fruit roundish, or obovate. This is one of the commonest pear trees in the market-gardens about London; and we have introduced the name here, from having ourselves observed the handsome shapes taken by the trees. The fruit, however, as compared with that of the above sorts, is not worth cultivating.

The following Scotch pears are recommended by Mr. Gorrie, as forms adapted for landscape scenery; but little can be said in favour of their fruit, as compared with that of the new Flemish varieties.

The Benvie, the Golden Knop, and the Elcho take fastigiate forms; the latter more especially, Mr. Gorrie says, may be called the Lombardy poplar of the pear tribe. These trees generally attain the height of from 45 ft. to 50 ft. in as many years, in the Carse of Gowrie, in Perthshire.

The busked Lady and the Pow Meg take spreading orbiculate forms, such as will assort with the A'cer Pseúdo-Platanus, and may be called the oaks and elms of the pear family. (See Gard. Mag., vol. iv. p. 11.)

The pear tree, in a wild state, has a pyramidal-shaped head, with thorny branches, at first erect, and afterwards curved downwards and pendulous. The roots are few, and descend perpendicularly, with few lateral ramifications, except in shallow and rich soil. The leaves vary exceedingly in different soils, and in different parts of Europe and Asia: in Britain they are generally keen, and slightly tomentose, and do not differ greatly in magnitude; but in the woods of Poland, and in the vast steppes of Russia, the leaves of the wild pear trees are commonly white with down, and vary so exceedingly in their dimensions, as to include what are called the willow-leaved, the sage-leaved, the elaeagnus-leaved, and other narrow-leaved varieties, which by
many are considered to be species. The fruit of the pear, in a wild state, is seldom more than a fourth part of the size of even the most ordinary cultivated varieties; and it is also astringent and unfit to eat. The plant is always found on a dry soil, and more frequently on plains than on hills or mountains; and solitary, or in small groups, rather than in woods and forests. The rate of growth is 2 or 3 feet a year for the first 6 or 7 years; in 10 years it will attain the height of 20 ft. in gardens; and in 30 years the height of 50 ft., with a trunk from 1 ft. to 18 in. in diameter; which may be considered its average dimensions in Britain. The tree is of great longevity. M. Bose says that he has seen trees that were considered to be more than 400 years old; and Mr. Knight believes that there are trees of the Teynton squash (a famous perry pear) which existed as early as the beginning of the fifteenth century. All writers on trees, from Theophrastus to the present day, agree that, as the tree grows old, it increases in fruitfulness; which is, indeed, the case with most other trees.

The wood of the wild pear is heavy, strong, compact, of a fine grain, and slightly tinged with red. It weighs, green, 79 lb. 5 oz. per cubic foot; and, when dry, from 49 lb. to 53 lb. This wood, in common with that of all the Rosaceae, is liable to have its natural colour changed by steeping it in water; which ought, therefore, to be avoided when it is intended for particular purposes. It is readily stained black, and then so closely resembles ebony as to be scarcely distinguishable from it. When it can be obtained, it is much used by turners and pattern-makers; also for joiners' tools, and to make various articles which are dyed black in imitation of ebony. As fuel, the wood of the pear is excellent, producing a vivid and durable flame, accompanied by intense heat. It also makes excellent charcoal. The leaves, according to Withering, afford a yellow dye, and may be used to give a green to blue cloths. The great use of the pear tree, however, is as a fruit tree. The fruit is used in the dessert, and for stewing and preserving. It is also occasionally used in tarts, though very inferior for this purpose to apples. In France and Belgium, the fruit is very generally dried in ovens, in which state it forms an article of commerce both domestic and foreign, and will keep a year. It is also dried in this manner in Russia; and, when stewed, is excellent, either as a substitute for pies and puddings, or as forming part of the dessert. It is essential that the soil should be dry; and, where the tree is intended to grow large and be productive, it ought to be deep and good. There are few trees better adapted for being grown in hedgerows than the fastigiate-growing varieties of pear, because their roots descend perpendicularly, and can, therefore, never interfere with the plough; and the heads, whether fastigiate or spreading, it is known from experience, do very little injury to pasture. If, therefore, fastigiate-growing trees, producing excellent sorts of fruit, were planted in all hedges, a very great benefit would result to the proprietors and to the public. The wild pear is continued by seed; and the varieties cultivated for their fruit are budded or grafted on stocks of different kinds. For the poorer soils, and exposed situations, stocks of the wild pear of the given locality must, doubtless, be the best, because they must be the hardiest; but it is found from experience, and it is consistent with physiological principles, that, on good soils, or where the pear is to be cultivated entirely as a fruit tree, both the tree and the fruit will grow larger when the stock is a seedling pear of some vigorous-growing variety. When dwarf trees are required, the pear is grafted on the quince, the meallar, or the thorn; or on the mountain ash, or some other species of Sorbus. It grows remarkably well on the common hawthorn; though, unless the graft be made under ground, it does not form a very safe and durable tree; because, as the scion increases faster in diameter than the stock, it is liable to be blown off. When the graft, however, is made close to the surface of the ground, or immediately under the surface, the root swells in nearly the same proportion as the scion, and there is no danger of the tree being blown down, or of its not being sufficiently long-lived.
† 2. *P. (c.) salvifolia* Dec. The Sage-leaved, Aurelian, or Orleans, Pear Tree.


**Synonyme.** Polrier Sanger D’Ourch. in Bibl. Phys. Econ. Mai 1817 p. 299.

**Engravings.** Bot. Reg., 1482.; and our fig. 763.

**Spec. Char., &c.** Branches thick. Buds tomentose. Leaves lanceolate, entire, tomentose all over when young; when adult, glabrous on the upper surface. Fruit thick, long, fit for making perry. Wild and cultivated about Orleans, in France. *(Dec. Prod.)* Introduced by the London Horticultural Society, in 1826; and, in our opinion, only a variety of the common wild pear.

† 3. *P. (c.) nivalis* Lin. fil. The snowy-leaved Pear Tree.


**Engravings.** Jacq Fl. Austr., t. 107.; and our fig. 764.

**Spec. Char., &c.** Leaves oval, entire, obtuse, white and silky beneath. Corymbs terminal. Fruit globose, very acid, except when ripe and beginning to decay, when it becomes very sweet. *(Dec. Prod.)* A native of the Alps of Austria, where it grows to the height of 10 or 12 feet. It was introduced into the Horticultural Society’s Garden in 1826, or before; and is already 15 ft. high, forming a very handsome white-foliaged tree; though, as we think, decidedly only a variety, or race, of the common wild pear.

† 4. *P. (c.) sinaica* Thouin. The Mount Sinai Pear Tree.


ΣΕ3
Spec. Char., &c. Very much branched, and spreading. Buds whitishly pubescent. Leaves ovate-oblong, subacute, very minutely crenated; whitish pubescent beneath, above glabrous and almost shining; falling off late. (Dec. Prod.) A native of Mount Sinai, whence it was brought to the Paris Garden early in the present century, and introduced into England in 1820. It so closely resembles the preceding sort, as hardly to be distinguishable from it; and we have no doubt that seeds of either, if sown to a considerable extent, would produce plants of these and several other kinds.

5. P. (c.) Salicifolia L. The Willow-leaved Pear Tree.


Engravings. Pall. Rm., 3, p. 374. t. N. f. 3.; Fl. Ross., 1, t. 9.; and our fig. 765.

Spec. Char., &c. Buds whitely tomentose. Leaves linear-lanceolate, acute, entire, hoary, particularly upon the under surface. The disk three times as long as the petiole. Flowers upon short pedicels, disposed in corymbs, a few in a corymb. (Dec. Prod.) A native of Siberia, common in the deserts between the rivers Cuma and Terec; and found, also, on Caucasus, and in Persia, generally accompanied by C. oxyacantha and Primus spinosa. It was introduced into England in 1780; and forms a very distinct variety; attaining the height of 20 or 25 feet. There are fine trees of this sort, 20 ft. high, at White Knights.


Engravings. Our fig. 767.

Spec. Char., &c. Spiny. Buds tomentose. Leaves oblong, acute, entire; tomentose all over when young; when adult, glabrous on the upper surface. The disk six times longer than the petiole. Flowers in corymbs. (Dec. Prod.) Wild in rough places in France, in Provence, Dauphiny, and Languedoc; and very closely resembling the preceding sorts. It was introduced in 1810; and the finest plant that we know of it, in the neighbourhood of London, is at Kenwood; where it is 22 ft. high, with a very irregular picturesque head, and many of the side branches sweeping the ground. In May, it is completely covered with white blossoms, and in autumn with small green fruit, which drop off with the first severe frost.

7. P. sine'nsis Lindl. The Chinese Pear Tree.


China and Cochin China. Height 15 ft. to 20 ft. Introduced in 1820.
Flowers white, slightly tinted with pink. Fruit large, edible, yellowish green when ripe; rarely seen in England.

Differs from the common pear in having longer and greener branches, and larger, more lucid, and almost evergreen leaves; insipid, roundish, warted, very gritty fruit; and a calyx, the inside of which is destitute of the down that is found on all the varieties of the European pear. The fruit is perfectly hardy, and it is ornamental; but it is worthless as a fruit tree. It vegetates very early in spring; when it is easily recognised by the deep rich brown of its young leaves and shoots.

768. P. sinensis.

769. P. bollwylleriana.

The Bollwyller Pear Tree.
In the open air, in mild winters, this species is sub-evergreen; and, against a wall, in the Horticultural Society's Garden, it is completely so. It forms a very handsome tree, but is rather tender, having been killed to within a few feet of the ground, in several places in the neighbourhood of London, by the winter
of 1837–8. It has ripened fruit in the Fulham Nursery, which is brown when ripe, and which, according to Dr. Royle, is not eatable until it is somewhat decayed. The veins of the leaves, and the entire plant, are tinged with reddish brown. The young seedlings of this species, and also the root shoots from plants cut down, have the leaves cut like a Crataægus or Sōrbus.

† 10. P. Michau'xii Bosc. Michaux’s Pear Tree.


There are plants of this species in the Hort. Soc. Garden, and in some of the London nurseries; but they are too small to enable us to form any judgement as to the kind of tree which they will ultimately form.

† 11. P. Indica Colebr. The Indian Pear Tree.


Spec. Char., &c. Leaves ovate, or ovate-cordate, acute, serrulatet, glabrous, white beneath, as well as the petioles and calyxes; in the young plants lobed. Claws of the petals shorter than the calyx. Umbels sessile, few-flowered. Styles villous at the base. (Don’s Mill.) A deciduous tree. Bengal, on the mountains of Sylhet. Height 15 ft. to 20 ft. Introd.? Flowers white; May. Fruit about the size of a wild pear; ripe in October.

§ ii. Málus.

Sect. Char. Petals spreading, flat. Styles 5, more or less strictly connate at the base. Pome mostly globose, depressed, and invariably having a concavity at its base. Flowers in corymbs. Leaves simple, not glanded. (Dec. Prod.) This section includes all the apples and crabs.

† 12. P. Málus L. The common, or wild, Apple Tree.


Cultivated in gardens, it is wholly, or conjointly with other species or races, the parent of innumerable varieties, termed,
generally, in England, cultivated apple trees; and in France, pommiers doux, or pommiers à couteau. We adopt the specific name Malus, to indicate what may be called the normal form, for the sake of convenience, though many of the cultivated varieties are derived not only from the wild apple, or crab, of Europe, but from the crabs of Siberia. We shall designate these crabs as varieties of *Malus*, and afterwards make a selection from the cultivated sorts, of such as we think suitable for being planted for their timber, or as ornamental trees.

 spécifique

**13. P. (M.) acé'riba Dec. The sour-fruited Apple Tree, or common Crab.**


**Spec. Char., &c.** Leaves ovate, acute, crenated, glabrous even when young. Flowers in corymbs. Tube of the calyx glabrous. (Dec. Prod.) A native of woods and waysides in Europe. This form, according to DeCandolle, yields many sub-varieties with sour fruit, called, in Britain, cider apples; and in France, generally, pommiers à cidre.

**14. P. (M.) prunifo'lia W. The Plum-tree-leaved Apple Tree, or Siberian Crab.**


*Engravings.* Mill. 1c., t. 299.; and our fig. 775.

**Spec. Char., &c.** Leaves ovate, acuminated, serrated, glabrous. Peduncles pubescent. Tube of calyx glabrous. Styles woolly at
the base; and, as appears from Mill. Ic., t. 269., with the styles twice as long as the stamens, and the fruit subglobose, yellowish, and austere. (Dec. Prod.) A native of Siberia; introduced in 1758.

According to Mr. Knight, some of the finest varieties raised by him are from cultivated apples fecundated with the blossoms of this tree. The progeny, he found, formed more hardy trees than any other kinds, and produced earlier and more highly flavoured fruit.

**† 15. P. (M.) baccata L. The berry-like-fruited Apple Tree, or Siberian Crab.**


*Don's Mill., 2, p. 646.*


Spec. Char., &c. Disks of leaves ovate, acute, equally serrated, glabrous, the length of the petiole. Flowers grouped. Sepals deciduous. (Dec. Prod.) A native of Siberia and Dahuria, and only differing from the preceding sort, of which it is, doubtless, a subvariety, in not having a persistent calyx.

**† 16. P. (M.) dioica W. The dioecious-sexed Apple Tree.**


*Synonyms.* P. apetala Müll. Haur. 5., p. 247., on the authority of Willdenow; Malus dioica Aud. Cat.

*Engraving.* Our fig. 2088 in p. 1106.


**† 17. P. (M.) astracânica Dec. The Astrachan Apple Tree.**


*Synonyms.* Malus astracanica Dum. Cours. ed. 2, 5, p. 456.; Transparent de Moscovie; Glace de Zélande; the transparent Crab of English nurseries.

*Engraving.* Our fig. 2089 in p. 1106.

Spec. Char., &c. Leaves oval-oblong, acute, partially doubly serrated; pale
beneath, and the nerves there villose; above glabrous, except being slightly downy on the midrib. A native of the country around Astrachan, on the testimony of gardeners. (Dec. Prod.) A very ornamental tree, from the beauty of its fruit, which it produces freely, and which is also good to eat.

Varieties of P. Malus cultivated for their Fruit. From the above forms, we think it may safely be presumed, that all the apples cultivated for the dessert or the kitchen have been obtained, either by selection from seedlings, or by cross-fecundation; and that no other wild sort has been used, unless, perhaps, we except Pyrus coronaria; which, however, we have never heard of as being employed in cross-fecundation. These garden, or cultivated, varieties, as will hereafter appear, are very numerous; but the following selection of sorts, which are handsome-growing trees, or have fruit of a particular character, has been made for us by Mr. Thompson, of the Horticultural Society's Garden, from the collection under his care:—

The Red Astrachan. The tree is middle-sized, with a branchy head; the fruit is of a bright red, with a fine bloom like that of a plum. This is one form of the sort which DeCandolle has designated as P. astracânica; our No. 19.

The White Astrachan, or transparent Crab of Moscow. The tree resembles the preceding sort, but has the branches tending upwards when young, and afterwards becoming pendulous. The fruit is of a wax colour, with a fine bloom on it, and is almost transparent. This is another form of P. (M.) astracânica. It is known in English nurseries under the name of the transparent crab.

The Black Crab is a tree of the middle size, with very dark small fruit of no value as such.

The Court pendu plat is a remarkably dwarf-growing tree, and so late in flowering, that the leaves are expanded before, or at the same time as, the flowers; and, consequently, the latter are seldom, if ever, injured by frost: for which reason, it is commonly called by gardeners the wise apple. Grafted on the French paradise stock, the tree may be kept of a size not larger than that of a gooseberry bush; in which state it will bear fruit in abundance and of good flavour.

The Lincolnshire Holland Pippin is remarkable for the large size of its blossoms. Its fruit keeps till February.

The Tulip Apple is a great bearer of fruit which is of a very bright red.

The Violet Apple has fruit of a violet colour, covered with a bloom like that of the plum.

The Cherry Crab, or Cherry Apple, is a subvariety of P. (M.) baccata. The tree is spreading, with drooping branches; and the fruit is numerous, and about the size and colour of a large cherry.

The Supreme Crab has fruit rather larger than the preceding sort. The tree is of robust growth, and the branches are somewhat erect.

Bigg's Everlasting Crab was raised in the Cambridge Botanic Garden, by Mr. Biggs, the curator, from seeds received from Siberia in 1814. It is a vigorous-growing tree, with pendulous branches and abundance of fruit, which, in form and character, are intermediate between P. (M.) prunifolia and P. (M.) baccata, and which remain on the trees long after Christmas. In sheltered situations, and mild winters, this tree appears almost a subevergreen.

The apple tree, whether in a wild state or cultivated, is by no means so handsome in form as the pear tree, though its blossoms are much more ornamental, and are, besides, fragrant. It seldom grows above half the height of the pear tree; the oldest apple trees known in Europe not being above 30 or 35 feet in height. The trunk is generally crooked, and the branches rambling horizontally when young, and when old becoming pendulous. The diameter of the head is also often greater than the height of the tree. The apple tree is much more liable to the canker, and other diseases, than the pear tree. The wood of the apple tree, in a wild state, is fine-grained, hard, and of a brownish
colour; and that of the cultivated apple tree is said to be of a still finer and closer grain, which is a result of cultivation contrary to what is usual. The weight of the wood of the apple tree varies much according to the locality in which it is grown. In a green state, it weighs from 48 lb. to 66 lb. per cubic foot; and it loses from an eighth to a twelfth of its bulk in drying, and about a tenth of its weight. The wood of the cultivated tree weighs heavier than that of the wild tree, in the proportion of about 66 to 45. The tree, as an object in landscape scenery, cannot be recommended as harmonising well with other forms; but, as it has a character of its own, and as the fruit is of the greatest use to the poor, as well as to the rich, it deserves introduction into every hedgerow and every orchard. For hedgerows, it is more especially desirable, as, though not so fastigiate as the pear, it does very little injury to the crops by its shade; and it may be added, that, in nurseries and market-gardens, the former more especially, young trees of almost every kind thrive under the shade both of the apple and the pear. The crab is used as a stock for the cultivated apple, and for all the other species and varieties of this division of the genus; but, as we have before observed, it will not serve as a stock for the pear, or any of the plants included in that or the other divisions of *Pyrus*. In France, and also in some parts of Germany, the thorny wild apple, or crab, is formed into live hedges, the branches of which, according to Agricola, are inarched in each other, in order to give them more strength to resist cattle. The fruit of the crab, in the forests of France, is a great resource for the wild boar; and it is also given in that country to swine and cows. A drink of it, called boisson, is made in some parts of France, as well as in England; and verjuice is a well-known description of vinegar produced from the most austere of the fruit. The bark affords a yellow dye; and the leaves are eaten by horses, cows, sheep, and goats. Pomatum, according to Gerard, was so called from its being anciently made of the pulp of apples beaten up with "swine's grease" (lard) and rose-water. The uses of the apple as an edible fruit are very numerous, and well known. The apple, as a fruit tree, will do no good, except in a fertile soil and a sheltered situation. All the best apple orchards of England, and more especially those of the cider districts, it has been observed by geologists, follow the tract of red sandstone, which stretches across the island from Dorsetshire to Yorkshire. It has been observed in Ireland (see *Dublin Soc. Trans.*), that the best orchards there are on limestone gravel; and, in Scotland, that the few orchards which are to be found in that country are on soils more or less calcareous. On the Continent, the two districts most famous for apple trees are Normandy and the Vale of Stuttgard; and the subsoil, in both countries, is well known to be limestone. In short, every kind of fruit, to be brought to perfection, requires a soil more or less calcareous.

The propagation and culture of the apple are the same as those of the pear tree. Wild crabs, like wild pears, are gathered when they are fully ripe, and either laid in a heap to rot, or passed between fluted rollers, and the crushed fruit pressed for the juice, which is made into an inferior kind of cider or perry, and the seeds are afterwards separated from the pomace by maceration in water and sitting. The apple, like the pear, may be grafted on the common thorn; but it does not form nearly so desirable a tree on that stock as the pear does, and therefore crab stocks are always to be preferred. As a fruit tree, where it is intended to be grown as a dwarf, the paradise stock effects for it what the quince does for the pear, and the *Cerasus Mahaleb* for the cherry. (See *Encyc. of Gard.*, edit. 1835.)

**218. *P. corona'ria L.* The garland-flowering Apple Tree.


**Synonyms.** *Malus coronaria Mill.*; Crab Apple, the sweet-scented Crab. *Amer.*


**Spec. Char., &c.** Leaves broadly ovate, rounded at the base, subangulate, serrated, smooth. Peduncles in corymb, glabrous. Flowers odorous,
white, becoming purple before they drop off. The fruit is flatly orbiculate, of a deep green when it falls from the tree, and becoming yellow after lying some time on the ground. *(Dec. Prod.)* A deciduous or sub-evergreen tree. North America, from Pennsylvania to Carolina, and more especially abundant in the back parts of Pennsylvania and Virginia. Height 15 ft. to 18 ft., with a trunk 5 or 6 inches in diameter; sometimes 25 ft. high. Introduced in 1724. Flowers white, tinged with pink, violet-scented; May. Fruit green, in no state fit to eat; ripe in October. Decaying leaves green, violet-scented, dropping off by the first severe frost; but in mild winters remaining on till spring.

In British gardens, the leaves and the fruit are retained much longer on the tree than is the case with the European crab; so much so, that in very mild seasons, and sheltered situations, it might be almost considered sub-evergreen. The deep green and flat round form of the fruit, and the lobed and veined character of the leaves, render this sort of *Malus* easily distinguished from every other; and this distinctiveness of character, and the fragrance of the blossoms, together with the lateness of their appearance (which is in the end of May), render it a most desirable tree in every shrubbery, however small.

† † 19. *P. (c.) Angustifolia* Ait. *The narrow-leaved Apple Tree.*


Differs from the preceding sort in having the leaves narrower and the fruit much smaller, in being more decidedly sub-evergreen, and in having
lead-coloured speckled branches. Notwithstanding all these points of difference, however, it bears such a general resemblance to *P. coronaria*, that we cannot doubt its being only a variety of it. The fruit is intensely acid, like that of *P. coronaria*; but it is much narrower and smaller.

\[20. P. spectabilis Ait. The showy-flowering wild Apple Tree, or Chinese Crab Tree.\]


*Spec. Char., &c.* Leaves oval-oblong, serrated, smooth. Flowers in sessile umbels, many in an umbel; large, and very elegant; at first of an intense rose-colour, but afterwards of a pale one. Tube of calyx smooth. Petals ovate, clawed. Styles woolly at the base. (*Dec. Prod.*) A deciduous tree, thickly crowded with upright branches, which at length become spreading. China. Height 20 ft. to 30 ft. Introduced in 1780. Flowers pink, large, showy; April and May. Fruit greenish yellow, and unfit to eat till it is in a state of incipient decay.

This is by far the most showy of all the different species of *Pyrus*, both of this and of the other sections. The flowers are semidouble, and of a pale rose-colour; but before they are expanded, the flower buds, which are large, appear of a deep red. In this state the tree is extremely beautiful. The stamens and pistils are much more numerous than in the other species; the former sometimes exceeding 40, and the latter 20. The fruit is small, irregularly round, angular, and about the size of a cherry; it is of a yellow colour when ripe, but is without flavour, and is only fit to eat when in a state of incipient decay; at which period it takes the colour and taste of the medlar. No garden, whether large or small, ought to be without this tree.
Species of which there are only very young Plants in British Gardens.

P. Sieversii Led. Fl. Alt. 2. p. 222., Don’s Mill. 2. p. 647.; P. nov. sp. Sievers in Pall. Nord. Beitr. 7. p. 292.; is a bush, with many stems rising from the same root; with ovate leaves, rather tomentose; and umbellate flowers, succeeded by very acid fruit. A native of Siberia.

P. stipulacea Hort.—Plants in the Hort. Soc. Garden, raised from seeds received from the Himalayas.

§ iii. A’ria Dec.

Sect. Char., &c. Pectals spreading, flat. Styles mostly 2—3. Pome globose. Flowers in racemose corymbs; the peduncles branched. Leaves simple, not glanded, whitely tomentose beneath. (Dec. Prod., ii. p. 635.)—Deciduous trees, natives of different parts of Europe, and of Asia; chiefly found on dry, calcareous, or clayey soils, and varying much under cultivation. The species and varieties are in a state of great confusion.


Synonymes. Cratægus A’ria var. a Linn. Sp. 681.; Mespilus A’ria Scop.; Sorbus A’ria Crantz Austr. 1. t. 2. t. 2.; Bard. Hist. 1. p. 65.; A’ria Theophrasti L’Obel; white wild Pear, white Leaf Tree, red Chess-Apple, Sea Oler, Cumberland Hawthorn, Gerard; Alisier Allouchier, or Allouchier, Alisier blanc, Fr.; Mühleibaum, or Mühleibaum, Ger.; Aria, or Sorba montana, Ital.; Mostaco Span.; Axelbeer, Dan.; Oxlibeere, Sperr.

Derivation. A’ria, the name given to this tree by Theophrastus, is probably from the name of the country in Asia. The White Beam Tree is a pleonasm, beam being the Saxon word for tree. The word Allouchier is from allouchion, the cog of a wheel, the wood of the tree being much used for that purpose in France. Mühleibaum is literally the meal tree, from the meal appearance of the under side of the leaves.


Spec. Char., &c. Leaves ovate, doubly serrated, tomentose beneath, with appressed white tomentum. Corymbs flat. (Dec. Prod.) A deciduous tre...
XXVI. ROSACEÆ: PYRUS.

Varieties.


P. A. 2 acutifolia Dec. Prod. i. c. Crataegus longifolia N. Du Ham. 4. t. 34.; Pyrus alpina Willd. Enum. 527.—The leaves are ovate-oblong and acute.

P. A. 3 undulata Lindl. Hort. Trans. vii. p. 254., and the plate in Arb. Brit. 1st edit. vol. vi., and our fig. 780., has the leaves flat, oval-

lanceolate, broad, undulated, unequally and deeply serrated, acuminated, and cobwebbed above.

P. A. 4 angustifolia Lindl. l. c., P. A. longifolia Hort., has the leaves oval, obtuse, concave, somewhat simply serrated, woolly above.

P. A. 5 rugosa Lindl. l. c.—Leaves large, ovate-elliptic, doubly serrated, shining above and wrinkled, white beneath.

P. A. 6 crónica Lindl. l. c. P. A. rotundifolia Hort.; P. grae'ea Hort.; P. A. edulis Hort.; Crataegus grae'ea Hort.—Leaves flat, orbiculary elliptic, crenately serrated, retuse, cuneated at the base; smooth above, and hoary beneath. Branches cobwebbed.

P. A. 7 bulata Lindl. Hort. Trans. vii. p. 234., P. A. acuminata Hort., has the leaves concave, elliptic, acuminated, blistered; closely serrated at the apex, but entire at the base.

The rate of growth, when the tree is young and in a good soil, is from 18 in. 2 ft. a year; after it has attained the height of 15 or 20 feet it grows much slower; and, at the age of twenty or thirty years, it grows very slowly; but a tree of great duration. The roots descend very deep, and spread very wide; and the head of the tree is less affected by prevailing winds than almost any other. In the most exposed situations, on the Highland mountains, this tree is seldom seen above 10 or 15 feet high; but it is always stiff and erect.
In Britain it is later in coming into leaf than any other indigenous tree, except the ash. It bears lopping, and permits the grass to grow under it.

The wood is very hard, of a fine close grain, yellowish white, and susceptible of a high polish. In a green state, it has a strong smell, which it retains, in a slight degree, even after it is dried. It weighs, in that state, 55 lb. 6 oz. per cubic foot. It may be stained of any colour, and is much used in the smaller manufactures, such as making handles to knives and forks, wooden spoons, &c.; and for musical instruments, and various turnery articles. It was universally employed as cogs for wheels till cast iron became generally substituted for it. The leaves are eaten both by goats and sheep. The fruit is acid and astringent; but it is not disagreeable to eat, when it is in a state of incipient decay. Dried, and reduced to powder, it has been formed into a sort of bread, which has been eaten, both in France and Sweden, in years of great scarcity. Fermented, the fruit affords a beer; or, by distillation, a powerful spirit. It is greedily eaten by small birds; on which account the trees are ordered to be preserved in the French forests, that the number of birds may be increased, in order to keep down the insects. The fruit is also the food of squirrels; and, when it drops, of the wild boar, the deer, the hedgehog, &c.

As an ornamental tree, the white beam has some valuable properties. It is of a moderate size, and of a definite shape; and in summer, when clothed with leaves, it forms a compact green mass, till it is ruffled by the wind, when it suddenly assumes a mealy whiteness. In the winter season, the tree is attractive from its smooth branches, and its large green buds. When the tree is covered with its fruit, it is exceedingly ornamental. Among the different varieties enumerated, _P. A. crétique_ is by far the most distinct: but all of them are well deserving of cultivation.

A calcareous and dry soil is essential; and the tree will not attain a timber size unless it is placed in an airy situation. The situation may be exposed to the highest and coldest winds that prevail in this country, and yet the tree will never fail to grow erect, and produce a regular head; and, for this reason, no tree is better adapted for sheltering houses and gardens in very exposed situations.

The species may be raised from seed, and the varieties be grafted on stocks of the species of the pear, of _Crataegus_, and even of the quince and medlar; which trees, it is almost unnecessary to add, may be reciprocally grafted on the white beam tree. When plants are to be raised from seed, the seed should be sown as soon as the fruit is ripe; otherwise, if kept till spring, and then sown, they will not come up till the spring following. When it is inconvenient to sow them immediately after they are gathered, they may be mixed with soil, and treated like haws (see _Pyrus aucuparia_); and, if sown in the March following, they will come up the same season. The varieties may be propagated by cuttings, or by layering; but they root by both modes, with great difficulty. Layers require to be made of the young wood, and to remain attached to the stool for two years.


**Spec. Char., &c.** Leaves ovate, incisely lobed, tormentose beneath, with white appressed tomentum. Corymbs flat. Fruit edible. (Dec. Prod.) A deciduous tree. Europe, in France, Germany, and Sweden, and also in Wales and Scotland. Height 15 ft. to 20 ft. Flowers and fruit as in the preceding kind.

**Varieties.** De Candolle has described the two following forms of this species:

XXVI. ROSACEÆ: PYRUS.


These trees bear so close a resemblance to P. A'ria, as to leave no doubt in our mind that they are only varieties and subvarieties of that species. They are found in a wild state in France, Germany, and Sweden; and perhaps also in the Highlands of Scotland, where, according to Sir W. J. Hooker, P. A'ria varies in having the leaves more or less cut at the margin. They are all well deserving of culture.

† 23. P. vestita Wall. The cloathed White Beam Tree.


Spec. Char., &c. Leaves, cymes, and young branches, clothed with white tomentum. Leaves elliptic, or obovate-elliptic, acuminated, serrated towards the apex. Corymbbs branched and terminal. Flowers white. Fruit greenish brown. (Don's Mill.) A deciduous tree of the middle size. Nepal and Kamaon, at elevations of from 9,000 to 12,000 ft. Height 20 ft. to 30 ft. Introduced in 1820. Flowers white; May and June. Fruit brown; ripe in October. Decaying leaves of a beautiful straw-coloured yellow or brown.

† P. (A.) intermedia angustifolia.
This tree is remarkable for the rapidity of its growth, its long broad leaves, and their woolly whiteness; and also for being one of the very latest trees, whether foreign or indigenous, in coming into leaf; being later than either the mulberry or ash. The leaves are conspicuous, on their first expansion, for their whiteness, particularly underneath; and in autumn, before they drop off, for their fine yellow colour.

§ iv. **Torminaria Dec.**

*Sect. Char., &c.* Petals spreading, flat, having short claws. Styles 2—5, connected, glabrous. Pome scarcely at all juicy, top-shaped at the base, truncate at the tip; the sepals deciduous. Leaves angled with lobes; in the adult state glabrous. Flowers in corymb. The peduncles branched. (Dec. Prodr., ii. p. 636.)—Trees of the same general character, in regard to habit and constitution, as **P. Aria**.

† 24. **P. Torminalis** Ehrh. The gripping-fruited Service Tree.


*Spec. Char., &c.* Leaves cordate-ovate, feather-nerved, pinnatifidly lobed; when young, slightly downy beneath; when adult, glabrous; the lobes acuminate and serrated, the lowest divaricate. Seeds cartilaginous. (Dec. Prodr.)

A deciduous tree. Britain in woods, and throughout the Middle and North of Europe, and Western Asia. Height 40 ft. to 50 ft. Flowers white; May and June. Fruit red; ripe in November. Decaying leaves yellowish brown. Naked young wood purplish, marked with white spots.

The leaves, which are on long footstalks, are cut into many acute angles, like those of some species of maple. They are nearly 4 in. long, and 3 in. broad in the middle, bright green above, and slightly woolly underneath. The flowers are produced in large bunches at the end of the branches; and they are succeeded by roundish compressed fruit, not unlike common haws, but larger, and of a brown colour when ripe. The tree is of slow growth, and in this respect, and most others, it resembles **P. Aria**; but it is less hardy. The wood resembles that of **P. Aria**, but is without its peculiarly strong smell. It weighs, when newly cut, 65 lb. to the cubic foot, and when
dried, 48 lb. 8 oz. It is employed for all the different purposes to which that of *P. A'ria* is applicable, and is considered rather preferable as fuel, and for charcoal. The fruit is brought to market both in England and France; and, when in a state of incipient decay, it eats somewhat like that of a medlar. As an ornamental tree, its large green buds strongly recommend it in the winter time, as its fine large-lobed leaves do in the summer, and its large and numerous clusters of rich brown fruit do in autumn. It will grow in a soil not poorer, but more tenacious and moist, than what is suitable for *P. A'ria*; and it requires a sheltered situation. It seems more liable to the attacks of insects than that species, and does not thrive so well in the neighbourhood of London. It is propagated exactly in the same manner as *P. A'ria*. There being no varieties, it does not require to be continued by grafting.

**25. *P. rivula'ris* Doug.** The River-side Wild Service Tree.

*Synonyme.* P. rivularis. Hook. It is the name of the fruit in the language of the Chenook tribe of Indians.  
*Engravings.* Hook. Fl. Bor. Amer., t. 68.; and our figs. 786. and 787.


The fruit is used as an article of food, and the wood is employed for making wedges, and is so hard as to be susceptible of a fine polish. Horticultural Society's Garden.

**§ v. *Eriolobus* Dec.**

*Sect. Char.* Petals spreading, flat, with short claws, and with about 3 teeth at the tip. Styles 5, long; at the base very hairy, and somewhat connected. Pome globose, glabrous, crowned with the lobes of the calyx, which are tomentose upon both surfaces. Leaves palmately lobed, glabrous. Flowers upon unbranched pedicels, disposed in corymbs. *(Dec. Prod., ii. p. 636.)*

**26. *P. trilobata* Dec.** The three-lobed-leaved Pear Tree.

*Engravings.* Labill. Dec., 4. t. 10.; and our fig. 789.

*Spec. Char., &c.* Leaves glabrous, palmately

---

437
lobed; the middle lobe 3-lobed; the side lobes, in many instances, 2-lobed; the secondary lobes serrated. (Dec. Prod.) A deciduous tree. A native of Mount Lebanon; growing to the height of 20 ft.; said to have been introduced in 1810; but of which we have not seen a plant.

§ vi. Sorbus Dec.


§ 27. P. Auriculata Dec. The auricled Service Tree.


Spec. Char., &c. Leaves of 3 pairs of leaflets, and an odd one, hirsute beneath; 2—4 of the lowest leaflets distinct, the rest connate with the odd one into an ovate one, which is crenate. Corymb compact. (Dec. Prod.) A deciduous tree. Egypt. Height 20 ft. to 30 ft. Introduced in 1800. Flowers white; May. Fruit ?.

We have not seen this plant, which is, perhaps, only a variety of P. pinnatifida.


Synonyms. Sorbus hybrida Lin. Dec. 6; Pyrus hybrida Smith Fl. Brit., not of Willd.; the Bastard Service Tree.

Spec. Char., &c. Leaves pinnately cloven, or cut, or almost pinnate at the base. The petiole on the under side, and the peduncles, hoarily tomentose. Pome globose, scarlet. (Dec. Prod.) A deciduous tree. Gotland, Terra vigna, and Britain, on mountainous woody places. Height 20 ft. to 30 ft. Flowers white; May and June. Fruit red; ripe in September.

Varieties.

P. p. 2 lanuginosa has the leaves more woolly than those of the spec.
P. p. 3 pêndula, Sôrbus hêbrîda pêndula Lodd. Cat., has the head loose, and the branches somewhat pendulous; the fruit red. H. S.


P. pinnafruita, according to DeCandolle, is a hybrid between P. intermédia and P. aucupária. Culture as in P. Aria.


Derivation. The Latin name, P. aucupária (the Fowler's Pyrus); the French names, Sorbier des Oiseleurs (the Bird-catcher's Service), and Sorbier des Oiseaux (the Bird Service); and the German name, Vogel Beerbaum (the Bird's Berry Tree); are all derived from the use made of the berries by bird-catchers, in all countries where the tree grows wild, and from time immemorial, to bait springes with. It is called the Mountain Ash, from its growing on mountains, and the pinna of its leaves bearing some resemblance to those of the common ash. Witchen, and all its derivatives, bear relation to supposed powers of the tree, as a protection against witches and evil spirits.


790. P. aucupária.


Varieties.

P. a. 2 fructu luteo has yellow berries, and is continued by grafting.

P. a. 3 fóliis variegátis has variegated leaves.

P. a. 4 fastigiâta has the branches upright and rigid. Horticultural Society's Garden.

The mountain ash forms an erect-stemmed tree, with an orbicular head. When fully grown, like every other description of Pyrus, it assumes a somewhat formal character; but in a young state, its branches are disposed in a more loose and graceful manner. The tree grows rapidly for the first three or four years; attaining, in five years, the height of 8 or 9 feet; after which it
begins to form a head, and in ten years will attain the height of 20 ft. This head will continue increasing slowly, though the tree seldom grows much higher, for the greater part of a century; after which, as it appears by the oldest trees that we have observed or heard of in Scotland, the extremities of the branches begin to decay. The tree will not bear lopping, but grass and other plants grow well under its shade. The wood, when dry, weighs 51 lb. 12 oz. per cubic foot. It is homogeneous, fine-grained, hard, capable of being stained any colour, and of taking a high polish; and it is applied to all the various uses of P. Aria and P. terminalis, when it can be obtained of adequate dimensions. In Britain, the tree forms excellent coprice wood, the shoots being well adapted for poles, and for making excellent hoops; and the bark being in demand by tanners. As it will grow in the most exposed situations, and rapidly, when young, it forms an admirable nurse tree to the oak, and other slow-growing species; and, being a tree of absolute habits; that is, incapable of being drawn up above a certain height by culture, it has this great advantage, that, after having done its duty as a nurse, instead of growing up with the other trees, and choking them, it quietly submits to be over-topped, and destroyed by the shade and drip of those which it was planted to shelter and protect. It may be mentioned, as somewhat singular, that the alpine laburnum, though naturally a much lower tree than the mountain ash, will, when drawn up in woods, attain twice the height of the latter tree. The fruit of the mountain ash is greedily devoured by birds: and, in various parts of the North of Europe, these berries are dried and ground into flour, and used as a substitute for the flour made of wheat, in times of great scarcity. In Livonia, Sweden, and Kantschakta, the berries of the mountain ash are eaten, when ripe, as fruit; and a very good spirit is distilled from them. As an ornamental tree, the mountain ash is well adapted for small gardens; and it is also deserving of a place in every plantation, where the harbouring of singing-birds is an object. In the grounds of suburban gardens in the neighbourhood of the metropolis, the mountain ash forms almost the only tree that makes a great display by means of its fruit; for, though many species of Cratagus would be equally effective in this respect, they have not yet become sufficiently well known to the planters of such gardens. One great advantage of the mountain ash, in all gardens, is, that it never requires pruning, and never grows out of shape. The mountain ash will grow in any soil, and in the most exposed situations, as it is found on the sea shore, and on the tops of mountains, in Forfarshire, as high as 2500 ft. Plants are almost always raised from seed, which should be gathered as soon as it is ripe, to prevent its being eaten by birds, which are so fond of it as to attack it even before it is ripe. When gathered, the fruit should be macerated in water till the seeds are separated from the pulp, and they may be then sown immediately; but, as they will, in that case, remain 18 months in the ground before coming up, the common mode adopted by nurserymen is, to mix the berries with light sandy soil, and spread them out in a layer of 10 in. or 1 ft. in thickness, in the rotting ground; covering the layer with 2 or 3 inches of sand or ashes, and allowing them to remain in that state for a year. They are then separated from the soil by sifting, and sown in beds of light rich soil, being covered a quarter of an inch. The plants having large leaves, the seeds should not be dropped nearer together than 2 in., which will allow the plants to come up with sufficient strength. They may be sown any time from November to February, but no later: they will come up in the June following, and, by the end of the year, the strongest plants will be 18 in. high, and fit to separate from the others, and to plant out in nursery lines.


and our fig. 791.

It is, apparently, a more robust-growing tree than the European mountain ash, with larger leaves, shining above, and smooth beneath; but, in reality, it is more tender. Though it has been many years in the country, we do not know of a large, old, handsome specimen of it any where. It is propagated by grafting on the common mountain ash. On account of the brilliant colour of the fruit, and the large size of the bunches in which it is produced, this species well deserves a place in collections.


Engravings. Our fig.289, in p. 1167.


According to Pursh, this species is very distinct from P. americana; from
which it is distinguished by the young branches being covered with a shining dark brown gloss, and by having small scarlet berries.—We have never seen it.

**32. P. Sorbus.** The True Service.


**Spec. Char., &c.** Buds glabrous, glutinous, acuminate. Leaflets serrated, villose beneath, but becoming naked when old. Pome obovate, pear-shaped. (Dec. Prod.) A tree of the middle size. Europe, chiefly of the middle region; found also in some parts of Barbary, particularly in the neighbourhood of Algiers; and by some considered a native of Britain. Height 30 ft. to 60 ft. Flowers white; May. Fruit brown; October. Decaying leaves yellowish brown. Naked young wood grey, like that of the common mountain ash.

*Varieites.* In Du Hamel and the Dictionnaire des Eaux et Forêts, eight varieties of the true service are described; but in British gardens only the two following sorts are cultivated:—

† P. S. 2 *maliformis* Lodd. Cat., la Corme-Pomme, Fr., has apple-shaped fruit. Of this variety there are trees which bear abundantly in the Horticultural Society’s Garden, and in the Hackney Arboretum.

† P. S. 3 *pyriformis* Lodd. Cat., la Corme-Poire, Fr., has pear-shaped fruit; and of this, also, there are fruit-bearing trees in the places above referred to.

A tree, in foliage and general appearance, closely resembling the mountain ash; but attaining a larger size, and bearing much larger fruit, of a greenish-brown colour when ripe. In France this tree attains the height of 50 or 60 feet; it requires two centuries before it reaches its full size; and lives to so great an age, that some specimens of it are believed to be upwards of 100 years old. It grows with an erect trunk, which terminates in a large pyramidal head. This tree is readily known from the mountain ash, in winter, b
its buds, which are smooth and green, instead of being downy and black; in:
the beginning of summer, by its leaflets being broader, downy above, and also
beneath; and, in autumn, by its pear or apple shaped fruit, which is four or
five times the size of that of P. aucuparia, and of a dull greenish brown
colour. It is said to be 30 years before it comes into a bearing state when it
is raised from the seed; but, when scions from fruit-bearing trees are grafted on
seedlings, or on the mountain ash, they come into bearing in a few years
as in the case of other fruit trees. (See Gard. Mag., iv. p. 487.) The wood
of the true service is the hardest and the heaviest of all the indigenous woods,
of Europe. It weighs, when dry, no less than 72 lb. 2 oz. per cubic foot.
It has a compact fine grain, a reddish tinge, and takes a very high polish; but
it must not be employed until it is thoroughly seasoned, as otherwise it is apt to
twist and split. It is much sought after in France, by millwrights, for making
cogs to wheels, rollers, cylinders, blocks and pulleys, spindles and axles; and
for all those parts of machines which are subject to much friction, and re-
quire great strength and durability. In France, it is preferred to all other
kinds of wood for making the screws to wine-presses. In France, the fruit,
when beginning to decay, is brought to table; though it is not highly prized,
and is more frequently eaten by the poor than the rich. In Britain, the tree
is chiefly to be recommended as one of ornament and rarity. A good, free,
deep, dry soil, and a sheltered situation, are essential, wherever it is at-
tempted to grow this tree in Britain. From the specimens in the neighbour-
hood of London, it does not appear to suffer from the climate, after it has
been five or six years planted; but it is rather difficult to establish young
plants. Seeds may be procured in abundance from France; and from them
stocks may be raised on which the best fruit-bearing varieties may be grafted.
The true service may also be grafted on the pear, the mountain ash, the haw-
thorn, and other allied species. The graft should be made close to the
ground, or even under it, on the root; and care should be taken to retard
the scion previously to grafting it, in order that the stock may be somewhat
in advance of it. On the whole, the operation requires to be performed with
the greatest care; because this is one of the most difficult of all non-resinous
trees to graft successfully. The plants at Messrs. Loddiges’s ripen fruit
every year, from the seeds of which numerous young plants have been raised.

† 33. P. Lanuginosa Dec. The woolly-leaved Service Tree.


Synonymes. P. hybrida lanuginosa Hort.; Sörbus lanuginosa Kit. in Litt., and Lodg. Cat.

Engravings. The plate of this species in Arb. Brit., 1st edit., vol. vi.; and our fig. 759. from a tree
in the Horticultural Society’s Garden.

woolly. Pome globose. (Dec. Prod.) A fastigiate tree of the middle
size. A hybrid, when and whence originated is uncertain. Height 20 ft. to
30 ft. Flowers white; May. Fruit small, like that of the mountain ash,
but seldom coming to maturity.

The trees of this species in Loddiges’s arboretum, and in the Horticultural
Society’s Garden, are very distinct from any other sort, and appear to be
hybrids between P. pinnatifida, or perhaps P. Sörbus, and the common moun-
tain ash. The general form of the tree is fastigiate, with numerous parallel,
rigid, upright shoots. The flowers and fruit resemble those of the mountain
ash, but are smaller: the former are frequently abortive; and the latter, when
it is produced, is generally without seeds. It is a robust, hardy, vigorous-
growing tree, which comes early into leaf, and is well deserving of a place in
collections. This species, and all the others belonging to the section Sörbus,
graft readily on the common hawthorn; and, as they make very handsome, small,
round-headed trees, beautiful at every season of the year, common hedges
might be grafted with them at regular distances, and the grafts would grow
up, and become handsome standards.
**T 34. P. spuria Dec.** The spurious Service Tree.


Variety.

\[ P. s. 2 \text{ pëndula} \text{ Hort.}, \text{ Sórbus hýbrída} \text{ pëndula} \text{ Loddd. Cat.}, \text{ P. spùria sambuciñíolía} \text{ Hort. Brit.} \text{ (the plate of this variety in} \text{ Arb. Brit.}, \text{ 1st edit. vol. vi.) has pendulous shoots, and is a very distinct and most interesting kind. There are fine low trees of it in the Horticultural Society’s Garden; and, if grafted 10 or 12 feet high, instead of only 3 or 4 feet, as it is there, it would form one of the most beautiful of pendulous trees. It is prolific in flowers, and dark purple fruit; and the leaves die off of an intensely dark purplish red. Every hawthorn hedge might be adorned with this tree by grafting.}

Both the species and variety are very desirable small trees for their leaves, their flowers, and their fruit; they are readily propagated by grafting on the common thorn or mountain ash, and require the same soil as that species.

\[ P. \text{ foliolo'nsa} \text{ Wall.} \text{ The leafy Mountain Ash.}


Engravings. Wall. Pl. Asiát. Rar., 2. t. 189, and our fig. 759.

Spec. Char., &c. Leaves pinnate, with 7—8 pairs of elliptic-lanceolate, mucronate leaflets, which are serrated at the apex, pubescent beneath. Cymes branched, terminal, pubescent. (Don’s Mill.) A deciduous tree. Nepal, on mountains. Height 15 ft. to 20 ft. Introduced ?. Flowers white; June. Pome small, obovate roundish, red; ripe Nov. This very desirable and probably quite hardy species, we believe, has not yet been introduced, but it doubtless will soon be so.

\[ P. \text{ hiréhnia} \text{ Wall. Cat. p. 675,}

and Don’s Mill. ii. p. 648, is a native of Nepal, with pinnate leaves, and numerous leaflets, crenate beneath; and with red fruit, about the size of that of the common mountain ash.


Pet. Char. Petals spreading, each with a claw, and a concave limb. Styles 2—5. Pome globose. Leaves simple, the midrib bearing glands on its upper surface (which is the character expressed in the sectional name). Flowers in branched corymbs.—Deciduous shrubs, natives of North America; growing to the height of 4 or 5 feet, and prolific in flowers, followed by red, dark purple, or black, fruit. They are all readily propagated by division, by suckers, or by grafting on the common hawthorn.
This section is so unlike the others in habit and general appearance, that it would be much more convenient to have it as a distinct genus; say, Aronia, as it was before that genus was united with Pyrus.


**Engravings.** Schmidt Arb., t. 86.; and our fig. 796.

**Spec. Char., &c.** Leaves obovate, lanceolate, acute, crenate, tomentose beneath, especially when young, the midrib in each glandulous above. Calyx tomentose. Pome dark red or purple. (Dec. Prod.) A deciduous shrub. North America, from Canada to Carolina, in low copses and swamps, common. Height 4 ft. to 6 ft. Introduced in 1700. Flowers white; May. Fruit dark red or black; ripe in September. Decaying leaves intensely dark red, or purplish black.

**Varieties.**

- P. a. 2 *intermedia* Lindl. (Hort. Trans., vii. p. 229; Don’s Mill., ii. p. 649. and our fig. 798.) has the fruit globose and brown.

- P. a. 3 *serotina* Lindl. (Hort. Trans., i. c.; Don’s Mill., i. c.) has the leaves shining above, and velvety beneath; and the fruit late, and party-coloured.

**Spec. Char., &c.** Leaves obovate, lanceolate, acute, crenate, tomentose beneath, especially when young, the midrib in each glandulous above. Calyx tomentose. Pome dark red or purple. (Dec. Prod.) A deciduous shrub. North America, from Canada to Carolina, in low copses and swamps, common. Height 4 ft. to 6 ft. Introduced in 1700. Flowers white; May. Fruit dark red or black; ripe in September. Decaying leaves intensely dark red, or purplish black.

**Varieties.**

- P. a. 2 *intermedia* Lindl. (Hort. Trans., vii. p. 229; Don’s Mill., ii. p. 649. and our fig. 798.) has the fruit globose and brown.

- P. a. 3 *serotina* Lindl. (Hort. Trans., i. c.; Don’s Mill., i. c.) has the leaves shining above, and velvety beneath; and the fruit late, and party-coloured.

796. *P. arbutifolia.*

797. *P. arbutifolia* pumila.

798. *P. arbutifolia* intermedia.
and rooting at the joints. The fruit is intermediate in colour between *P. arbutifolia* and *P. melanocarpa*, being of a reddish black.

A very desirable shrub, frequent in collections, and known in the nurseries under the name of *Mespilus arbutifolia*. It is prolific in flowers, which are produced in May, and which are followed by dark red or purple fruit, which, when not eaten by birds, will remain on the bushes till the following April or May, when the plant is again in flower. This species, whether as a bush, or grafted standard high on the common thorn, is highly ornamental in spring, when it is covered with its profusion of white flowers; in autumn, when its foliage assumes a deep red or purple; and in winter, after the leaves have dropped, when it is still enriched with its persistent fruit. It is propagated by layers, suckers, or seeds; but most frequently by suckers. There was, in 1835, a remarkably fine plant of this species, grafted standard high, in Knight's Exotic Nursery; it had attained the height of 10 or 12 feet; its branches hung down gracefully to the ground, not in one mass, but in varied tufts; and their appearance in autumn, when they were of an intensely purple red, was beyond expression interesting and beautiful.

**37. *P. (a.) melanocarp*a** *W.* The black-fruited Aronia.


*Engravings.* Schmidt Arb., t. 86; Krause, t. 75; and our fig. 800.

*Spec. Char., &c.* Leaves obovate-oblong, acuminate, serrated, glabrous beneath; the midrib glandulous above. Corymbs more crowded than in *P. arbutifolia*. Calyx glabrous. Pome black. (Dec. Prod.) A deciduous shrub. North America, in Canada, in bogs, and on the high mountains of Carolina and Virginia; and judging from the plants in the Horticultural Society's Garden, and in the arboretum of Messrs. Loddiges, nothing more than a variety of *P. arbutifolia*. Height 4 ft. to 5 ft. Cultivated in 1700. Flowers white; May. Fruit large, black, resembling in taste those of *Vaccinium pensylvanicum*; ripe in September.

*Variety.*

**2.***P. (a.) m. 2 subpubescens* Lindl. (Hort. Trans., vii. p. 232; Don's Mill., ii. p. 649.), *P. m. xanthocarpa* Hort., has the leaves, when young, tomentose beneath, but glabrous in the adult state. *P. (a.) melanocarpa* or its variety, grafted standard high on the common hawthorn, forms a truly interesting pendulous, and at the same time picturesque, tree; and we can scarcely sufficiently recommend it for small shrubbery and suburban gardens. As its berries are not so greedily eaten by birds as those of most of the other *Rosaceae*, in mild winters they remain on till the following summer, and mix beautifully with the flowers in June. It grafts readily on the common hawthorn; and it, and all the other species and varieties belonging to the section Adenorrhachis, might be introduced into our common hedges by any countryman who could graft, thus rendering them truly ornamental.

**38. *P. (a.) floribus* Lindl.** The abundant-flowered Aronia.


*Engravings.* Lindl. Bot. Reg., t. 1066; and our fig. 801.
Spec. Char., &c. Branches cinereous, reclinate. Leaves oblong-lanceolate, acute, on long petioles, tomentose beneath, as well as the calyces. Fruit spherical. Corymbs many-flowered, and longer than the leaves. (Don's Mill.) A shrub resembling the preceding species, but with more pendulous branches. Originated in gardens. Height 3 ft. to 4 ft. Cultivated in 1815. Flowers white; May. Fruit black; ripe in September. The leaves die off of a purplish red; and the whole plant, from the time of its leafing till it becomes naked, is highly interesting and ornamental, more especially when grafted standard high.


Engraving. Our fig. 802. from a specimen in Dr. Lindley's herbarium.


It is evidently a variety or modification of the preceding sort; and, from its profusion of flowers and fruit, and the purple hue of its foliage, it is highly ornamental.

= 40. P. (a.) Pubens Lindl. The downy-branch Aronia.


Engraving. Our fig. 803. from a living specimen in the Horticultural Society’s Garden.


This and the following kind have much of the robust foliage and habit of P. Chamæmæspilus, and well deserve a place in collections.

= 41. P. (a.) Grandifolia Lindl. The large-leaved Aronia.


Engravings. Bot. Reg., t. 1154; and our figs. 804. and 815.

Spec. Char., &c. Stem erect, and, as well as the branches, smoothish. Leaves


**42. P. Chamaemespilus** Lindl. The dwarf Medlar.


*Synonymes.* Crataegus Chamaemespilus Jacq. Austr. t. 231.; Mespilus Chamaemespilus Lin. Sp. 685.; Sorbus Chamaemespilus Crantz Austr., 83. l. 1. t. 3.; the bastard Quince; niedriger Mispelbaum, Ger.; Camenespelo, Ital.

*Engravings.* Jacq. Austr., t. 231.; Crantz Austr., 83. l. 1. f. 3.; and our fig. 806.

*Spec. Char., &c.* Leaves ovate, serrated, glabrous; except some on the under surface, when young, down, which is deciduous. (Dec. Prod.) A stiff-branched shrub. Europe, in rough mountainous places. Height 5 ft. to 6 ft. Introduced in 1683. Flowers white, tinted with rose; May and June. Fruit round, orange-coloured, or red; ripe in September.

This species forms a compact bush, and flowers and fruits in the greatest abundance, and hence it merits to be much more extensively introduced into collections than it appears to have hitherto been. It grafts beautifully on the common hawthorn; and, indeed, whoever has a quickset hedge may have a collection of all the species of this genus.

Genus XXI.


Derivation. From its native place, Cydon, in Candia.


Leaves simple, alternate, stipulate, deciduous; serrated or entire. Flowers large, solitary, or few together in a kind of umbel. — Low deciduous trees or shrubs, natives of Europe and Asia; easily propagated by layers or by grafting on the common thorn. Common soil, rather moist than dry.

† 1. C. vulgaris Pers. The common Quince Tree.


Spec. Char., &c. Leaves ovate, obtuse at the base, entire, tomentose beneath; Calyx tomentose; its lobes serrrated, and a little leafy. Stamens in one row. (Dec. Prod.) A low tree. South of Europe, in rocky places and hedges; and by some considered indigenous in Britain. Height 15 ft. to 20 ft. Cultivated in 1573. Flowers white; May and June. Fruit large, of a fine orange yellow; ripe in November.

Varieties.

‡ C. v. 1 pyriformis Hort. — Fruit pear-shaped.

‡ C. v. 2 maliformis Hort. — Fruit apple-shaped.
C. v. 3 lusitánica Du Ham.—Broader leaves, and larger fruit, than the two preceding kinds; and, being of more vigorous growth, it is better adapted for being used as a stock for pears.

The quince is a low tree, with a crooked stem and tortuous rambling branches. It is of moderately rapid growth when young; attaining, in four or five years, the height of 6 or 8 feet; and, in ten or twelve years, the height of 15 feet: after which it continues to increase in width of head only; being very seldom found higher than 15 or 20 feet.

The quince prefers a moist free soil, near water, and a situation open, but sheltered. In dry soil, neither the tree nor the fruit attains any size; and, in situations exposed to high winds, the fruit will not remain on the tree till ripe. Layers.

2. C. sinensis Thouin. The China Quince Tree.


Spec. Char., &c. Leaves ovate, acuminated at both ends, acutely serrated, when young a little villose, and when adult glabrous. Stipules oblong linear, serrated; the teeth glanded. Flowers rosy, becoming red. Calyx glabrous; its lobes serrulated, and a little leafy. Stamens in one row. Fruit egg-shaped, large, hard, almost juiceless, and greenish. Seeds in each cell about 30, with many abortive. (Dec. Prod.) A very handsome low tree, very distinct in appearance from the common quince, from the shining surface of its leaves, and the regular serratures of their margins. China. Height in China 20 ft.; in England 10 ft. to 12 ft. Introduced in 1818. Flowers white or pale red; May and June. Fruit egg-shaped, greenish, hard, and nearly dry; ripe in October.
3. **C. japonica** Pers. The Japan Quince Tree.


*Engravings.* Bot. Mag., t. 692.; Morris Fl. Conspl. t. 1.; our fig. 800. ; and fig. 810. showing the fruit.


Height 5 ft. to 6 ft. Introd. in 1815. Flowers scarlet; produced the greater part of the year. Fruit green, very fragrant, but not eatable; ripe in Oct.

**Varieties.**

- C. *j.* 2 floræ álbo has cream-coloured, or very pale red, flowers, and forms a very distinct kind when in blossom.
- C. *j.* 3 ft. semipleno has red flowers, somewhat semidouble. There are plants of this kind in the Kensington Nursery.

One of the most desirable deciduous shrubs in cultivation, whether as a bush in the open lawn, trained against a wall, or treated as an ornamental hedge plant. It has also been trained up with a single stem as a standard; and, in this character, its pendent branches and numerous flowers, give it a rich and striking appearance, especially in early spring. It is difficult to unite with its congeners by grafting; but, if it could be grafted standard high on the pear, the hawthorn, or even on the common quince, it would form a most delightful little tree. Readily propagated by layers or suckers, and it also grows by cuttings.

---

**Order XXVII. Calycanthaceae.**


Leaves simple, opposite, exstipulate, deciduous; feather-nerved, rough. Flowers axillary.—Deciduous shrubs, natives of Asia and America.

**Calycanthus.** Stamens 12, deciduous.

**Chimonanthus.** Stamens 5, persistent.

---

**Genus I.**

**Calycanthus** Lindl. The Calycanthus, or American Allspice.

Calycanthus sp. Lin., Lam., Willd.; Büttneria Du Ham., Arb., 1, p. 114, not of Lin.;

Derivation. From kalois, a calyx, and anthos, a flower; the calyx is coloured, and resembles a corolla. The name allspice was given to it by the inhabitants of Carolina, from the strong aromatic smell of the bark.

Gen. Char. Lobes of calyx disposed in many series, inbriate, lanceolate, all somewhat coriaceos and coloured. Stamens unequal, deciduous, 12 outer ones fertile. Aechenium numerous. (Don's Mill.)

Leaves simple, alternate, stipulate, deciduous; entire, coriaceous. Flowers axillary, rising after the leaves, of a lurid purple colour, and sweet-scented, as well as the bark and leaves.

Deciduous shrubs, natives of North America; propagated, in England, by layers. DeCandolle states that the removal of the terminal leaf bud of a shoot causes the production of two new flower buds; and that by this practice a succession of flowers, during the whole summer, may be obtained when desirable. (Dec. Prod.)

1. C. flor'ridus L. The flowery Calycanthus, or Carolina Allspice.


A dense orbiculate bush. Carolina, on the shaded banks of rivulets. Height 6 ft. to 8 ft.


Varieties. DeCandolle gives two forms of this species: —

1. C. f. 1 oblongus, leaves oblong (Ait. Hort. Kew., ed. 2., 3, p. 282.); and

The following varieties are in Lodgedig's Catalogue for 1836; and plants of most of them are in their arboretum, and in that of the Horticultural Society: —

1. C. f. 3 asplenifolius has cut leaves.
2. C. f. 4 ferax has fertile flowers.
3. C. f. 5 glaucus has leaves somewhat glaucous.
4. C. f. 6 inodorus has flowers nearly scentless.
5. C. f. 7 longifolius has elongated leaves.
6. C. f. 8 variegatus has variegated leaves.

The flowers grow singly on short peduncles at the extremity of the branches; they have two series of narrow thick sepals, which spread open, and turn inward at the top, like those of the anemone or clematis. It thrives
best in a light, rich, sandy soil, kept rather moist, and in a shady situation. The varieties differ very slightly from each other.

2. **C. (f.) glaucus** Willd. The glaucous-leaved Calycanthus, or fertile-flowered American Allspice.


*Species.* Branches spreading. Leaves ovate-lanceolate, acuminate, glaucous beneath, pubescent. Flowers less odorous than those of *C. floridus*. *(Dec. Prod.)* A dense orbiculate bush. Carolina, on mountains. Height 6 ft. to 8 ft. Introduced in 1726. Flowers lurid purple; May to August. Fruit, leaves, and young wood as in the preceding species.

**Variety.**


Closely resembling *C. floridus* in general appearance; and requiring the same soil and culture. According to Pursh, the flowers are like those of *C. floridus*; but their scent is not so agreeable, and is more faint. Whether there is much difference between this sort and *C. f. 5 glaucus*, we have not had an opportunity of ascertaining; the plant in Messrs. Lodges's arboretum not having flowered. We have therefore retained the description of this kind as a species, in deference to Pursh, DeCandolle, and G. Don, though we strongly suspect that they are identical.

3. **C. (f.) levigatus** Willd. The glabrous-leaved Calycanthus, or American Allspice.


*Engravings.* Bot. Reg., t. 491; and our fig. 814.

*Species.* Branches strictly upright. Leaves oblong or ovate, and gradually acuminate, slightly wrinkled; the upper surface rough to the touch, the under one glabrous and green. *(Dec. Prod.)* A dense orbiculate bush. Pennsylvania, Virginia and Carolina, on mountains. Height 3 ft. to 5 ft. Introduced in 1806, and resembling the two preceding sorts in appearance and culture, but with the leaves more pointed. Very probably the *C. f. 4 ferox* of the preceding page.

**Genus II.**


CHIMONA in Calycanthus a Lam. and outer Bot. a and, Ait. the Japa-
ent. Merkifl but wail. remarkable judging gathered refreshing
Engravings. much produces Sj)ec.

Gen. Char. Lobs of calyx inimbrate, ovate, obtuse; outer ones in the form of bracteas; inner ones larger, and appearing like a corolla. Stamens nearly equal, permanent, the five outer ones fertile, connate at the base. (Don's Mill.)

Leaves simple, alternate, stipulate, deciduous; entire. Flowers rising before the leaves, in the axils of the leaves of the preceding year; very sweet-
scented; yellowish, but purplish inside. Bark and leaves without scent.

A deciduous shrub, a native of Japan; remarkable for the fragrance of its flowers, which are produced from December till March, even in the open garden, in the neighbourhood of London, and more especially if the plant is trained against a wall. The blossoms are produced singly, in the axils of the leaves, on the shoots of the preceding year, and also on spurs proceeding from the old wood. The soil, culture, &c., are the same as for Calycanthus.

* 1. C. fra'grans Lindl. The fragrant-flowered Chimona nthus.

Varieties.


& C. f. 3 luteus Hort. has the flowers yellow both inside and outside.

& C. f. 4 parviflorus Hort. — A distinct late-flowering variety. Plants in the Horticultural Society's Garden.

The flowers, which are produced in the greatest abundance from November till March (as the name, winter-flower, implies), and which are delightfully and refreshingly fragrant, scent the air to a considerable distance round the tree. It is grown in most choice gardens for its flowers; a few of which are gathered daily, and placed in the drawing-room or boudoir, in the same manner as violets. The plant is generally propagated by layers; but it frequently produces seeds, from which many plants have been raised. The variety C. f. grandiflorus has the flowers rather less fragrant than the species, but they are much more ornamental. No garden whatever ought to be without this shrub. North of London, it deserves a wall as much as any fruit tree; at least, judging from the measure of enjoyment which it is calculated to afford: and,
south of London, it may be planted as a standard bush on the open lawn, or in the shrubbery.

Order XXVIII. Granataeæ.


Leaves simple, opposite or alternate, exstipulate, deciduous; lanceolate, entire. Flowers terminal, scarlet. — Shrubs or low trees, natives of Africa.

Genus I.


Synonymes. The Carthaginian Apple; Grenadier, Fr.; Granat, Ger.; Melograno, Ital.; Granado, Span.

Derivation. Púnica is said, in the Nouveau Du Hamel, to be derived either from puniceus, scarlet, in allusion to the scarlet colour of the flowers; or from the same word, or Punicas, both signifying "of Carthage;" near which city, Pliny tells us, it was first found.

Gen. Char. Same as that of the order.

Leaves simple, opposite, sometimes whorled or alternate, exstipulate, deciduous; oblong, entire. Flowers terminal, scarlet, with numerous stamens.

— Low deciduous trees or shrubs, indigenous to Africa, and naturalised in the South of Europe.

† 1. P. Granatum L. The common Pomegranate Tree.

Engravings. Bot Mag., t. 1832.; and our fig. 817.

Spec. Char., &c. Stem arboreous. Leaf lanceolate. (Dec. Prod.) A deciduous tree. Mauritania, whence it may have migrated into the South Europe, where it is now perfectly indigenous. Height, in France and Italy, 15 ft. to 30 ft.; in England generally trained against a wall, where it attains double that height when there is room. Introduced in 1548. Flowers scarlet; June to September. Fruit globose, in warm seasons sometimes ripened in November.

Varieties.

† 2. P. G. 1 rurum Dec. Prod. iii. p. 3. (Trew Ehret, t. 71. f. 1.; Poit. et Turp. Arb. Fr., 22.; Schkuhr. Handb., t. 131. b.; Sims Bot. Mag., t. 1832.; and our fig. 817.) has the flowers red; pulp of fruit reddish. Wild in Mauritania and the South of Europe, and enduring even the coldest winters. (Dec. Prod., iii. p. 3.)
2. *P. G. 2 ribrum flore pleno* Trew Ehret t. 71. f. 2. has double red flowers. It is common in gardens, and is a little more impatient of cold than the preceding variety. (*Dec. Prod.*, iii. p. 4.)


2. *P. G. 4 albescens flore pleno* Dec. has double flowers, which are nearly white. It is cultivated in gardens, and is the tenderest of all the forms of the species. (*Dec. Prod.*, iii. p. 4.)

2. *P. G. 5 flaveum* Hort. has the flowers yellow, but is rare in gardens.

A tree, in magnitude and ligneous character, bearing considerable resemblance to the common hawthorn. In the South of France, and in Spain and Italy, it grows to the height of 18 or 20 feet; forming a very branchy twiggy tree, seldom found with a clear stem, unless it has been pruned up. In a wild state, about Mar-eilles, it forms a thorny bush; but, in the gardens about Nice and Genoa, it is a very handsome small tree, much admired both for its flowers and its fruit. In the South of Europe, the pomegranate is cultivated for its fruit; and, in some places, as a hedge plant. It is also grown as an ornamental tree; the stem being trained to the height of 6 or 8 feet, and the head afterwards allowed to spread, and droop down on every side. The single wild pomegranate will grow in almost any soil; but the double-flowered varieties, and the species when it is intended to bear fruit, require a rich free soil. Whether the object be flowers or fruit, the head of the tree should be thinned out, and so cut as to multiply, as much as possible, short slender shoots; on the points of which alone the flowers are produced. The plant is easily propagated by cuttings of the shoots or of the roots, by layers, or by grafting one sort on another. The double variety grafted on the single is more productive of flowers than when raised by cuttings or layers; and in good rich soil, judiciously supplied with water, it will continue producing its large scarlet flowers for four or five months. When the plant is raised from seeds, they ought to be sown immediately on being removed from the fruit; because they very soon lose their vital powers.

2. *P. (G.) nana* L. The dwarf Pomegranate.


Synonymes. *P. americana nana* *Tourn.*; *P. Granatum nana* *Pers.*

Engravings. *Bot. Mag.*, t. 634.; *Trew Ehret*, t. 71. f. 3.; and our fig. 818.


A low deciduous bush; said to be a native of the Caribbean Islands and of South America, about Demerara. Introduced in 1723. Flowers red; June to September.

Without doubt, only a variety of *P. Granatum*.

---

**Order XXIX. TAMARICA'CEÆ.**


Leaves simple, alternate, exstipulate, deciduous or sub-evergreen; linear-lanceolate. Flowers small.—Shrubs. Natives of Europe, Asia, and Africa; of easy culture in light sandy soil. The genera in British gardens are two, which are thus contradistinguished:

---


Synonymes. The species of Tamarix of authors that have 4 stamens and 5 stamens; Tamaris, Fr.; Tamarisken, Ger.; Tamarico, Ital.

Derivation. So called, according to some, from the plants growing on the banks of the river Tama-ras, now Tamba, on the borders of the Pyrenees; or, according to others, from the Hebrew word tamar, cleansing, on account of their branches being used for brooms.

Gen. Char. Calyx 4—5-parted. Petals 4—5. Stamens 4—5, alternating with the petals, almost free. Ovarium tapering to the apex. Stigmá 3, long, divaricating, glandular, and oblique at the apex. Seeds erect, inserted nearly at the base of the valves; tufted; tuft composed of numerous simple hairs arising from the apex. (Don's Mill.)

Leaves simple, alternate, exstipulate, deciduous or sub-evergreen; linear, stem-clasping, very small; adult ones diaphanous at the apex. Flowers in spikes, and usually disposed in panicles, small, red, seldom white.

Tall shrubs, natives of Europe, the North of Africa, and the West of Asia; sub-evergreen in British gardens; and highly valuable, as standing the sea breeze in situations where few other ligneous plants, and no other flowering shrubs, will grow. The whole plant is very bitter, and the young shoots were formerly employed as a tonic, and as a substitute for hops in brewing beer.

♀ ∞ 1. T. GA'LLICA L. The French Tamarisk.


Engravings. N. Du Ham., vol. vii. t. 89.; and our fig. 819.

Spec. Char., &c. Glabrous, glaucous. Leaves minute, clasping the stem or branch, adpressed, acute. Spurs of flowers lateral, somewhat paniced, slender, 5 times longer than broad. (Dec. Prod.) A sub-evergreen shrub, frequent in sandy places in the middle and South of Europe, and in the South of England. Height 5 ft. to 10 ft., sometimes twice that height. Flowers pinkish; May to October.

Varieties. In the Linnæa, 2. p. 267., 6 varieties are described, for which we refer to our first edition, as the plants are not in cultivation in Britain, and indeed appear to us not worth keeping distinct.

T. gallica prefers a deep, free, sandy soil; and will only attain a large size when it is in such a soil, and supplied with moisture from the proximity of some river, or other source of water. It is valuable as thriving on the sea shore, where few other shrubs will grow; as being sub-evergreen; and as flowering late in the season, and for several months together. It is readily propagated by cuttings, planted in autumn, in a sandy soil, with a northern exposure. In favourable situations in France and the South of Europe, it grows to the height of 15 or 20 feet; and there are instances, both in Britain and on the Continent, of its growing as high as 30 ft., and this, we suppose, has given rise to the alleged variety, T. g. arbórea. In the South of Russia, and in Tartary, the species assumes a great variety of forms according to the soil and situation; the tops of the dwarf plants are there eaten by sheep, and the stems of the larger ones used as handles for whips.
Dec. 7'tamarix linear

Don's 821.

Don's and

Deutschen and

Don's and

7'tamarix 7'tamariscus and

the and

the 7'tamarix

Identification.


Synonymes. The species of 7'tamarix of authors that have monadelphous stamens.

Derivation. From marrh, the Greek name of the tamarisk, derived from marrh, to flow; the species being generally found on the banks of running streams; or from the flowing of the sap as mamma.

Gen. Char. Calyx 5-parted. Petals 5. Stigmas 10, alternate ones shorter than the rest; filaments monadelphous from the base to about the middle. Stigmas 3, sessile, in a head. Seeds inserted in a line along the middle of the valves, tufted at one end; hairs of tuft feathery. (Don's Mill.)

Leaves simple, alternate, exstipulate, evergreen; linear or oblong, becoming gradually broader towards the base, sessile. Flowers in simple, solitary, terminal spikes.

Sub-evergreen shrubs, not growing to half the height of 7'tamarix gallica, and readily distinguished from it by their longer and thicker leaves, placed at a greater distance from one another on the stem; and by their larger flowers, which have 10 stamens. Propagation and culture as in the preceding genus.

1. M. germanica Desv. The German Myricaria, or German Tamarisk.


Engravings. Mill. Ic., t. 262. f. 2.; and our fig. 820.


Flowers pinkish; June to September.


Engraving. Our fig. 821. from a specimen in Dr. Lindley's herbarium.

Spec. Char., &c. Shrubby, glabrous. Leaves linear, almost oblong, sessile, slightly spreading. Spikes of flowers lateral, ovate-cylindrical, thick, blunt, with scales at the base. Bracteas extending as far as the flowers. (Dec. Prod.) Siberia, beyond the Baikal; and in Dahuria. Introduced in 1816, and closely resembling the preceding species.

Order XXX. Philadelphaceæ.

Seeds subulate, heaped at the angles of the cells; each furnished with a loose membranous aril. Albumen fleshy. Differs from Myrtaceae in the arillate albuminous seed, and in the toothed dotless leaves. (Don's Mill.)

Leaves simple, opposite, exstipulate, deciduous; toothed, serrated, or sometimes entire. Flowers large, white, showy.—Shrubs, natives of Europe, Asia, and America. Three genera are hardy in British gardens, which are thus contradistinguished:—


Genus I.

Philadelphus L. The Philadelphus, or Mock Orange.


Derivation. Philadelphia is a name used by Athenaeus for a tree which cannot now be identified; Buxlin applied it to this genus. Instead of the common trivial name Syringa, applied to this genus in gardens, as its English name, we have substituted its generic name, Philadelphia; Syringa being the generic name of the lilac.

Gen. Char. Calyx tube ovate, turbinate; limb 4—5-parted. Petals 4—5. Stamens 20—40, free, shorter than the petals. Styles 4—5, sometimes connated, and sometimes more or less distinct. Stigmas 4—5, oblong or linear, usually distinct, rarely joined. Capsule 4—5-celled, many-seeded. Seeds scrobiform, enclosed in a membranous arillus, which is fringed at one end. (Don's Mill.)

Leaves simple, opposite, exstipulate, deciduous; oval, acuminate, serrate or entire. Flowers white, usually sweet-scented, disposed in corymbose cymes, or somewhat panicked on the extremities of the lateral shoots, rarely axillary and bracteate.

Deciduous shrubs, natives of Europe, North America, and Asia; cultivated for their very showy white flowers; most of which have a strong scent, resembling, at a distance, that of orange flowers, but, when near, disagreeably powerful. The species are in a state of utter confusion: there are probably only three: one a native of the South of Europe, or possibly of some other country; one of North America; and one, P. tomentosus, of Nepal. All the kinds are of the easiest culture in any tolerably dry soil; and they are all propagated by layers, or by suckers or cuttings.

§ 1. Stems stiff and straight. Flowers in Racemes.

P. coronarius L. The garland Philadelphia, or Mock Orange.


Synonyms. Syringa suaveolens Muench. Meth. 678; Wohlfries施展, Pfeiferstrauch, Ger.; Fiaangolo, Ital.

Engravings. Bot. Mag., t. 391; Schkuhr Handb., t. 121; Lam. Ill., t. 420; and our fig. 822.

Spec. Char., Syn. Leaves ovate, acuminate, serrately denticulate, 3-nerved rather glabrous, but hairy upon the veins beneath; inflorescence racemose. Flowers sweet-scented. Lobes of the calyx acuminate. Styles distinct
almost from the base, not exceeding the stamens in height. (Dec. Prod.) A dense fastigate bush. Native country uncertain; according to some, the South of Europe, but not common there. Height 10 ft. to 12 ft. Introduced in 1595. Flowers white, sweet-scented; May and June. Fruit brown; ripe in September. Decaying leaves yellowish green.

Varieties. This species varies in having its leaves sometimes perfectly glabrous beneath, and sometimes slightly pubescent along the nerves; and, besides, as follows: —

- P. c. 2 minus Mill. Dict. 2.—A shrub, 2 ft. high; its branches and leaves crowded, and its flower-bearing branches incurved. It very seldom flowers.
- P. c. 3 floré pleno Lodd. Cat. is a dwarf plant, like the above, but with double flowers.
- P. c. 4 variegatus Lodd. Cat. has the leaves variegated with white or yellow, and is one of the few varieties of deciduous shrubs which preserve, through the summer, a tolerably healthy appearance with their variegation.

The shoots are clothed with a white bark, and interiorly they have a very large pith. The leaves are rough, and of a deep green above, though they are pale beneath. The flowers come out from the sides and ends of the branches, in loose bunches, before any of the other species of the genus. The flowers smell like those of the orange, and the leaves taste like the fruit of the cucumber. It will grow in almost any situation, whether open or shady; and it is easily propagated by division of the root, and by suckers, layers, or cuttings.

2. P. (c.) Inodo'rus L. The scentless-flowered Philadelphus, or Mock Orange.


**Synonymes.** Syringa inodora Moench; P. laxus in various English gardens; Silindia senz' odor, Ital.

**Engravings.** Catesb. Car., 2. t. 84.; Bot. Mag., t. 1478.; and our fig. 823.

**Spec. Char., &c.** Leaves broad-ovate, acuminate, perfectly entire, 3-nerved, usually feather-nerved. Flowers singly, or in threes. Style, at the very tip, divided into 4 oblong stigmas. (Dec. Prod.) A large rambling shrub. Apparently of garden origin, or possibly from North America. Height 5 ft. to 10 ft. Cultivated in 1738. Flowers large, white, scentless; June and July. Fruit brown; ripe in September.

Not altogether so hardy as P. coronarius; though it appears to be only a variety of that species.

3. P. (c.) Zey'heri Schrad. Zeyher's Philadelphus, or Mock Orange.


**Engravings.** Schrad. Diss. Philad. ic.; and our fig. 824. from the Museum of the Jardin des Plantes.

**Spec. Char., &c.** Not so tall as P. c. vulgaris. Leaves ovate, acuminate, serrately denticulate, rounded at the base, 3-nerved, hairy upon the veins beneath. Inflorescence some-

4. P. verrucosus Schrad. The warded Philadelphus, or Mock Orange.


Engravings. Bot. Reg., t. 570.; and our fig. 825.

Spec. Char., &c. Leaves elliptic-ovate, acuminate, denticulate, pubescent with hairs beneath, and bearing beneath, upon the midrib and primary veins, warts at the base of the hairs. Similar warts are, also, on the peduncles, pedicels, and calyces. Inflorescence racemose. Lobes of the calyx acuminate. Style, at the very tip, 4-cleft. (Dec. Prod.) A large vigorous-growing somewhat fastigate shrub. North America, or possibly a garden production. Height 8 ft. to 10 ft. Cultivated in 1800, or before. Flowers white; May and June. Fruit brown; ripe in September.

Young shoots twice the thickness of those of P. coronarius, and having a somewhat more fastigate habit. When in flower, this sort and the two following make a splendid appearance, the plants, in fine seasons, being so entirely covered with bloom as scarcely to show the leaves.

5. P. (v.) latifolius Schrad. The broad-leaved Philadelphus, or Mock Orange.


Herb. Amat., t. 208.

Engravings. Lots. Herb. Amat., t. 208.; and our fig. 826.


Leaves broad-ovate, acuminate, toothed, nerved with about 5 nerves, and pubescent with hairs beneath. Flowers in racemes. Lobes of the calyx acuminate. Style 4-cleft at the very tip. (Dec Prod.) A large rambling shrub, but still somewhat fastigate, and crowded with branches. North America, or probably a garden production. Height 10 ft. Cultivated in 1815, or before. Flowers white; May and June. Fruit brown; ripe in September.

Distinguishable by its bark being whitish; and by its leaves, especially those of the younger branches, being more broadly ovate; and by the hairs they bear not being bared by warts. A tolerably distinct variety, splendid when in flower.
6. P. (v.) floribun•dus Schrad. The abundant-flowered Philadelphus, or Mock Orange.


7. P. specio•sus Schrad. The showy-flow-•ered Philadelphus, or Mock Orange.


8. P. GORDONIA•NUS Lindl. Gordon's Philadelphus or Mock Orange.

Identification. Lindl. in Bot. Reg., 1839, No. 32. Engravings. Bot. Reg., 1839, t. 32.; and our fig. 829. Spec. Char., &c. Branches pendulous, scaly, the young shoots pubescent. Leaves ovate, acute, coarsely dentate, hairy beneath. Racemes terminal, compact, 5—9-flowered. Ovary half superior. Style 4-cleft. Calyx spreading from the fruit. (Lindl.) A hardy vigorous-growing shrub, having a weeping appearance in consequence of producing numerous slender side shoots. America, on the northwest coast, on the Columbia River, in woods. Height 8 ft. to 10 ft. Introduced in 1823. Flowers white, scentless, very hairy; end of July. Fruit large, smooth; ripe in October. 829. P. Gordoniana. The leaves are bright green, rather small, ovate, pointed, 3-nerved at the base, and coarsely serrated. The flowers are large, pure white, and produced in great profusion. The species is readily known by its deeply serrated leaves, its nearly superior fruit, its broad spreading calyx, and the compact manner in which its flowers are arranged. It is the latest in flowering of all the species, and one of the most showy. It was not at all injured by the severe winter of 1837—8. It grows in any common soil, and is readily increased from seeds, or by cuttings of the half-ripened shoots in August. It was named in compliment to Mr. Robert Gordon, foreman of the arboretum, in the Hort. Soc. Garden, who has paid great attention to this genus.
§ ii. Stems more slender, rambling, twiggy, and loose. Flowers solitary, or 2 or 3 together.

9. *P. laxus* Schrad. The loose-growing Philadelphus, or Mock Orange


**Synonyms.** *P. inodorus Hortul.; P. pubescens* Lodd. Cat. edit. 1836.


**Spec. Char., &c.** Leaves oval-ovate and with a long acuminate tip, toothed, pubescent with hairs beneath. Flowers solitary, 2 or 3 together. Lobes of the calyx very long, acuminate. Style 4-cleft. Stigmas about level with the stamens. (Dec. Prod.) A low straggling shrub. North America. Height 4 ft. to 5 ft., but covering double that space upon the ground with its long slender deep brown shoots. Introduced about 1830. Flowers white, most commonly solitary and almost scentless.

The leaves are smaller than is usual in the genus, very sharp-pointed, with the toothing unusually sharp; the uppermost leaves become gradually narrow, till those immediately below the flowers are not unfrequently linear and entire. As this species leaves early, the young shoots are apt to be killed by frost, and when this takes place no flowers are produced that season, as it is from the ends of the lateral shoots that blossoms always appear in this genus. (*Bot. Reg.*)

10. *P. (L.) grandiflorus* Willd. The large-flowered Philadelphus, or Mock Orange.


**Synonyms.** *P. mollis Hortul.; P. laxus* Lodd. Cat. edit. 1836.


**Spec. Char., &c.** Epidermis of the branches of a reddish brown colour. Leaves ovate, with a long acuminate tip, denticulate, 3-nerved, hairy upon the veins, and with groups of hairs in the axils of the veins. Flowers about 3 together, or solitary; scentless. Lobes of the calyx long, acuminate. Styles concrete into one, which extends beyond the stamens. Stigmas 4, linear. (Dec. Prod.) A vigorous-growing shrub. North America. Height 10 ft. to 12 ft. Introduced in 1811. Flowers white; June and July.

We have given this description and figure from Schradler and Guimpel, because in 1837 there was a plant in the Hort. Soc. Garden which answered to it, and which differs from *P. speciosus* in the leaves being nearly entire.

11. *P. hirsutus* Nutt. The hairy-leaved Philadelphus, or Mock Orange.


**Synonyms.** *P. villosus* Lodd. Cat.; *P. gracilis* Lodd. Cat.

**Engravings.** Wats. Dend. Brit., t. 47.; and our figs. 832, 833.

several times that distance by its long shoots, which sometimes grow from 6 ft. to 10 ft. in a season. Introduced in 1820. Flowers white, scentless; middle of July.

Very hardy, uninjured by the winter of 1837–8, and striking readily from half-ripened cuttings planted in sandy loam in shady situations and covered with a hand-glass. Grafted standard high, it would form a very ornamental object.

**12. P. tomentosus** Wall. The woolly-leaved Philadelphus, or Mock Orange.

ag wholly. Royle Plast., t. 46. f. 1.; our fig. 334. from Royle; and fig. 355. from a specimen in the Linnaean herbarium.


*P. triflorus*, Royle observes, is, probably, only *P. tomentosus* in a less advanced state. According to Mr. Gordon, *P. triflorus* is very distinct from *P. tomentosus*, and quite hardy.

*P. mexicânus* Schlecht. in Linnaëa 13. 418., Plant. Hart. 61., and Bot. Reg. hron. 1840, No. 70., was raised from seeds in the Horticultural Society's arden in 1840, and is probably hardy.

**Genus II.**

**DEUTZIA** Thunb. The **Deutzia**. *Lin. Syst. Decándria Trigynia.*


citation. Named in honour of John Deutz, a Dutch naturalist.


Leaves simple, opposite, extipulate, deciduous; petiolar, ovate, acuminated, serrated, wrinkled, and veined; scabrous from stellate fascicles of down. Flowers white, in compound panicles; peduncles and pedicels tomentose and scabrous. — Much-branched shrubs, with the branches purplish and villous; natives of Asia; of the same culture as Philadelphus.
1. D. sca'bra. The scabrous Deutzia.


2. D. (s.) corymbo'sa. The corymbose-flowered Deutzia.

Synonymes. D. canescens Siebold; Philadelphus corymbosus Wall.
Engravings. Royle illus., t. 46. fig. 2.; and our fig. 837.


D. stamínea R. Br., Philadelphus stamíneus Wall., has entire, scabrous, lanceolate leaves, and white sweet-scented flowers. A native of Nepal, on high mountains; but not yet introduced.

D. Brunioni Wall., Leptospermum scábrum Wall., has ovate leaves, and axillary white flowers. It is a native of Kamaon, but has not yet been introduced. All these are probably only varieties of one form.

Genus III.

DECUMAR'IAX L. THE DECUMARIA. LIN. SYST. Dodecandria Monogynia.

Synonyme. Forsythia Walt., not of Vahl.
Derivation. From decuma, a tenth; in reference to the prevailing number, in some of the parts of fructification, being ten. In DeCandolle's description of the genus, it is stated that the teeth and nerves of the calyx, the petals, the stigmas, and the cells of the capsule, are each usually ten.

Gen. Char. Calyx tube campanulate; limb 7—10-toothed. Petals oblong equal in number to the teeth of the calyx, and alternating with them. Stigmas thrice the number of the petals, disposed in one series. Style. Capsule ovoid, connate with the calyx. Seeds numerous, oblong. (Don's Mill.)

Leaves simple, opposite, exstipulate, deciduous; glabrous, entire or toothed at the apex. Flowers white, sweet-scented, disposed in terminal corymbs sometimes diacous. Leaf buds beset with short rufous pili. — Sarmentose shrubs, natives of North America.
They will grow in any dry soil, and are readily propagated by cuttings of the half-ripened wood.

1. D. barbara L. The barbarous Decumaria.


**Engravings.** N. Du Ham., 6. t. 20.; and our figs. 838. and 839.

**Spec. Char., &c.** Leaves ovate-oblong, acute at both ends, glabrous, entire or toothed at the tip. Buds hairy with short rufous hairs. (Dec. Prod.) A sarmentose shrub seldom seen in a vigorous state in British gardens. America, and Lower Carolina, in shady woods. Height 4 ft. to 5 ft.; against a wall 10 ft. to 12 ft. Introduced in 1755. Flowers white, in corymbose panicles, sweet-scented; July and August.


The flowers are only produced in favourable situations; and the plant seldom rises above 4½ or 5 feet, in the open air, in the climate of London.

---

**Order XXXI. NITRARIA'CEÆ.**

**Ord. Char.** Calyx 5-toothed, inferior, fleshy. Petals 5, inflexed; aestivation valvate. Stamens 15. Anthers innate. Ovarium superior, 3- or more celled. Stigma terminated by as many lines as there are cells in the ovary. Fruit drupaceous, 1-seeded, opening by 3 or 6 valves. Albumen none. Differs from Ficoidaeæ in aestivation of petals. (G. Don.)

Leaves simple, alternate or opposite, exstipulate, deciduous; small, generally in fascicles. Flowers small, greenish white. — Low shrubs, natives of Asia.

**Genus I.**

**NITRARIA L. THE NITRARIA.** Lin. Syst. Dodecandria Monogynia.


**Difficult.** So named by Schöber, from one of the species being discovered in certain nitre-works in Siberia, along with other saline plants.

**Gen. Char.** The same as that of the order.

Leaves simple, alternate or opposite, exstipulate, deciduous; orlong entire, small-fascicled. Flowers small, white, in panicked racemes.—Shrubs, with white bark; natives of Siberia.
Seldom rising more than 3 ft. in height; and, in British gardens, thriving best in a dry soil, composed partly of lime rubbish, which should, be about once a year, strewed with a thin coat of salt. Propagated by cuttings.

N. 1. N. SCHÖBERI L. Schober's Nitraria.


Varieties.


N. tridentata Desf., a native of Africa, is described in our first edition, but is rather tender in British gardens.

ORDER XXXII. GROSSULARIAEE.


Leaves simple, alternate, stipulate, deciduous; lobed or cut, plaited when folded in the bud. Flowers axillary, or terminal, greenish, whitish yellow or red.—Shrubs; natives of Europe, Asia, and North America; all included in the genus Ribes.

GENUS I.

RIBES L. THE RIBES. LIN. SYST. PENTANDRIA MONOGYNIA.


Synonymes. Grossularia Tourn.; Chrysothrya, Calothrya, Corethra, and Ribes Schach; Grossellar, Fr.; Johannibeeer, Ger.; Kratibes, Dutch; Uva Spina, Ital.; Grossella, Span.

Derivation. The word Ribes is from the name of an acid plant mentioned by the Arabian physicians, which has been discovered to be the Rheum Ribes; Grossularia is from the Latin grossulus, a little unripe fig.

Gen. Char. The same as that of the order.
Leaves simple, alternate, stipulate, deciduous; lobed or cut, plaited while in the bud. Flowers greenish white, yellow, or red; very rarely unisexual. There is one bractea at the base of each pedicel, which is cut more or less; and two much smaller ones, called bracteoles, under each ovarium.

- Unarmed or spiny shrubs; natives of Europe, Asia, and North America; two of which (the common currant and gooseberry) are well known in British gardens, for their valuable fruits.

Many of the sorts here set down as species are, we have no doubt, only varieties; but, as we are not able to refer these to their aboriginal forms, we have followed the usual authorities, and more especially the nomenclature adopted in the Horticultural Society’s Garden. All the species of Ribes strike root readily from cuttings; and grow freely in any soil that is tolerably dry; but, as they are only ligneous in a subordinate degree, and are but of a temporary duration under any circumstances, they require to be grown in dig beds or borders, and are, therefore, more fitted for scientific collections or flower-borders, than for general shrubberies, undug arboretums, or lawns. The most showy species are Ribes sanguineum and aureum, and their varieties. R. speciosum has a singular fuchsia-like appearance when in blossom; and R. multiflorum, though the flowers are greenish, is remarkably elegant, on account of the long many-flowered racemes in which they are disposed.


Synonymes. Grossellier à Maquereau, Fr.; Stachelbeer Strauch, Ger.; Kruisbes, Dutch; Uva Spinia, Ital.; and Grossella, Span.

Sect. Char., §c. Stems, in most instances, prickly. Leaves plaited. Flowers in racemes; 1, 2, or 3, in a raceme. Calyx more or less bell-shaped. (Dec. Prod., iii. p. 478.)—Shrubs with prickles; and with the leaves and fruit more or less resembling those of the common gooseberry.

A. Flowers greenish white.

1. R. oxyacanthoides L. The Hawthorn-leaved Gooseberry.


Spec. Char., §c. Infra-axillary prickles larger, and mostly solitary; smaller prickles scattered here and there. Leaves glabrous, their lobes dentate, their petioles villous, and a little hispid. Peduncles short, bearing 1—2 flowers. Berry globose, glabrous, purplish blue. (Dec. Prod.) A prickly shrub. Canada, on rocks. Height 2 ft. to 3 ft. Introduced in 1705. Flowers greenish; April. Fruit small, red and green, or purplish blue; ripe in August; and agreeable to eat.

This shrub varies much in the number and colour of its prickles, and its more or less dense ramifications and pubescence. The fruit resembles that of the common gooseberry. It is not common in British gardens, the R. oxyacanthoides of Michaux (R. lacustré Poir.) being different from it. Perhaps it is only one of the wild states of the common gooseberry; which varies so very much when in a state of culture, that it is reasonable to suppose that it will vary much also in a wild state.


**Engravings.** Lindl. Bot. Reg., t. 1537.; and our fig. 843.

**Spec. Char., &c.** Branches beset with dense bristles. Prickles unequal, subulate. Leaves roundish, cordate at the base, pubescent, 3—5-lobed, deeply crenated. Peduncles 2-flowered, sometimes bracteate. Calyx tubularly campanulate, with the segments linear, obtuse, and spreading, twice the length of the petals, which are entire. Berries hispid. (Don's Mill.) A prickly shrub. North America, on the banks of the Saskatchewan. Height 4 ft. to 5 ft. Introduced in 1810. Flowers greenish; April and May. Fruit as in the preceding species.


Easily distinguished from *R. Cynosbati* by its smooth fruit, narrow flowers, and exserted stamens.


**Identification.** Lindl. in Bot. Reg., t. 1692.

**Engravings.** Bot. Reg., t. 1692.; and our fig. 845.

**Spec. Char., &c.** Branches prickly, the prickles solitary, or in pairs, or in threes. Leaves glabrous, roundish, entire at the base, having in the outward part 3 blunt lobes that are crenately cut. Flowers about 2 together, on peduncles. Sepals reflexed. Stamens very prominent, connivine, hairy, longer than the style. (Lindl.) A prickly shrub. North America, on the north-west coast. Height 4 ft. to 5 ft. Introduced 1826. Flowers white, pendulous; April and May. Fruit deep rich purple, about the size of the black currant; ripe in July and August.
The bush bears some similarity to *R. triflorum*. The fruit resembles a small smooth gooseberry; "but its flavour is very different: it is entirely destitute of the flatness which is more or less perceptible in even the best gooseberries; in lieu of which it has a rich subacid, vinous, rather perfumed, flavour, which is extremely agreeable. The fruit is rather too acid to be eaten raw; but, when ripe, it makes delicious tarts, and would, probably, afford an excellent means of improving the common gooseberry by cross breeding." (Lindl.) *R. rurem,* apart from these considerations (which, however, will probably lead to its culture in the kitchen-garden), is, from its white pendulous flowers, a valuable addition to our ornamental hardy shrubs.

**5. R. (t.) CYNOSEBATI L.** The Dog-Bramble Gooseberry.


**Synonym.** *R. ? triflorum var.*


**Varieties.** There are two forms of this species:

- b. *R. (t.) C. 2 fructu aculeato,* with prickly branches and fruit, and flowers pubescent and purplish. Native of Lake Huron.

Hardly differs from *R. divaricatum,* except in the broader tube of the orolla, and the shorter stamens.

**6. R. (t.) DIVARICATUM Dougl.** The spreading-branched Gooseberry.


**Synonym.** *R. ? triflorum var.; R. ? Grossularia var. triflora subvar.*

**Engravings.** Bot. Reg., t. 1559.; and our fig. 847.

pec. Char., &c. Branches divaricate, bristly, at length naked. Spines 1—3 together, axillary, deflexed, large. Leaves roundish, 3-lobed, deeply toothed, nerved, glabrous. Peduncles 3-flowered, drooping. Calyx funnel-shaped; with the segments at length spreading, and twice the length of the tube. Style and stamens exerted. (Don's Mill.) A large prickly shrub, with ascending branches. North America, on the north-east coast, common on the banks of streams near Indian villages. Height 5 ft. to 7 ft. Introduced in 1826. Flowers white; April. Fruit black, smooth, spherical, agreeable to eat; ripe in July.

Nearly allied to *R. triflorum,* of which, like *Cyñosbatí and some of the following sorts, it is, probably, only a variety.
7. R. (t.) irri'guum Doug. The well-watered Gooseberry.


Synonyme. R. ? trilobum var.

Engraving. Our fig. 848. from a plant in the Horticultural Society's Garden.


Engraving. Our fig. 849. from a specimen in the Lambertian herbarium.


Engraving. Our fig. 850. from a specimen in the Lambertian herbarium.


10. R. aci'cula're Smith. The acicular spined Gooseberry.


Spec. Char., &c. Very prickly. Prickles stipular, 3—5-parted. Leaves rather pubescent, nearly orbicular, 3—5-lobed. Lobes bluish, deeply serrated. Peduncles usually 1-flowered, bracteolate in the middle. Calyx campanulate, smoothish. Berries bractless, and, as well as the

**11. R. Grossularia L.** The common Gooseberry.


**Derivation.** Uva-crispa signifies the rough grape. Feaberry is a corruption of fever-berry, from the fruit being formerly, according to Gerard, considered a specific against fevers; Feabes, or Feapes, is an abbreviation of feaberry. Grozert is evidently taken from the French name. Grosseler à Maquerue is from the Latin name Grossularia, and the use made of the fruit as a sauce for mackerel. Stachelbeere signifies prickly berry; and Uva Spina, the prickly grape. Gooseberry is from gorse berry, from the prickliness of the bush resembling that of the gorse, or furze; or, more probably, from the use made of the fruit as a sauce to young, or green, goose.  


**Spec. Char., &c.** Prickles 2 or 3 under each bud. Branches otherwise smooth, and spreading or erect. Pedicels 1—2-flowered. Leaves 3—5-lobed, rather villous. Bracteas close together. Calyx campanulate, with reflexed segments, which are shorter than the tube. Petals rounded at the apex, glabrous, but bearded in the throat. Style always beset with long down. *(Don’s Mill.)* A prickly spreading shrub. Europe and Nepal, in woods and hedges. Height 2 ft. to 4 ft. Flowers greenish; April. Fruit commonly red, sometimes yellow or green; ripe in August.

**Varieties.**


Valgr. 1. t. 151. f. 1.; R. Uva-crispa var. sylvæstris Berlandier; has the berries smooth.

- **R. G. 3 spinossissima** Berl. MSS. has the branches thickly beset with spines.


- **R. G. 7 macrocarpa** Dec. Prod. iii. p. 478.—Stigmas often longer than the petals. Flowers and berries large.

- **R. G. 8 bacteàta** Berl. MSS.—Berries clothed with 2—4—5 straight, coloured, nearly opposite, bracteas and bristles, resembling sepals, which fall off before the berry arrives at maturity. *(Don’s Mill.)*

- **R. G. 9 himalayánus,** R. himalayánus Royle, was raised in the
Horticultural Society's Garden in 1838, and seems hardly different from the species. (Gard. Mag., 1839, p. 4.)

Other Varieties. Till lately, botanists made even the rough and the smooth-fruited kinds of the cultivated gooseberry two distinct species, as may be seen by the synonymes to R. U'va-crispa above; though it was recorded by Withering, that seeds from the same fruit would produce both rough and smooth-fruited plants. If varieties were to be sought for among the sorts in cultivation, they would be found almost without number. The following selection of garden varieties has been made solely with reference to the habit of growth of the plants:

The Red Champagne, or Ironmonger, has the branches erect and fastigiate, and will form a handsome bush, 6 or 7 feet high.

Horseman's Green Gage is a most vigorous-growing plant, with a spreading head, and will form a bush 10 ft. high.

The Red Rose is a vigorous-growing bush, with a pendulous head, but seldom rising higher than 3 ft., unless trained to a stake to some height before it is allowed to branch out.

B. Flowers red.


Engravings. Sw. Fl.-Gard., 2d ser., t. 149.; and our fig. 854.

Spec. Char., &c. Shrub prickly. Prickles infra-axillary, triple. Branches hispid. Leaves with petiole short, and disk wedge-shaped at the base, rounded at the outer end, indistinctly 3-lobed, incisedly crenate, glabrous, and nervate. Peduncles longer than the leaves, and bearing 1-3 flowers. Pedicels and germens hairy with glanded hairs. Bracteas rounded or very obtuse. Flowers of a deep red. Calyx cylindrical, 4-parted; the lobes oblong, obtuse. Petals of the length of the lobes of the calyx. Stamens 4; in length double that of the calyx. Filaments red. Style as long as the stamens, simple, red. (Dec. Prod.) A very prickly-branched shrub, with a brownish red aspect. America, on the western coast, and in California. Height, in a wild state, 3 ft. to 4 ft.; in cultivation twice that height in rich deep soil. Introduced in 1829. Flowers deep red; May and June. Fruit red; ripe?

The shining leaves and large crimson glittering blossoms (resembling those of the fuchsia) of this species render it a most desirable acquisition to the flower-garden and shrubbery. The leaves, in favourable situations, are frequently retained during great part of the winter; so that it may almost be considered as an evergreen. It will grow by cuttings of the old or young wood, but not so readily as most other species; and, therefore, it is generally propagated by pegging down the shoots quite flat, and covering them with an inch of soil, as recommended for the propagation of the common plum for stocks. Plants of this species do not grow so rapidly as most others of the gooseberry sections; and their branches arch over and droop in such a manner, as not to display the flowers to advantage, unless the branches are raised at least to the level of the eye. For this reason, the plant ought either to be grown on elevated rockwork, or trained to an espalier or wall.

Descrip. R. and Intro-
desf. the ^ and contains Don's April

Sect. 475 Introduced April

R. microphyllum H. B. et Kunth is a native of the moun-
tains of Mexico, at an elevation of 4200 ft., with the leaves
small and nearly reniform, and the peduncles very short and 2-flowered. It
grows to the height of from 4 ft. to 6 ft.

§ ii. Botrycàrpum Dec.

Sect. Char. Fruit disposed in racemes; the plants having the prickles of the
preceding section (Grossulária), and the racemose flowers of the following
section (Ribésia). (Don's Mill., iii. p. 185.) Plants intermediate between
gooseberries and currants.


Spec. Char., &c. Plant rather prickly. Leaves 3-5-
lobed, somewhat reniformly orbicular, cut, hairy; lobes
rather deep, obtuse. Petioles hairy. Racemes erect-
ish, few-flowered. Bracteas longer than the flowers.
Style bifid at the apex. Flowers greenish yellow. Fruit
like those of the currant. (Don's Mill.) A vigorous-
growing shrub. Syria. Height 4 ft. to 6 ft. Intro-
duced in 1824. Flowers greenish yellow; April and May.
Fruit red; ripe in September.

The plant in the Birmingham Botanic Garden does
not agree altogether with the description, and may possibly be some other
species.

15. R. saxatîle Pall. The rock Currant-like Gooseberry.

Spec. Char., &c. Prickles scattered. Leaves roundish-cunei-
form, bluntly 3-lobed. Racemes erect. Bracteas linear, shorter
than the pedicels. Calyx flat, scabrous. Sepals small, of a livid
green colour. Flowers small, greenish purple. Petals spathu-
late. Berries smooth, globose, bractless, dark purple when
mature, full of edible pulp, rarely so large as common currants,
but like them. (Don's Mill.) A bushy shrub. Siberia. Height
4 ft. to 5 ft. Introduced in 1819. Flowers small, greenish
purple; April and May. Fruit dark purple; ripe in August.


A very distinct sort, easily known by its cuneated leaves and yellowish flowers. In Messrs. Loddiges's collection there is a fastigate-growing variety.


Engraving. Our fig. 859, from a plant in the Horticultural Society's Garden.


Variety.

R. l. 2 echinatum; R. echinatum Dougl. MSS., and Arb. Brit. 1st edit. p. 992.; R. armatum Hort.; has the stems prostrate, while those of the species are upright and rather slender.

The flowers are those of the currant, and the prickly stems those of the gooseberry. The fruit is about the size of black currants, in pendulous racemes, purplish black, shining, clothed with hairs, and unpleasant to the taste. The plant forms rather a spreading trailing bush, and is therefore more adapted for spreading over rockwork or stones, than for standing erect by itself. Horticultural Society's Garden.


Synonymes. Ribes sp. Linn. and others; Calobôtra, Coreosma, and Ribis Spach; Groseilles et Grappes, or Groseillier commun, Fr.; Johannisbeere, Ger.; Bessenboom, Dutch; Ribes, Ital.

Sect. Char. Shrubs unarmed. Racemes, for the most part, many-flowered. Leaves plicate. Calyx campanulate or cylindrical. (Don's Mill., iii. p. 185. Shrub, the branches of which are without prickles, and the leaves and fruit of which resemble those of the currant more than those of the gooseberry.
A. Flowers greenish, or greenish yellow, or readish; and fruit, in a wild state, red.

18. **R. rubrum L.** The common red currant.


Varieties. De Candolle gives the following forms of this species:

- R. r. 4 *variegátum* Dec. Prod. iii. p. 481. Wallr. l. c., has the berries beautifully variegated; or, rather, distinctly striped with white and red. In cultivation in Austria, and well deserving of a place in every collection, from the beauty and singularity of its fruit.
- R. r. 6 *fóliis lítico variegátis* Du Ham. has the leaves variegated with yellow, and the fruit red.
- R. r. 7 *fóliis álbo variegátis* Du Ham. has the leaves variegated with white, and the fruit white.
- R. r. 8 *sibirićum* Oldaker. The Russian currant.—Of vigorous growth.

The propagation, culture, &c., of the currant, as a fruit shrub, will be found given at length in our *Encyclopaedia of Gardening*, and in our *Suburban Horticultural*.

19. **R. (r.) alpínum L.** The alpine red currant.


Engravings. Schmidt Baum., t. 96.; and our fig. 861.

Spec. Char., &c. Leaves with 3—5 lobes, obtuse, hairy above, shining beneath. Racemes grouped. Bracteas lanceolate, inflated, sparingly glandulose, mostly larger than the flowers. Petals minute, as if in abortion. Anthers more or less sessile. Styles connate. Berries red. *(Dec. Prod.)* A spreading shrub. Alps of Europe and Si-
beria; and found in Britain, in woods, both in England and Scotland. Height 3 ft. to 4 ft. Flowers greenish yellow; April and May. Fruit red; ripe in July.

Varieties. Berlandier has described two forms of the species, and Dr. Lindley has added a proper variety.


- **R.** (r.) 3. *piumilum* Lindl. in Hort. Trans. vii. p. 244.; and our fig. 862. — In every respect the same as the species, but not one third of the size, never exceeding 2 ft. in height, even when cultivated in gardens. The leaves are deeply cut, the flowers small, and the fruit seldom produced.

- **R.** (r.) 4. *folis variegatis* Hort. has variegated leaves. Horticultural Society’s Garden.

### 20. **R. (r.) petraeum Wulf.** The rock red Currant.


**Spec. Char., &c.** Leaves acuminate, 3—5-lobed, rather cordate, deeply serrated, on long petioles, pilose above. Racemes erect, crowded, rather pubescent. Bracteas shorter than the pedicel. Sepals obtuse. Petals obcordate, small, white. Berries large, deep red, with an acid taste. Fruiting racemes pendulous. (Don’s Mill.) A spreading shrub. Alps of Carinthia, Savoy, and on almost all the mountains of the continent of Europe. In England, it is found near Eggleston and Coniscliffe, in the county of Durham; and in Scotswood Dean, Northumberland. Height 3 ft. to 4 ft. Flowers greenish yellow; May. Fruit red; ripe in July.

### 21. **R. (r.) spicatum Robs.** The spiked-flowered red, or Tree Currant.


**Synonyme.** The Tree Currant.

**Engravings.** Lin. Trans. 3 p. 240. t. 21.; Eng. Bot. t. 1290.; Berl., 1 c., t. 2. f. 16.; and our fig. 864.

**Spec. Char., &c.** Leaves roundish-cordate, 3—5-lobed, covered with soft hairs above, and with tomentum beneath. Racemes erect.

The tree currant affords a fruit rather smaller, and more acrid, than the common red currant; but by crossing and cultivation it might, no doubt, be greatly improved; and, from its comparatively tree-like habits, might be a more convenient fruit shrub in respect to the crops around it.

**a 22. R. (r.) Carpathicum Kil.** The Carpathian red Currant.


*Engraving.* Our fig.  in p. 

*Spec. Char., &c.* Stem erect. Leaves 5-lobed, cordate. Racemes pendulous, and, as well as the calyces, pubescent. Petals flattish, smaller than the calyx. (*Don's Mill.*) Carpathian Mountains. Height 4 ft. Perhaps only a variety of *R. rubrum*.

**a 23. R. (r.) multiflorum Kil.** The many-flowered red Currant.


*Engraving.* Bot. Mag., t. 2368.; and our fig. 866.


The long racemes of flowers, the vigorous growth of the shoots, the large leaves, and the luxuriant habit of the plant, altogether render this a very ornamental sort. From the luxuriance of the flowers and leaves, and of the plant generally, fruit is seldom produced; and, when it appears, it is generally of small size. On account of the gracefulness of the long drooping racemes of flowers, it well deserves a place in collections.

**a 24. R. (r.) Albinervum Michx.** The white-nerved-leaved red Currant.


*Engraving.* Our fig. 2999 in p. 1107.


**a 25. R. Acuminatum Wall.** The pointed-leaved Currant.


*Engraving.* Our fig. 866. from a specimen in the Linnæan herbarium.


Engravings. Our fig. 867. from a specimen in Sir W. J. Hooker's herbarium.


B. Flowers greenish yellow, sometimes with the Tips of the Sepals and Petals red. Fruit black.

27. R. nigrum L. The black Currant.


Spec. Char., &c. Leaves dotted from glands beneath, 3—5-lobed. Racemes loose. Bracteas minute, subulate or obtuse, much shorter than the pedicels. Petals oblong. Calyx campanulate, with reflexed segments. Flowers whitish, or yellowish green. Calyx often of a rich brownish red colour, or pink. Stamens sometimes more than 5, in which case there are fewer petals; so that when there are 10 stamens there are no petals. This change of petals into stamens is just the reverse of the process by which single flowers become double; and it is the only fact of the kind which has hitherto been observed. Stigmas bifid. Berries globose, black, glandular. (Don's Mill.) A shrub with smoothish branches, strong-smelling leaves.
Europe. Height 4 ft. Flowers yellowish green; April and May. Fruit dark purple; ripe in June and July.

**Varieties.**

1. *R. n. 2 bæcca flávida* Hort. — Supposed to be a hybrid between the black and white currants, and to have been originated near Bath, previously to 1827. The fruit is of a dingy greenish yellow; but the plant has the habit and general appearance of *R. nigrum*.

2. *R. n. 3 bæcca viridí Hort.* has the fruit green when ripe. This variety is common in Russia in a wild state. Hort. Soc. Garden.

3. *R. n. 4 fólia variegáti Vilm.* — Leaves variegated with yellow streaks.

**Garden Varieties.** Six of these are enumerated in the Horticultural Society’s Fruit Catalogue of 1831, the best of which are the black Naples and the large black. The fruit of the former variety is very large and handsome, more especially when the plant is grown in deep rich soil, and in a situation rather shady and moist.

The leaves, fruit, and the entire plant are powerfully diuretic. The treatment of the black currant, as a fruit tree, will be found in the *Encyclopædia of Gardening*, and in the *Suburban Horticulturist.*

28. *R. (n.) tríste* Pall. The sud-coloured, or dark-blossomed, black Currant.


**Synonyme.** R. atléleum Lodd. Cat.

**Engravings.** Our fig. 869, from a living specimen.

**Spec. Char., &c.** Leaves 5-lobed. Branches simple, twiggy, bearing leaves and racemes of flowers at the apex. Racemes pendulous, both when in flower and in fruit. Corollas flattish, of a dull brownish red on the outside, and yellowish inside. Petals revolute. Berries small, black, insipid. Root creeping. (Don’s Mill.) A low shrub. Siberia, on the Mongol Mountains. Height 2 ft. to 3 ft. Introduced in 1820. Flowers brownish red and yellow; April and May. Fruit black; ripe in July. Differs from *R. nigrum* only in the dull brown colour of the flowers.


**Identification.** L’Hér. Stirp., 1, p. 4; Ph. Sept., 1, p. 164; Don’s Mill., 3, p. 150.


**Engravings.** Schmidt Baum., t. 92.; and our fig. 870.

**Spec. Char., &c.** Leaves full of resinous glands, 3 or 5-lobed, cordate, doubly serrated. Racemes pendulous, pubescent. Bracteas linear, longer than the pedicels. Calyx tubularly campanulate, glabrous: with the segments obtuse, and at length reflexed. Germens and black berries oval-globose, glabrous. This is in many respects nearly allied to *R. nigrum*; but its more copious and denser flowers, and especially their long bracteas, and more tubular calyces, will always distinguish it: the solitary pedicel, too, at the base of the flowers, is wanting in this species. Petals oblong, rather erose at the apex; greenish yellow. (Don’s Mill.) A large shrub. Canada to Virginia, in hedges and woods. Height 4 ft. to 6 ft. Introduced in 1729. Flowers pale yellow; April and May. Fruit black; ripe in July.
Varieties.


\textit{30. R. (n.) Procumbens Pull.} The procumbent black currant.


\textit{Engravings.} Pull. \textit{Fl. Ross.}, 2. p. 35, t. 65; and our fig. 871.


A procumbent shrub. Siberia, in moist places. Height 1 ft. to 2 ft. Introduced in 1804. Flowers greenish yellow; May and June. Fruit brownish; ripe Aug.

\textit{31. R. (n.) Prostratum Lin.} The prostrate black currant.


\textit{Variety.}

\textit{32. R. (n.) Resinosum Pursh.} The resinous black currant.


\textit{Synonyme.} \textit{R. orientale} \textit{Catros}; \textit{R. reclinátum Hort.} \textit{Engravings.} Bot. Mag. t. 1583; Berl., 1. c., t. 2. f. 10.; and our fig. 873.


\textit{33. R. (n.) Punctatum Ruiz et Pav.} The dotted-leaved black currant.


RIDES.

Leaves and Flowers and A ripe Don's racemes 2 Stem herbarium. deep lobe.

Introduced sue 483 one, serrated, April; i4. A, V

Botanical spikes very large berries agreeable odour.

Our (n.) 11. R. (n.) hetero'trichum. Beneath hispid above, but full of resinous dots beneath; racemes often terminal, at length reflexed. Pedicels erectly spreading, pubescent, exceeding the spathulate bracteas. Calyx rotate, glabrous. Petals minute, roundish. Gernmens and berries full of resinous dots. (Don's Mill.) A large shrub. North-west coast of America, at the confluence of the Columbia with the ocean. Height 5 ft. to 8 ft. Introduced ?. Flowers purplish yellow; April and May. Fruit about the size of the red currant, greenish, hairy.

A very remarkable and elegant shrub, with leaves
resembling those of the common sycamore, and nearly as large. It is much to be desired that it could be introduced into British gardens.

36. R. viscosissimum Pursh. The very clammy black Currant.

Engravings. Hook. Fl. Bor. Amer., 1, p. 334, t. 74; and our fig. 878.

Spec. Char., &c. Leaves cordate, obtuse, 3—5-lobed, deeply crenated. Viscid and glandular pubescence. Glands on both surfaces. Racemes erect, corymbose. Bracteas linear-obovate, rather shorter than the pedicels, which are clothed with glandular hairs. Calyx tubularly campanulate, with erectly spreading obtuse segments. Germens and fruit ovate-oblong, clothed with viscid hairs. Berries oblong-ovate, black. Flowers large and white. (Don's Mill.) An upright shrub. North America, on the Rocky Mountains, towards the sources of the Columbia; also on the summits of the hills near the Spokan and Kettle Falls, at an elevation of 8000 ft. above the sea. Height 4 ft to 8 ft. Introduced in 1826. Flowers whitish or yellowish; April and May. Fruit black; ripe in July. A very fine and remarkable species, somewhat difficult to keep.

37. R. (n.) Hudsonia num Richardson. The Hudson's Bay black Currant.

Engravings. Our fig. 879 in Bosser, and fig. 880 in fruit, from a specimen in Dr. Lindley's herbarium.

Leaves 3-lobed, quite glabrous above, full of resinous dots beneath, and, as well as the petioles, villous. Germens dotted. Berries globose, glabrous. Black. Racemes erect, pubescent. Bracteas short. Segments of the calyx, which is campanulate, spreading. Flowers small. Petals white. The fruit, and peculiar odour of the plants, are those of R. nigrum. (Don's Mill) An erect shrub. North America, from Hudson's Bay to the Rocky Mountains, in the west, and as far north as lat. 57°, including the mountains of Columbia, about the Kettle Falls. Height 3 ft to 4 ft. Introduced in 1820. Flowers whitish; April and May. Fruit black; ripe in July. Horticultural Society's Garden.

38. R. Glaciale Wall. The icy black Currant.

Engravings. Our fig. 881 from a specimen in the Linnaean herbarium.

Spec. Char., &c. Bracteas smooth. Leaves glabrous above, but with few scattered bristly hairs beneath, cordate at the base, 3—5-lobed at the apex.

39. **R. inebrrians** Lindl. The intoxicating Currant.


**Engravings.** Bot. Reg., t. 1471.; and our fig. 882.


This species was received from Mr. Floy of New York, under the name of the intoxicating currant, but without any other account of its properties. The berries may probably possess some narcotic quality.

40. **R. cereum** Dougl. The waxy-leaved Currant.


**Engravings.** Bot. Reg., t. 1263.; and our fig. 883.

**Spec. Char., &c.** Leaves small, cordate, lobed, serrated, clothed with glandular pubescence, glabrous, glaucous, full of white glands above. Racemes pendulous, rather capitate. Bracteas ovate, adpressed to the germen, which are glabrous. Flowers nearly sessile, cylindrical, rather angular. Calycine segments small, reflexed. (Don's Mill.) A low bush. North-west America, on the banks of the Columbia, and its southern tributary streams, from the Great Falls to the Rocky Mountains. Height 2 ft. to 3 ft. Introduced in 1827. Flowers whitish; April. Fruit amber; ripe in July.

In its small foliage and few-flowered racemes, this species resembles the gooseberry tribe; but it has no thorns. The flowers are rather large and white, with a slight tinge of green, and are rather downy. White waxy dots like scales cove the upper surface of the leaf; whence the specific name.
**C. Flowers deep red. Fruit black.**

R. sanguineum Pursh. The bloody, or red, flowered Currant.


**Synonymes.** R. malvaceum Smith in Rice's Cyc. ; Calobrya sanguinea Spach.

**Engravings.** Hort. Trans., 7. t. 15.; Bot. Reg., t. 1349.; and our fig. 884.

*Spec. Char., &c.* Leaves coriaceous, somewhat 5-lobed, serrated, veiny, smoothish above, but clothed with villousomentum beneath. Racemes drooping, pubescent, twice the length of the leaves. Calyx tubularly campanulate, with oblong, obtuse, spreading segments, exceeding the petals, which are red, and quite entire. Bracteas obovate-spatulate. Berries turbinate, hairy, (Don's Mill.) A large branchy smooth shrub. North-west coast of America, in rocky situations, by the sides of streams. Height 4 ft. to 8 ft. Introduced in 1826. Flowers deep rose; March and April. Fruit purplish, with a glaucous bloom; ripe in August.

**Varieties.**

R. s. 2 glutinosum. R. glutinosum Benth. Hort. Trans., 2d ser. vol. i. p. 476.; R. angustum Doug. MS. (Our fig. 885.)—The foliage is destitute of down, and slightly viscous. The racemes are rather larger than in the species, and the flowers are of a very pale rose colour. This variety comes into leaf a month before the species.

R. s. 3 malvaceum. R. malvaceum Benth. l. c. (Our fig. 886.)—Leaves rough and hispid on the upper side, and clothed underneath with a whitish cottony down. The racemes of flowers are shorter and closer; and each flower is almost sessile on the common stalk. In colour, the flowers are rather darker than those of R. s. glutinosum, and have more of a lilac tinge.

R. s. 4 atro-rubens Hort. — Flowers and racemes rather smaller, and of a much deeper and darker red, than those of the species. Horticultural Society's Garden.

By far the most ornamental species of the genus. It is easily propagated and as hardy as the common black currant. It flowers profusely; and, coming into bloom early in the season, forms the most splendid bush to be seen in British shrubberies, from the middle or end of March to the beginning or middle of May. A great many seeds were sent over by Mr. Douglas, a number of which were distributed by the Horticultural Society; and the plants produced from them have varied in the colour of their flowers, from pale pink to deep red. The plants, also, seed freely in this country; and hence a number of varieties have been originated by nurserymen, independently of R. s. malvaceum and R. s. glutinosum, which differ from the species, not only in the shades of colour of their flowers, but also in their leaves. The variety which has the darkest-coloured flowers is R. s. atro-rubens.


**Engravings.** Led. Fl. Ross. Alt. ill., t. 231; our fig. 887, from a living plant in the Birmingham Botanic Garden; and fig. 888, from Ledebour.

**Spec. Char., &c.** Stem erect. Leaves pubescent, nearly orbicular, cordate, 3—5-lobed; lobes acute, serrated. Racemes drooping. Pedicels exceeding the bracteas. Calyces campanulate, ciliated. Berries glabrous, and bractless; dark purple, and the size of those of the common currant. (Don’s Mill.) An upright shrub. Altaia, on mountains and subalpine places on the river Ursal; and also at the river Tscharysch. Height 4 ft. to 6 ft. Flowers deep purple; April and May. Fruit dark purple; ripe in July.

**Varieties.**

R. a. 1.—Flowers deep purple. Leaves rather pubescent beneath, but smooth and glabrous above, as well as the branches.

R. a. 2.—Leaves rather pubescent beneath, but hispid from bristles above, as well as the petioles and stems. Found near the river Volkschoi Ulegumen.

R. a. 3.—Flowers paler. Leaves pubescent above, but most so below. Branches smooth.

§ iv. **Symplocalyx** Dec.

**Derivation.** From *symply*ō, to grow together, and *kalyx*; in reference to the sepals of the calyx of the species belonging to this section.


43. *R. aureum* Pursh. The golden-flowered Currant.


**Engravings.** Berl., i. c., t. 2. 1. 23.; Bot. Reg., t. 125.; and our fig. 889.

**Spec. Char., &c.** Quite glabrous. Leaves 3-lobed; lobes divaricate, with a few deep teeth, shorter than the petioles, which are ciliated at the base. Calyces tubular, longer than the pedicels. Tube slender. Segments oblong, obtusae. Petals linear, much shorter than the calyceine segments. Bracteas linear, length of the pedicels. Style entire. Berries glabrous. Flowers golden yellow. Fruit yellow, seldom black, and of an exquisite flavour. (Don’s Mill.) An upright branchy shrub, which before blooming has the appearance of a species of *Crataegus*. North-west America, in light gravelly soils, from the Great Falls of the Columbia River to the mountains, and on the southern branches. Height 6 ft. to 8 ft. Introduced in 1812. Flowers yellow; April and May. Fruit yellow, seldom black; ripe in August.

**Varieties.**

Berries copious, earlier, turbinate. Racemes bracteate.

**R. a. 2. villösüm Dec.** Prod. iii. p. 483. *R. longiflorum Fras. ser's Cat. 1813.*
Leaves rather villous.

**R. a. 3 serótimum** Lindl. l.c., and our fig. 891. — Flowers late. Leaves of various forms, smoothish beneath; lobes deeply serrated. Berries few, late, and round in shape. Racemes naked.

All the forms of this species are highly ornamental, from their fine, large, bright yellow flowers, which are produced in abundance; and their smooth, glossy, yellowish green leaves. The plants are, also, more truly ligneous, and of greater duration, than those of most other species of Ribes. Next to *R. sanguineum*, and its varieties, they merit a place in every collection.

**44. *R. (a.)* tenuiflorüm Lindl.** The slender-flowered Currant.


**Spec. Char., &c.** Unarmed, quite glabrous. Leaves roundish, 3-lobed, mealy; lobes bluntly toothed at the apex. Racemes pendulous, many-flowered. Calyx tubular, glabrous, longer than the pedicels, coloured. Petals quite entire, linear, one half shorter than the segments of the calyx, which are oblong and obtuse. Bracteas linear, length of the pedicels. Berries glabrous. (Don's Mill.) An upright branchy shrub. North America, on the rocky tracts of the Columbia, near the head waters of the Missouri. Height 6 ft. to 8 ft. Introduced in 1812. Flowers yellow; April and May. Fruit purple or yellow; ripe in August.

**Varieties.**

**R. (a.) t. 1 fructu nigro.** — Berries changing from yellow to red, and finally acquiring a deep blackish purple colour.

**R. (a.) t. 2 fructu lítceo.** — Fruit yellow; always retaining the same colour.

In habit, this species is more erect than *R. aureum*, and has the young wood more thinly clothed with leaves; its whole appearance is also paler, during the early part of the season. The flowers are not more than half the size of *R. aureum*, and have entire, not notched, petals. The fruit is about the size of the red currant, of an agreeable flavour, but possessing little acidity.

**45. *R. (a.)* flá'vum Coll.** The yellow-flowered Currant.


**Spec. Char., &c.** Unarmed, quite glabrous. Young leaves 3-lobed; adu

A very ornamental species, of vigorous growth, fine shining foliage, and of greater duration than many species of Ribes.

**Order XXXIII. ESCALLONIACEÆ.**

**Ord. Char.** Calyx 5-toothed. Petals 5, forming a tube by their cohesion, finally separating; aestivation imbricated. Stamens definite. Disk epigynous, surrounding the base of the style. Ovarium 2-celled, containing two large placetas in the axis. Stigma 2-lobed. Capsule crowned by the calyx and style, dehiscing at the base. Seeds numerous, minute. Albumen oily. The cohering petals, oily albumen, and situation of placetas separate this from Grossulariaceæ. (G. Don.)

Leaves simple, alternate, exstipulate, deciduous or evergreen; lanceolate serrated or entire. Flowers, terminal in spikes or racemes.—Shrubs, natives of North and South America, of which two genera are in British gardens, which are thus contradistinguished:—


**Escallo'nia.** Stigma peltate, 2-lobed. Capsule baccate.

**Genus I.**


**Synonyms.** Cedrella Lour.; Diconandra Michx.

**Derivation.** *Itea* is the Greek name of the willow, which is given to this genus on account of the quick growth of the *Itea virginica.*

**Gen. Char.** Calyx bell-shaped, with 5 teeth, persistent. Petals 5, their aestivation valvate. Stamens 5, shorter than the petals. Both petals and stamens inserted upon the tube of the calyx. Teeth of calyx, petals, and stamens, alternate with one another. Ovary not connate with the calyx. Style, at first, seemingly one; afterwards it parts into two portions: hence, there are rather 2 styles connate. Stigmas capitate, mostly divided by a furrow. Carpels two, connate into a capsule of 2 cells, that has 2 furrows, and parts from bottom to top. Seeds in two rows along the introflexed margins of the carpels. (*Dec. Prod.*)
Leaves simple, alternate, exstipulate, deciduous; lanceolate, toothed. Flowers small, white, in simple terminal racemes. — A shrub, native of North America.

1. I. virgínica L. The Virginian Itea.


Engravings. N. Du Ham., 6. t. 9.; Bot. Mag., t. 2499.; and our fig. 895.


It may be propagated by cuttings, but more readily by layers, suckers, or seeds, which are annually imported from America; and it thrives best in a sandy or peaty soil, kept moist. The plant, to be kept in vigour, should have the old wood frequently cut down to the ground. When grown in a situation that is rather moist, its flowers make a fine appearance late in the season, when there are few other shrubs in blossom.

Genus II.

ESCALLONIA Mutis. The Escallonia. Lin. Syst. Pentándria Monogynia, 


Derivation. From Escallon, the pupil and companion of Mutis, during his travels in New Spain.


Leaves simple, alternate, exstipulate, sub-evergreen; serrated or entire, full of resinous glands. Flowers terminal, bracteate, variously disposed, white or red. — Sub-evergreen shrubs, natives of South America, more especially of Chili. Propagated with the greatest ease by cuttings; and growing freely in any common soil.

1. E. ru'bra Pers. The red-flowered Escallonia.


Synonyme. Stereoxylon rubrum Ruiz et Pav.


Varieties. In the Bot. Misc., ii. p. 252., three forms are recorded:—

1. E. r. 1 glabríliácula Hook. et Arn., with glandular branches, leaves
highly pubescent, and red flowers, which may be considered as the species.


3. E. r. 3 pubescens Hook. et Arn., with pubescent branches, and red flowers.

Very desirable shrubs for training against a wall.


Synonyme. E. floribunda var. b montevide'n'sis Schlecht. in Linnaea l. p. 543.; E. bifida Link et Otto Abbild. t. 23.

Engravings. Link et Otto Abbild., t. 23.; Bot. Reg., 147.; and our fig. 897.

Spec. Char., &c. Shrub glabrous. Branches erect. Leaves oblong, cuneate at the base, acutish, finely serrated, full of resinous dots beneath. Panicle terminal, many-flowered, crowded, intermixed with foliaceous bracteas. Lobes of calyx acute, rather denticulated. Petals ob lanceolate, oblong. (Don's Mill.) A sub-evergreen shrub. Brazil, in many places, but especially on the sandy banks and pastures of the Uruguny. Height 6 ft. to 10 ft. Introduced in 1827. Flowers white, very like those of the hawthorn, with a style which becomes double the length of the fruit after flowering; July to September.

Variety.

2. E. m. 2 floribunda, E. floribunda H. B. et Kunth, is a native of New Granada, on the Andes, with white flowers, and shining leaves, which are clammy when young. A very distinct variety considered by some as a species.

This species forms a remarkably vigorous-growing bush, with long, flexible, rope-like shoots, and is very prolific in flowers. It is so hardy as to have stood through several winters, as a bush, in the open ground of the Kensington Nursery, though it was killed by the winter of 1837–8.

3. E. Illini'ta Presl. The varnished Escallonia.


Engravings. Presl l. c., l. 59.; Bot. Reg., l. 1060.; and our fig. 898.


The whole plant emits a powerful odour, which to some persons resembles the smell of swine, and to others that of melilot or fenugreek. One of the hardiest species of the genus, and, like all the others, well deserving a place in collections.

Other Species of Escallonia. — E. resin'osa Pers., Stere'sylion resinosum Ruiz et Pavon (Don's Mill., iii. p. 94.), a native of Peru, on the cold parts of hills, which stood out at Kew for five years, till it was killed by the winter of 1837–8
E. pulverulenta Pers., Stereóxylon pulverulentum Ruiz et Pav., is a shrub, hairy in every part, with white flowers; growing to the height of 8 or 10 feet. It is a native of Chili; and plants of it were in the Horticultural Society's Garden from 1831 till 1837-8. Twenty other species are described in Don's Miller, iii. p. 193. to p. 195., all natives of South America, and probably as hardy as those above mentioned; but it does not appear that any of them have been introduced.

**Order XXXIV. Saxifragae.**  
**Tribe Hydrangeae.**


Leaves simple, opposite, exstipulate, deciduous. Flowers in large corymbs, pink or white, often sterile.—Suffrutose shrubs, natives of North America and Asia. Easily propagated by cuttings, and growing freely in any soil that is rather moist.

**Genus I.**


**Synonymies.** Hydrangea, and Horténias Just., 1 Hydrangea, Ital.

**Derivation.** From água, water, and aggus, a vessel; with reference to some of the species which grow in water; or, as some suppose, from the capsule resembling a cup.

**Gen. Char.** Flowers generally deformed; but some of them hermaphrodite and fertile. Calyx tube hemispherical, 10-ribbed, rather truncate, adnate to the ovary; limb permanent, 5-toothed. Petals 5, regular. Stamens 10. Styles 2, distinct. Capsule 2-celled, with introflexed valves, crowned by the teeth of the calyx and styles, flattish at the top, opening by a hole between the styles. Seeds numerous, reticulated. (Don's Mill.)

Leaves simple, opposite, exstipulate, deciduous; serrated or lobed. Flowers corymbose, pink, or yellowish white; the marginal ones sterile, and large, in consequence of the teeth of the calyx being dilated into broad, petal-like-coloured segments; the rest of the sterile flower partially abortive. — Shrubs, natives of North America and Asia.

**A. Species Natives of North America.**

1. **H. arborescens L.** The arborescent Hydrangea.


**Engravings.** Bot. Mag., t. 437.; and our fig. 899.

sylviana to Virginia. Height 4 ft. to 6 ft. Introduced in 1736. Flowers white, having an agreeable odour; July and August.

Variety.

H. a. 2 discolor Scop. in Dec. Prod. 4. p. 14.—Leaves almost white beneath from tomentum. It prefers a moist soil, and is readily propagated by division of the roots.


Spec. Char., &c. Leaves broadly ovate, acuminate, rather cordate at the base, coarsely toothed, glabrous beneath. Flowers all fertile, small, white, and sweet-scented. (Don's Mill.) A low shrub. Carolina, on mountains, and on the banks of the Missouri, above St. Louis. Height 6 ft. to 8 ft. Introd. in 1806. Flowers white; July, Aug.

Variety.

H. (a.) c. 2 georgica, H. georgica Lodd., Cat., differs from the species in flowering a little later, and being rather more robust.

We agree with Torrey, in thinking this merely a variety of H. arboréscens.


Synonyme. H. radiflora Wal. Fl. Cor. 251., ex Michx.; but not of Smith.

Engravings. Wats. Dendr. Brit., t. 43.; and our fig. 901.


Variety.

H. n. 2 glabella Ser. in Dec. Prod. 4. p. 14.—Leaves nearly glabrous beneath. Flowers all fertile. This variety has, probably, originated in culture.

4. H. quercifolia Bartram. The Oak-leaved Hydrangea.


Synonyme. H. radiflora Smith Icon. Pict. 12., but not of Wal.

Engravings. Bot. Mag., t. 975.; and our fig. 902.


This is by far the most interesting of the North American hydrangeas, from its large, deeply lobed, and sinuated leaves; and its
fine, large, nearly white corymbs of flowers, which are sterile, and appear from June till they are destroyed by frost. Culture as in the other species; but it is essential that the situation be sheltered, and the soil kept somewhat moist, otherwise the leaves are not perfectly developed, and the branches are apt to be broken off by high winds.

B. Species Natives of Asia.

5. H. heteromalla D. Don. The diverse-haired-leaved Hydrangea.


Engraving. Our fig. 903. from a specimen in the Linnean herbarium.


A very vigorous-growing plant in its native country, and probably as hardy in British gardens as some of the North American species.


Engravings. Wall. l. c., t. 50; and our fig. 901.


Other Species of Hydrangea.—H. Hortensis Sieb., H. hortensis Smith, a well-known ornament of gardens, is suffrutescent and hardy in the S. of England. Even in the climate of London it lives in sheltered situations in the open garden, because, though frequently killed to the ground, it always springs up again, and even flowers. — H. vestita Wall., a native of Nepal, is probably as hardy as H. altissima, and would be a most desirable introduction.

Order XXXV. UMBELLACEÆ.

Ord. Char. Calyx entire or toothed. Petals 5, entire, emarginate, or 2-lobed, each usually drawn out into a replicated or involuted point. Stamens 5. Ovarium 2-celled. Styles 2. Fruit of 2 separating pericarps, adhering by their faces to the carpophore. Fruit ribbed or winged. Peri-
carps 1-seeded. — Habit alone is sufficient to distinguish this order. (D. Don.)

Leaves simple, alternate, exstipulate, evergreen or sub-evergreen; quite entire. Flowers greenish yellow. — There are only one or two ligneous species hardy in British gardens, and these belong to the genus Bupleurum.

**Genus 1.**

**BUPLEURUM** Tourn. **The Bupleurum, or Hare's Ear.**

**Lin. Syst.** Pentändria Digynía


**Synonymes.** Tembræ and Bupræs Spreng. Syst. 1, p. 889.; Bupiære, or Oreille de Lièvre, Fr.; Hasenörien, Ger.

**Derivation.** From bous, an ox, and pleuron, a side; from the supposed quality of swelling cattle that feed on some of the species of the genus. The name of Hare's Ear, which is preserved in the French and German, has reference to the shape of the leaves.

**Gen. Char.** Calyx margin obsolete. Petals roundish, entire, strictly involute, with a broad retuse point. Fruit compressed from the sides. Seed terately convex, flatish in front. (Don's Mill.)

Leaves as in the order. — Smooth shrubs, natives of Europe and Africa, and some of Asia. Only one hardy species is in cultivation in British gardens.

2 a 1. B. FRUTICO'SUM L. The shrubby Bupleurum, or Hare's Ear.

**Identification.** Lin Sp., 343.; Don's Mill., 3, p. 301.; Webb Iter Hispan., p. 44.

**Synonymes.** Tembræ fruticosa Spreng. in Schultes Syst. 6, p. 376.; Bupræs fruticosa Spreng. Mag.; Seselæ athiophilæum Bank. Fl. Fr. 161.; Seselæ frutex Mor. Ums. 16.


**Spec. Char., &c.** Shrubby, erect-branched. Leaves oblong. attenuated at the base, coriaceous, l-nerved, quite entire, sessile. Leaves of involucre oblong. Ribs of fruit elevated, acute. Vittre broad. Bark of branches purplish. Leaves of a sea-green colour. (Don's Mill.) A neat sub-evergreen glaucous shrub. Portugal, Spain, the South of France, about Nice, Corsica, Sicily, Mauritania, and Thessaly. Height 3 ft. to 4 ft. in a wild state; 6 ft. in British gardens. Introduced in 1596. Flowers yellow; July and August.

It is readily propagated by cuttings, is of free growth in any dry calcareous soil, and is particularly vigorous on the sea coast in Kent. The blue glaucous hue of its smooth shining foliage renders it a desirable addition to every collection. If planted in an open airy situation, in a deep soil, not moist, and allowed to extend itself on every side, it would soon form a large hemispherical bush, highly ornamental during winter from its evergreen foliage, and during summer from its bright yellow flowers.

B. pretéscens L. (Cav. Icon., ii. t. 106.; and our fig. in p. ) has tender elongated branches, and linear-sabulate, stiff, striated leaves. It is a native of Mauritania in Spain, and also at Tarragona.

B. gibraltarica Lam. Dict., B. arboré-cens Jacq. (Ic. rar., ii. t. 354.; and our fig. 2094. in p. 1108.) grows to the height of 3 ft., and has fragrant flowers.
Order XXXVI. ARALIA'CEÆ.

ORD. CHAR. Calyx entire or toothed. Petals 5 or 10; aestivation valvate. Stamens same, or double the number of petals. Ovarium of 2 or more cells; cells 1-seeded. Styles numerous, usually distinct. Berry crowned by the limb of the calyx. Albumen fleshy. — Differs from the Umbelliferae in inflorescence, numerous styles, and baccate, generally many-celled fruit.

Leaves simple or compound, alternate, stipulate, deciduous or evergreen; serrated or entire. Flowers small, greenish.

The genera belonging to this order, which contain ligneous plants, are Aralia and Hedera, the former rather suffrutescent than permanently woody: their characteristics are as under:


Genus I.


Derivation. According to some, from ara, annoyance, the spines being very troublesome in its native country to travellers; but, according to others, a name of unknown meaning, under which one species was sent to Fagon, at Paris, from Quebec, in 1764, by one Sarrazin, a French physician.

Gen. CHAR. Calyx margin very short, entire or toothed. Petals 5, free, and expanded at the apex. Stamens 5. Styles 5, expanded, spreading divaricately. Berry 5-celled, usually torose. Pyrene chartaceous. (Don's Mill.)

Leaves compound, imparipinnate, alternate, stipulate, deciduous; large, rough. Flowers white, or greenish; in umbels, usually disposed in panicles. — Suffrutescent shrubs, with prickly branches and leaves, and with large pith. Natives of North America and Japan.

1. A. spino'sa L. The spiny Aralia, or Angelica Tree.


Synonymes. Aralie, Fr. and Ger.; Angelica spino, Ita.; Spikenard, N. Amer.


Spec. Char., &c. Stem arboreous and prickly. Leaves doubly and trebly pinnate. Leaflets ovate, acuminated, and deeply serrated. Panicle much branched, beset with velvety stellate down. Umbels nu-

An infusion of the fruit, in wine or spirit, is considered an effectual cure for the rheumatism. In British gardens, this species is propagated by cuttings of the roots; and, from its large doubly and trebly pinnate leaves, it forms a singularly ornamental plant, with a spreading, umbrella-like head, when standing singly on a lawn. After the plant flowers, the stem commonly dies down to the ground, like that of the raspberry, and, like it, is succeeded by suckers. Pursh "mentions a variety in which the petioles of the leaves are without prickles."

2. A. Japónica Thunb. The Japan Aralia.


Genus II.


Derivation. Various etymologies have been proposed for the word He'dera; but the most probable supposition appears to be, that it is derived from the Celtic word hedira, a cord. The English word Ivy is derived from the Celtic word, ee, green.

Gen. Char. Calyx margin elevated or toothed. Petals 5—10, not cohering at the apex in the form of a calyptra. Stamens 5—10. Styles 5—10, conniv ing, or joined in one. Berry 5—10-celled. (Don's Mill.)

Leaves simple, alternate, exstipulate, evergreen; lobed. Flowers umbellate or capitate. Fruit dark purple, or black.

Evergreen shrubs, climbing by the clasping roots produced by their stems, or creeping on the ground when without support. Natives of Europe and Asia.

1. H. He'lix L. The common Ivy.


Derivation. Helix is derived from eila, to encompass, or turn round; in reference to the clasping stems, which, however, are not twining.

Spec. Char., &c. Stems climbing, throwing out roots from their sides to any object next which they may be placed. Leaves coriaceous, glabrous, shining, with 5 angular lobes; those on the old upright and rectangular branches, which form the tops of the plants, ovate, acute, quite entire. Umbels simple, pubescent. (Don's Mill.) A well-known evergreen climber and creeper. Europe and Britain, in woods. Stem 20 ft. to 60 ft. Flowers greenish yellow, or greenish; October and November. Fruit black; ripe in April.

Varieties. De Candolle has enumerated three forms of this species which are independent of the varieties cultivated in British gardens:
The Varieties in British Gardens, additional to the above, are:

- H. H. 6 digitata Lodd. Cat. The palmate, or Hand-shaped, Ivy.
- H. H. 7 arbórescens Lodd. Cat. The arbórescent, or Tree, Ivy.—This variation is merely an extension of the flowering shoots, which are entire-leaved, and take an arbórescent character; and, when a portion of them is cut off, and has rooted as a separate plant, it will sometimes produce an upright bush, which will retain its arbórescent form for many years. Sooner or later, however, it resumes its native habit, and throws out rambling, or creeping, shoots, with 5-lobed leaves like the common ivy.

A variety with white berries is mentioned by Theophrastus, Pliny, Virgil, and Dioscorides.

The ivy will grow in any soil or situation, but thrives best when somewhat shaded. The common British variety, and its sub-varieties, are the best kinds for supporting themselves on walls, especially when young; at which period the giant ivy seldom throws out rootlets, though it does so subsequently.

Order XXXVII. Hamamelidaceæ.

Ord Char. Calyx 4-lobed or repandly toothed. Petals 4, linear, rarely wanting; stamens 8, short, those opposite the petals barren. Ovarium half-inferior. Styles 2—3. Capsule 2-celled, 2-valved. Ovulés biléd. Albenæe horny. The flowers are sometimes dicious, and sometimes polygamous. (G. Don.)

Leaves simple, alternate, bistipulate, deciduous; toothed or serrated. Flowers yellow or white.—Shrubs, deciduous; natives of North America.

Hamamelis L. Calyx 4-lobed, furnished with 3—4 scales outside. Capsule coriaceous, 2-celled.

Genus I.

Hamamelis L. The Hamamelis, or Wych Hazel.

Lin. Syst. Tetrandria Digynia.

Derivation. Hamamelis is a name by which Athenaeus speaks of a tree which blossomed at the same time as the apple tree; the word being derived from hamas, together with, and melas, an apple tree. The modern application seems to be from the Hamamelis having its blossoms accompanying its fruits (melas); both being on the tree at the same time.

Gen. Char. Calyx 4-lobed, adhering to the ovary at the base, furnished with 2—3 scales on the outside. Petals 4, long, alternating with the teeth of the calyx. Stamens 4, alternating with the petals. Ovary free at the apex. Capsules coriaceous, 2-celled, 2-valved. Arils 2 in each capsule.

Seed oblong, shining. (Don's Mill.)

Leaves simple, alternate, bistipulate, deciduous; ovate or cuneated, feather-nerved, nearly entire. Flowers nearly sessile, disposed in clusters, in the axils of the leaves, girdled by a 3-leaved involucrem. Petals yellow.—Shrubs or low trees, deciduous; natives of North America; interesting from producing their flowers in the autumn, which remain on the branch during the winter.

† 1. H. Virginica L. The Virginian Hamamelis, or Wych Hazel.


Occ. Char., &c. Leaves obovate, acutely toothed, with a small cordate recess at the base. (Don's Mill.) A deciduous shrub, Canada to Florida; in dry and stony situations, but frequently near water. Height 20 ft. to 30 ft., with a trunk 6 in. or more in diameter. Introduced in 1736. Flowers yellow; beginning of October to the end of February.

Varieties.

† 2. H. v. parvifolia Nutt. — Leaves smaller, oblong ovoate, and a more stunted habit than the species. Pennsylvania, on mountains. In British gardens, when planted in peat soil, this forms a very handsome little shrub; and is peculiarly valuable from being densely covered with fine yellow flowers throughout the winter.

† 3. H. v. macrophylla. H. macrophylla Pursh. — Leaves nearly orbicular, cordate, coarsely and bluntly toothed, and scabrous from dots beneath. Western part of Georgia, and North Carolina, on the Katawba Mountains. Introduced in 1812, and flowers from May to November.

In British gardens, it has been but little cultivated, notwithstanding the scarcity of its appearance in autumn and winter; when it is profusely covered with fine rich yellow flowers, which begin to expand before the leaves of the previous summer drop off, and continue on the bush throughout the winter. After the petals drop off in spring, the persistent calyces remain on the leaves reappear in April or May. It will grow in any light free soil, rather moist; and it is propagated by layers and by seeds; which last, though rarely produced in Britain, are frequently sent to this country from America. They ought to be sown immediately on being received, as they are on two years before they come up.
Genus II.


Derivation. In memory of John Fothergill, M.D., an eminent physician and patron of botany, who introduced many new plants, and cultivated an excellent collection in his grounds, at Ham House, at Stratford-la-bow, in Essex. He was, besides, one of the most charitable men of his time.


Leaves simple, alternate, bistipulate, deciduous; feather-nerved, clothed with soft starry down. Flowers white, sweet-scented, sessile, anthers yellow; in terminal ovate spikes, having a solitary bractea under each flower; those bracteas at the base of the spike are trifid, and those at its apex are nearly entire.

Shrubs, deciduous, of which there is only one species, but several varieties. Natives of North America.

\[1\]. F. ALNIFO'LLA L. The Alder-leaved Fothergilla.


Spec. Char., &c. See the generic character. The flowers, which are white and sweet-scented, appear before the leaves; the latter resembling those of the wyth hazel. A low deciduous bush. North America, Virginia to Carolina, in shady woods on the sides of hills. Height 3 ft. to 6 ft. Introduced in 1765. Flowers white, sweet-scented; April and May.

Varieties. The following are very distinct:


\[3\]. F. a. 2 acuta Sims, Pursh Sept. 1. p. 335.; F. Gärdeni Jacq. Icon. rar. t. 100. (Bot. Cab., t. 1507.), has narrow leaves, nearly entire, white from down beneath.

\[4\]. F. a. 3 major Sims Bot. Mag. t. 1342., Pursh Sept. 1. p. 335. (Bot. Cab., t. 1520.; and our fig. 911.) has leaves ovate-oblong, somewhat cor- date at the base, very black and serrated at the apex; when young, tomentose beneath.

In British gardens the fothergillas thrive best in moist sandy peat. They are propagated by seeds, which are sometimes ripened in this country, by generally received from America. The varieties are increased by layer. The fothergillas are naturally somewhat tender, and though not impatient of cold, yet they are easily injured by the proximity of other trees or bushes and by excessive drought or perpetual moisture.
Order XXXVIII. CORNA'CEÆ. CORNA'CEÆ.


Leaves simple, opposite, rarely alternate, exstipulate, deciduous, or sub-evergreen; ovate or oval, entire. Flowers white or yellowish.—Shrubs or low trees; natives of Europe and Asia.


BENThAMIA Lindl. Flowers disposed in involucrated heads. Fruit constituted of many pomes grown together.

Genus I.

CORNUS L. THE DOGWOOD. LIN. SYST. TETRÁNDRIA MONOGÝNIA.


Derivation. From cornu, a horn; the wood being thought to be as hard and as durable as horn. Hartriegel signifies hard rill, or hard wood. The name of Dogwood is applied to this genus because, as Parkinson says, in his Paradisus, the fruit of most of the species is not fit even for dogs; but it is more likely to have been given to it from the astringent properties of the bark and leaves, a decoction of which was formerly used as a wash for curing the mange, &c., in dogs.


Leaves simple, opposite, except in C. alternifolia, exstipulate, deciduous; entire, feather-nerved. Flowers sometimes capitate and umbellate, involucrated; sometimes corymbose and panicked, without involucra. Petals white, rarely yellow.—Trees under the middle size, and shrubs, deciduous; natives of Europe, Asia, and North America.

Most of the species ripen their fruit in England; but they are usually propagated by suckers, or by layers or cuttings. The wood of all the species takes the very best charcoal. Common soil, and most of the species will thrive in the shade of other trees.

§ 1. Nudifloræ Dec.

Stivation. From nudus, naked, and flōs, a flower; the inflorescence being without an involucre.

ct. Char. Flowers corymbose or panicked, without an involucre.

A. Leaves alternate.

† 1. C. Alternifol'ìà L. The alternate-leaved Dogwood.


Synonym. C. alternus Marsh.

Gravings. Guimp. Abb. Holz., t. 43; Schmidt Baum., 2. t. 70; and our fig. 212.

cc. Char., &c. Leaves alternate, ovate, acute, hoary beneath. Corymbbs depressed, spreading. Branches warty. Pomes purple, globose, about the size of a grain of pepper. Leaves on long petioles. Branches green or reddish brown. (Don)
Mill.) A smooth deciduous shrub or low tree. North America, from Canada to Carolina, in shady woods on river banks. Height 15 ft. to 20 ft. Introduced in 1760. Flowers white; May to July. Fruit purple; ripe in October. Decaying leaves reddish yellow. Naked young wood greenish or reddish brown.

This species is easily known from every other, even at a distance, by the horizontal umbelliferous character assumed by the branches, which are also dichotomous, with clusters of leaves at the joints; and the general colour is that of a lively green. The leaves are generally alternate, but not unfrequently opposite.

B. Leaves opposite.

2. C. sanguinea L. The blood-red-leaved, or common, Dogwood.


Synonyms. C. for'mina Roth Syn. 400.; Virga sanguinea Matth. Fl. algr. 1, p. 236.; Female Cornel, Dogberry Tree, Hound Tree, Hound's-berry Tree, Prickwood, Gates or Gates Tree, Gates or Gatier Tree, Cateri
dge Tree, wild Cornel; Cornusier sauvage, sanguin, or famelle, Puine or Bois punais, Fr.; rother Hartriegel, Ger.; Sanguinello, Ital.

Derivation. This species is called for'mina, and Female Cornel, because it bears fruit when very young; whereas Cornus màs produces male blossoms only till the tree is 15 or 20 years old. Virga sanguinea is literally the bloody twig, alluding to the colour of the shoots, though they are not nearly so red as those of Cornus àlba. The names of Dogberry Tree, Hound Tree, &c., arise from the same source as Dogwood. (See above.) Prickwood alludes to the use of the wood for skewers; Gates Tree is a corruption of Gaier treue, the Saxan name for this species; or, as some suppose, it is derived from gayta, the Spanish word for a pipe, the wood of this tree being more hollow, or full of pith, than that of C. màs. Cateridge, and all the other somewhat similar names, are derived from Gates. Chaucer calls the fruit Gaitres berries, evidently from the same origin. The French names of Puine, and Bois punais, bug-wood, are from the strong and unpleasant smell of the bark and leaves; and also because a decoction of them forms a wash to destroy bugs. Rother Hartriegel signifies red hard rai
er, or red hard wood.


Branches of a red dark when fully grown. Leaves 2 to 3 in. long. Flowers greenish white, unpleasantly scented. Petals revolute at the sides. Fruit dark purple, and very bitter. (Don's Mill.) A large shrub. Europe and the North of Africa, in hedges and thickets, especially on a chalk and limestone soil; plentiful in Britain, in like situations; and also said to grow in North America, near the lakes of Canada and near New York; but it has probably been introduced there. Height 4 ft. to 15 ft. Flowers white; June. Fruit dark purple; ripe in August and September. Decaying leaves deep red. Naked young wood green.

Varieties.

2. C. s. 2 Persuï Don's Mill. 3, p. 399.; C. sanguinea Pursh, Schmidt Bann. 2, t. 66.; has the flowers with yellow anthers, and the berries a dark brown. Lakes of Canada, and near New York; and only differs from the C. sanguinea of Europe in having the leaves pubescent, and in being of larger stature.

2. C. s. 3 foliis variegatis Lodd. Cat. has the leaves variegated with white and yellow, and occasional streaks of red. A plant lately received into Messrs. Lodging's collection, named C. candidissima fol. var., appears, from the leaves, to be identical with this variety. C. candidissima, in the same collection, appears from its leaves to be nothing more than C. sanguinea.

One of the commonest shrubs in old shrubberies; and easily known from all the other kinds of Cornus by the abundance of its dark purple fruit, and the intensely dark red of its leaves before they drop off in autumn. It is from this last circumstance, we suppose, that the specific name of sanguinea has been given to it, though it is much more obviously applicable to C. àlba, on account of the redness of its shoots. C. purpurea would be a much better
name as contrasted with *C. alba*, both names applying to the fruit. The wood, which is hard, though not nearly so much so as that of *Corylus* mas, was formerly used for mill-cogs, and for various purposes in rustic carpentry; and it still makes excellent skewers for butchers, toothpicks, and similar articles. The bark tastes like apples.

3. *C. a'îba* L. The white-fruited Dogwood.


**Engravings.** Pall. Fl. Ross., i. t. 34.; and our fig. 914.

**Spec. Char., &c.** Branches recurved. Branchlets glabrous. Leaves ovate, acute, pubescent, hoary beneath. Corymbs depressed. Branches of a fine red colour. Fruit white, or bluish white. (*Don's Mill.*) A large shrub. Siberia, at the rivers Oby and Irtysh, among bushes, &c.; North America, from Virginia to Canada, on the banks of rivers and lakes; and also in North California. Height 4 ft. to 10 ft. Introduced in 1741. Flowers white; May to July. Fruit white or bluish white; ripe in September. Decaying leaves red or reddish yellow. Naked young wood intensely red or coral colour.

**Varieties.**

- **C. a. 2** circinata Don's Mill. iii. p. 399., *C. circinata* Cham. et Schlecht., in Linnea iii. p. 139., has the berries of a lead colour. Throughout Canada, and from Lake Huron to lat. 69° N.

- **C. a. 3** sibirica Lodd. Cat., ed. 1836, has the shoots of a fine orange red, covered with a delicate bloom. It makes a splendid appearance in the winter season.

Interesting in summer, from its fine large leaves and white flowers; in autumn, from its white fruit, which are about the size and colour of those of the mittletoe; and in the winter and spring, from the fine red of its young shoots.


**Engravings.** Schmidt Baum., 2, t. 67. and our figs. 915, 916.

**Spec. Char., &c.** Branches straight, fastigiate. Leaves ovate, acuminate, glabrous, green on both surfaces; when young, hardly pubescent beneath. Corymbs convex, somewhat panicled. Branches reddish brown. Anthers blue. Pomes globose, soft, blue on the outside, but white inside. (*Don's Mill.*) An upright shrub. North America, from Carolina to Canada, frequent on the banks of rivers; also in Mexico, between Tempico and Real del Monte. Height 6 ft. to 10 ft. rarely 20 ft. Introduced 1758. Flowers white; June and July. Fruit blue without and white within; ripe in October. Decaying leaves reddish green. Naked young wood green, or rusty green.
Varieies.

C. (a.) s. 2 asperifolia, C. asperifolia Loddd. Cat. ed. 1836, if not identical with the species, differs from it very slightly.

C. (a.) s. 3 semprevirens, C. semprevirens Loddd. Cat. ed. 1836, closely resembles the species, but differs from it in retaining its leaves throughout a part of the winter.

C. (a.) PANICULATA L'Hérit. The panicled-flowering Dogwood.


Engravings. Schmidt Baum., 2, t. 68.; and our fig. 917.


Varieies.


Identification. L'Hérit. Corn., No. 6, t. 2; Don's Mill., 3, p. 309.


Engravings. Schmidt Baum., 2, t. 64.; and our fig. 918.


Variety.

C. (a.) s. 2 oblongifolia Dec. Prod. iv. p. 272., C. oblongifolia Raffin in Litt., has leaves oblong and glabrous above.

This sort is very distinct from the two preceding ones, and comes nearer, in general appearance, to C. alba than they do; but it is a weaker plant, and smaller in all its parts than that species. The two preceding sorts, C. (a.)
stricta and C. (a.) paniculata, have much narrower leaves, and a more compact fastigiate habit of growth, than any other species or variety of the genus. C. (a.) paniculata is the handsomest of the three sorts for a small garden, as it is easily kept of a small size, and in a neat shape, and it flowers profusely.

† 7. C. (a.) circinata L'Hérit. The rounded-leaved Dogwood.


**Engravings.** Schmidt Baum, 2. t. 69.; and our fig. 910.

**Spec. Char., &c.** Branches warded. Leaves broadly oval, acuminate, clothed with hoary tomentum beneath. Corymb depressed, spreading. Branches slightly tinged with red. Leaves broad, waved on their edges. Flowers white, as in most of the species. Pomes globose, at first blue, but at length becoming white. (Don's Mill.) A large shrub. North America, from Canada to Virginia, on the banks of rivers; and probably of California. Height 5 ft. to 10 ft. Introduced in 1784. Flowers white; June and July. Fruit at first blue, and then turning white; ripe in October. Decaying leaves rusty brown. Naked young wood green, tinged with red.

Readily distinguished from all the other sorts, by its broader leaves, and its rough warded branches.

† 8. C. oblonga Wall. The oblong-leaved Dogwood.


**Engraving.** Our fig. 920, from a specimen in Dr. Lindley's herbarium.

**Spec. Char., &c.** Leaves oblong, acuminate, acute at the base, glaucous, and rather scabrous beneath, with many excavated glands along the axils of the ribs and nerves. Corymb spreading, panicled. Young shoots clothed with short adpressed hair. Leaves 4 in. to 6 in. long, and 1 in. to 1½ in. broad. Petioles about an inch long. Flowers white or pale purplish, fragrant. Calyx clothed with adpressed silvery hairs, as well as the pedicels and petals. Ovarium 3-celled. Pome ovate-oblong. (Don's Mill.) A large shrub. Nepal, about Narainhetty, Katmandu, and the Valley of Dhoon. Height 10 ft. to 15 ft. Introduced in 1818. Flowers white or purplish, fragrant.

§ ii. Involutracæ Dec.

**Derivation.** From involucrum, an involucre, with which the heads of flowers are severally surrounded.

**Sect. Char.** Flowers disposed in heads or umbels, surrounded by coloured involucres, which are usually composed of 4 leaves. (Dec. Prod.) Trees, with yellow umbelled flowers.

† 9. C. mas L. The male Dogwood, the Cornell, or Cornelian Cherry Tree.


**Synonyme.** C. mascula L'Hérit. Cora. No. 4.; Long Cherry Tree; Cornelia; Cornouiller mâle, Cornes, Corneilles, Fr.; Kornel Kirschche Hartliegel, Ger.; Cornolo, Ital.

The name of mas has been applied to this species since the days of Theophrastus; in all probability, because young plants are barren for many years after they show flowers—these
flowers being furnished with stamens only. For an opposite reason, the name of Cornus foemina was given to C. sanguinea. (See p. 502.) The name of Cornelian Cherry relates to the beautiful colour of the fruit, which resembles that of a cornelian. 


Varieties.

\( \times \) C. m. 2 fructu cæca colōris N. Du Ham. ii. p. 162. has the fruit of a wax colour.

\( \times \) C. m. 3 variegatus has the leaves edged with white or yellow.

The wood has been, in all ages, celebrated for its hardness and durability, and it is at the same time tough and flexible. In a dry state, it weighs 69 lb. 5 oz. to the cubic foot. The small branches are said to make the most durable spokes for ladders; wooden forks for turning the grain on barn floors, and for making hay; hoops, butchers' skewers, and toothpicks. The wooden forks are made by selecting branches which divide into three near the extremity; and, after cutting the branch to a proper length, which is commonly about 5 or 6 feet, the bark is taken off, and the three branches which are to form the prongs are bent so as to form a triangle, like the wooden corn forks of England. In this state they are put into a hot oven, where they are kept till they are hardened, so as to retain the shape given to them. Similar hay and straw forks are made of the nettle tree in France, and of the willow in various parts of England, by the same procedure. The fruit, when thoroughly ripe, is some-
what sweet, and not disagreeable to eat; and, on the Continent, it is frequently used in confectionery, and for making marmalades. As an ornamental tree, the cornel is valuable, not only on account of its early flowering, and the fine display made by its ripe fruit, but because it is a low tree, never growing out of bounds, and one which, after it has attained the height of 10 or 12 feet, is of slow growth, and of very great duration. For these last reasons, it is particularly suitable for small suburban gardens, in which it will form a fit associate for small trees of Crataegus, Berberis, Rhhamnus, Euonymus, Hamamelis, &c. Seeds; but layers or suckers come much sooner into a flowering state. There are remarkably fine specimens of this tree in the old French gardens in the neighbourhood of Paris, and also in the old gardens of Germany.

210. C. FLO' RIDA L. The Florida Dogwood.


Sygonym. Virginia Dogwood.

Engravings. Bot. Mag., t. 526.; Schmidt Baum., 2. t. 52.; and our fig. 923.

Spec. Char., &c. Branches shining. Leaves ovate, acuminate, pale beneath, beset with adpressed hairs on both surfaces. Flowers umbellate, protruded after the leaves. Leaves of involucre large, roundish, retuse, or nearly obcordate. Pomes ovate. Leaves of involucre white. Flowers greenish yellow, and very large. Pomes scarlet, about half the size of those of C. mas; ripe in August. (Don's Mill.) A large shrub or low tree. Carolina to Canada, in woods; and on the banks of the Columbia, near its confluence with the sea. Height 20 ft. to 30 ft. Introduced in 1731. Flowers large, yellowish white; April and May. Fruit scarlet; ripe in August. Decaying leaves yellowish green. Naked young wood brownish white.

Cornus floridæ is universally allowed to be the handsomest species of the genus. It thrives best in a peat soil, which must be kept moist; and the situation should be sheltered, though the foliage of the plants must be fully exposed to the influence of the sun, otherwise they will not flower. Cuttings or layers, both of which readily strike root.

Cornus grãndis Schlect. A small tree or shrub. Chico, in ravines. Introduced in 1838 by Hartweg, and probably hardy. "It has a beautiful foliage; the leaves being from 3 in. to 5 in. long, smooth and deep green above, hoary with down on the under side." The flowers are in small heads, and the fruit as large as a sloe, and purplish black, covered with bloom. (Bot. Reg. Chron., 1839.)

C. officinalis, a native of Japan, is figured by Sieboldt (t. 50.), and will probably prove hardy.

Genus II.


Derivation. Named in honour of George Bentham, Esq., F. L. S., Secretary to the Horticultural Society, and nephew of the celebrated moralist and jurist, Jeremy Bentham.

Gen. Char. Flowers disposed in heads, each head attended by an involucre which consists of 4 petal-like parts, and resembles a corolla. Calyx with a minute 4-toothed limb. Petals 4, fleshy, wedge-shaped. Stamina 4. Style 1. Fruit constituted of many pomes grown together; endocarp in each pome with 2 cells. Seeds solitary and pendulous in each cell. (Lindl.)
Leaves simple, opposite, exstipulate, sub-evergreen: entire. Flowers large, white. — A large shrub or low tree. Himalayas. Culture as in Cornus.


**Identification.** Hort. Trans., 2d series, 1, p. 452; Lindl. in Bot. Reg., t. 1579.

**Synonymes.** C. capitata Wall. in Roxb. Fl. Ind. 1. p. 434; Don's Mill. 3. p. 399; Chung-wa, in Nepal; Thiamowo'ro, in Serampore.

**Engravings.** Bot. Reg., t. 1579; Hort. Trans., 2d series, 1. t. 17.; and our fig. 924.

**Spec. Char.**, *&c.* Branches spreading, smooth. Leaves lanceolate, acuminate at both ends, on short petioles, rather rough with small adpressed down. Flowers sessile, densely aggregated, forming a round head girded by a 4-leaved scabrous involucrium. (Don’s Mill.) A large sub-evergreen shrub or low tree. Nepal, in Gossanthan. Height 10 ft. to 15 ft. Introduced in 1825. Flowers large, yellowish white; June. Fruit large, about the size of that of the common arbutus, reddish; ripe in October; yellowish white within, not unpleasant to eat. Young shoots whitish green.

Rather tender in the climate of London, though it forms a fine evergreen in some parts of Cornwall; perhaps it might be rendered hardier by grafting it on Cornus sanguinea. Readily propagated either from seeds or cuttings, and of easy culture in loamy soil, kept moist.

*Benthamia japónica* is figured by Sieboldt (t. 16.), and is probably hardy.

---

**Order XXXIX. Loranthaceae.**

*Ord. Char.* Calyx calyculate, entire or lobed. Petals 4—8, distinct or cohering; aestivation valvate. Stamens 4—8, opposite the petals, or more or less adnate to them. Style absent or present. Stigma capitulate. Berry 1-celled, 1-seeded, crowned by the calyx. Albumen fleshy. Flowers generally unisexual. The habit, and the stamens being opposite the petals, distinguish this from Caprifoliaceæ and Cornaceæ. (G. Don.)

Leaves simple, opposite, exstipulate, evergreen; entire. Flowers small, whitish, or purplish.—Shrubs, parasitical or terrestrial. Europe and Japan.

The hardy ligneous plants are included in the genera *Viscum*, *Loranthus*, and *Aucuba*.

*Viscum* L. Flowers dioecious or monœcious. Margin of the calyx obsolete. Petals usually 4, connected at the base in the male flowers, but free in the female. Berry globular, viscid, of 1 cell.

*Loranthus* L. Flowers dioecious or hermaphrodite. Margin of calyx entire. Petals 5—6, linear, reflexed.


**Genus I.**

*Viscum* L. The Mistletoe. Lin. Syst. Monœ'cia, or Dio'e'cia, Tetradri'a.

XXXIX. LORANTHA'CEÆ: VI'SCUM.

509

Synonyms. Misseldine, Guil, or Guy, Fr.; Mistl, or Missel, Ger.; Visco, or Vischio, Ital.; Legamomolda, Span.

Dermantum. Viscum, or viscum, is the Latin for bird'slime, which is made from the berries; and Mistletoe is by some supposed to be derived from mist, the German word for dung, or slimy dirt, and by others from mistela, the Saxon name for the plant.


Leaves simple, opposite, rarely alternate, exstipulate, evergreen; undivided, entire, rigid. Flowers in fascicles or spikes, greenish. Berries white.

—An evergreen shrub, parasitical on trees. Europe; in Britain, England.

&c. 1. V. a'lbüm L. The white-fruited, or common, Mistletoe.


The leaves vary considerably in different plants, as may be seen in fig. 926., which contains engravings of three different specimens. The durability of the plant is very great; for, when once established on a tree, it is seldom known to cease growing while the tree is in life; but, when it dies, or the branch on which it is rooted decays, or becomes diseased, the death of the mistletoe immediately follows. The trees on which the mistletoe grows belong to various natural orders; and, indeed, it would be difficult to say on what dicotyledonous trees it will not grow. In England, it is found on Tiliacææ, Aeceracææ, Rosacææ, Cupuliferææ, Salicacææ, Oleacææ, and, we believe, also on Coniferææ. It is found on the oak at Eastnor Castle (see Gard. Mag., vol. xiii. p. 206.); and in the neighbourhood of Magdeburg we saw it growing in immense quantities on Pinus sylvestris in 1814. In France, it grows on trees of all the natural orders mentioned, but least frequently on the oak. It does not grow on the olive in France, though it abounds on the almond. In Spain, it grows on the olive; as it does in the neighbourhood of Jerusalem; and, in the latter locality, is found the variety with red fruit, which is perhaps a Loranthus.

The mistletoe is propagated by the berries being, by some means or other, made to adhere to the bark of a living tree. The common agency by which this is effected is supposed to be that of birds; and more especially of the missel thrush, which, after having satisfied itself by eating the berries, wips off such of them as may adhere to the outer part of its beak, by rubbing it against the branch of the tree on which it has alighted; and some of the seeds are thus left sticking to the bark. If the bark should be smooth, and not much indurated, the seeds will germinate, and root into it the following spring; that is, supposing them to have been properly fecundated by the proximity of a male plant to the female one which produced them. The first indication of germination is the appearance of one or more radicles, like the sucker of a house fly, but larger; as at h i, in fig. 926., which are front views, and at k l in the same figure, which are side views, taken from mistletoe berries, which were stuck on the upright trunk of a cherry tree in our garden at Bayswater, in March, 1836, and germinated there, as they appeared on the 20th of May of the same year. When the white, viscous, pulpy matter of the mistletoe berry is removed, the kernel, or seed, appears of a greenish colour, and
flat; sometimes oval, at other times triangular, and at other times of various forms. In fig. 926, a is the male blossom magnified; b, the female blossom magnified; d, a berry cut through, transversely; c, a seed divided vertically, showing the two embryos; g, the embryo magnified; h, the two embryos, with the two radicles germinating; i, a single radicle; k, a side view, or section, of the two radicles; and l, a side view, or section, of the single radicle. Our mistletoes, at Bayswater, are now (Aug. 1840) from 4 in. to 8 in. in length, with 4 or 5 pairs of leaves, after having been four years sown. Mr. Moss, a nurseryman at Malvern, has succeeded in grafting the mistletoe standard high on young apple and pear trees, and also on poplars and willows. The grafts should be made in the first or second week in May; and they should never be lower than 5 ft. from the ground, or higher than 10 ft. Where the stock is not more than 3 in. in diameter, an incision is made in the bark, into which a scion of mistletoe, pared thin, is inserted, having a bud and a leaf at the upper end. In grafting longer pieces, a notch should be cut out of the stock; an incision made below the notch; and a shoulder left on the scion to rest on the notch, in the manner of crown grafting. In every case, there must be a joint on the lower extremity of the scion. The mistletoe may also be propagated by budding, taking care to have a heel of wood and a joint at the lower extremity of the bud. (See Gard. Mag., vol. xiii. pp. 206. and 283.)

**Genus II.**


**Derivation.** From lorum, a lash made of leather, and anlhos, a flower; alluding to the long linear shape and leathery substance of the petals.


**Leaves** simple, opposite or nearly so, exstipulate, evergreen: entire, rigid. Flowers in spikes, axillary and terminal. — An evergreen shrub, parasitical on trees; native of Austria.
XXXIX. LORANTHACEÆ: AU'CUBA.

§ 1. L. europæus L. The European Loranthus.

_Engravings._ Jacq. l. c.; our fig. 927., and our fig. 928. of the natural size.

![Image of L. europæus](image)


Berries of this plant were received from M. Charles Rauch of Vienna, by his brother, M. Francis Rauch, and sown on trees in the Horticultural Society's Garden, and also in our garden, at Bayswater, in January, 1839, though they have not yet vegetated.

Genus III.


_Derivation._ Aucuba is the Japanese name.

Gen. Char. _Flowers_ dioecious. _Calyx_ closely adhering, with the margin a little elevated, and 4-toothed; teeth obtuse, very short. _Petals_ 4, deciduous, alternating with the calycine teeth, inserted in the margin of the elevated fleshy 4-angled disk. _Stamens_ 4. _Ovarium_ cylindrical. _Style_ very short, thick, terete. _Berry_ fleshy, 1-seeded. (Don's Mill.)

_Leaves_ simple, opposite, exstipulate, evergreen; petiolate, coriaceous. _Flowers_ small, panicled.

An evergreen shrub or low tree; Japan; with dichotomous or verticillate branches, in the manner of those of _Loranthus_ and _Viscum_. The male blossom is unknown. Only the female state of this plant is in British gardens.

≡ 1. A. japonica Thunb. The Japan Aucuba.

_Synonymes._ Eubasis dichotomus Salisb. Prod. p. 68.; spotted-leaved Laurel, Japan Laurel.
**Order XL. CAPRIFOLIA'CEAE.**

**Ord. Char.** Calyx 5-lobed. Corolla monopetalous; tube short; limb 5-lobed; aestivation valvate. Stamens 5, adnate to the corolla, and alternating with its lobes. Ovarium 3-celled. Style exserted. Stigmas 3, distinct, or combined. Berry pulpy, rarely dry, crowned by the calyx, 1 or many celled. Seeds solitary, twin or numerous in the cells. Albumen fleshy. (G. Don.)

Leaves simple, or compound, generally exstipulate, deciduous, or evergreen. Flowers terminal, corymbose, or axillary. — Shrubs or low trees, natives of Europe, North America, and Asia, which may be arranged in two sections as under:

---

**Sect. I. Sambu'ce.e Humb. et Kth.**

**Sect. Char.** Corolla monopetalous, regular, rotate, with 5 segments only connected a little at the base; rarely tubular. Style wanting. Stigmas 3, sessile.


*Viburnum* L. Corolla rotate, subcampanulate, and tubular. Berry 1-seeded, crowned by the calycine teeth. Low deciduous trees or shrubs; partly evergreen.

---

**Sect. II. Lonice're.e Brown.**

**Sect. Char.** Corolla monopetalous, more or less tubular, usually irregular. Style filiform, crowned by three distinct or concrete stigmas.


*Symphoricar'pos G. Don. (Sympho'nia Pers.)* Calyx 4—5-toothed. Corolla almost regular. Berry crowned by the calyx, 4-celled, two of them empty, and the other two containing 1 seed each. Deciduous shrubs.

Sect. I. **Sambu’ceæ.**

**Genus I.**

**Sambucus Tom. I. The Elder.** Lin. Syst. Pentándria Trigýnia.


*Synonyme.* Phyteuma Lour., Coch. p. 138., but not of Lin.

*Derivation.* From sambeóké, which the Latins have changed to sambuca, a musical instrument which is believed to have been made of elder wood.

**Gen. Char., &c.** Calyx small, but divided into 5 deep segments, permanent. Corolla rotate, urceolar, 5-lobed; lobes obtuse. Stamens 5, about the length of the corolla. Filaments awl-shaped. Anthers roundish, and heart-shaped. Style none. Stigmas 3, obtuse. Berry globular, pulpy, of 1 cell, containing 3–5 seeds, which are convex on the outside, and angular inside. (Don’s Mill.)

Leaves compound, opposite, bistipulate, deciduous; stalked: leaflets toothed, pinnate, or jagged, often biglandular at the base. Flowers white or purplish, in terminal cymes, which are in some flat, and in others thyrsoid. Berries purplish, cathartic.—Those plants of the genus which have pinnate or jagged leaflets, are not true species, but only varieties; all the true species having only toothed leaflets.

Trees, low, deciduous, natives of Europe and North America; ornamental for their compound leaves, and large terminal cymes of flowers; which are succeeded by purplish, red, white, or green berries, from which a wine is made. All the species are of easy culture, in good soil, rather moist and loamy; and they are all readily propagated by cuttings.

A. Leaves pinnate. Flowers cymose or corymbose.

Y 1. S. ni’gra L. The common, or black-fruited, Elder.


*Synonyme.* Bourtry, or Bour Tree, Arntree, Scotch; Sureau, Fr.; Hollander, Ger.; Sambuco Ital.; Sauco, and Sabuco, Span.; Flaeder, Sweed.; Hylde, Dan.


Varieties.


2 S. n. 3 leucocárpa. — Fruit white.

3 S. n. 4 laciniata ; S. laciniata Mill. Dict. No. 2. (Lob. Icon., 2. t. 164. f. 2.; and our fig. 932); the Parsley-leaved Elder; has the leaflets cut into fine segments. The handsomest of all the varieties.


5 S. n. 6 monstrósa, S. monstrósa Hort., has the branches striped. Flowers of from 5—15 parts; and with from 5—15 stamens. Stigmas 5—12. Berries irregular.

6 S. n. 7 fóliis argénteis (fig. 933.) has the leaves variegated with white, and forms a striking and lively-looking plant in a shrubbery.

7 S. n. 8 fóliis luteis has the leaves slightly variegated with yellow.

The elder is cultivated in some parts of Kent for its fruit, which is much in demand for making elder wine. The flowers and bark are much used by herbalists; and the wood of old trunks, being very hard, is used as a substitute for that of box and dogwood. The young shoots, having large pith, are made into pop-guns, and the pith is used by electricians in various experiments. The plant, both in Britain and on the Continent, is sometimes used for forning hedges, and also as a nurse plant for plantations exposed to the sea breeze. In the latter capacity, it has the great advantage of growing rapidly the first five or six years, and afterwards being easily choked by the trees it has nursed up. The elder will not thrive except in a good soil, kept somewhat moist; and it will not flower and fruit abundantly, unless the situation be
open, and fully exposed to the light and air. The plant roots so readily from cuttings and truncheons, that, where the soil is tolerably moist, a plantation or a hedge may be made at once, by the use of the latter, instead of employing rooted plants.

2. S. canadensis L. The Canadian Elder.


Engravings. Schmidt Baum, 2. t. 142.; and our fig. 934.


A bush, in foliage resembling the common elder, but it is less hardy, and, in Britain at least, never assumes any thing of a tree character.

B. Leaves pinnate. Flowers panicled.

3. S. racemos'a L. The racemose-flowere'd Elder.


Variety.


This tree has a splendid appearance when covered with its panicles of fine, large, scarlet fruit, which resemble miniature bunches of grapes of the most brilliant scarlet. Its large leaves, with their deeply serrated pinnae, are also ornamental. It grows as freely as the common elder, and deserves a place in every collection; though it is very seldom found, in British gardens, such a size as to display its beauty. We should think it would succeed if dired on the common elder; and, as that species is abundant in many places,
plants might be trained to a single stem, and budded with S. racemosa standard high. It is very ornamental in the Paris gardens.

\[4. S. (r.) pu'bens Michx.\] The downy Elder.


**Engravings:** Our fig. 936. from a living plant in the Chelsea Botanic Garden.

**Spec. Char., &c.** Shrubby. Leaves pinnate. Leaflets 5, membranous, ovate-lanceolate, or oblong, acuminate, serrated, pubescent, but chiefly on the under side. Panicle thyrsoid. (Don's Mill.) A large shrub or low tree. Carolina to Canada, on the highest mountains. Height 6 ft. to 10 ft. sometimes 12 ft. Introd. 1812. Flowers white; April and May Berries red; ripe in August.

Closely resembling S. racemosa, of which it is probably only a variety. Sir W. J. Hooker mentions a variety with 7 leaflets, which may be designated S. (r.) p. 2 heptaphylla.

**Genus II.**

**VIBURNUM L. THE VIBURNUM.** Lin. Syst. Pentandria Trigynia.


**Synonyms:** O'pulus, Frutinum, and Thins, Town. Inst. p. 607. t. 376. and 377.; Frutinum and O'pulus, Meuch Meth. p. 55.; Viron, Fr.; Schneeball, Ger.; Viburno, Ital.

**Derivation.** According to Vaillant, the word Viburnum is derived from the Latin word eio, to tie on account of the pliability of the branches of some species. Viburna, in the plural, appears to have been applied by the ancients to any shrubs that were used for binding or tying.

**Gen. Char.** Calyx limb small, permanent. Corolla rotate, somewhat campanulate, or tubular, with a 5-lobed limb. Stamens 5, equal. Stigmas 3 sessile. Berry ovate or globose, 1-seeded from abortion, crowned by the calycine teeth. (Don's Mill.)

**Leaves simple, opposite, stipulate, chiefly deciduous, but partly evergreen petiolate. Flowers in terminal corymbs; usually white, but sometime virging to a rose colour. Decaying leaves red and yellow.—Shrubs; native of Europe, Asia, and North America; of easy culture and propagation, by seeds or layers, in any common soil.

\[§ 1. Tinus Tourn.\]


**Sect. Char., &c.** Leaves quite entire, or toothed. Style almost wanting; stigmas 3, sessile.

\[§ 1. V. TYNUS L. THE LAURUSTINUS.\]


**Derivation.** Laurustinus is from laurus, a laurel, and tinus, the Latin name of the plant; the word laurus being added, by old authors, from the supposition that this shrub belonged to the same family as the Laurus nobilis, or sweet bay. Lorbeerartiger is laurel-like.

**Engravings.** N. Du Ham., 2. t. 37.; Bot. Mag., t. 35.; and our fig. 937.

**Spec. Char., &c.** Leaves ovate-oblong, quite entire, permanent; having t
ramifications of the veins beneath, as well as the branchlets, furnished with glandular hairs. Coryms flat. Flowers white, but rose-coloured before expansion, and sometimes afterwards for a little time. Berries dark blue. (Don's Mill.) A compact evergreen shrub. South of Europe, and North of Africa. Height 8 ft. to 10 ft. Introduced in 1596. Flowers white; December till March. Berries dark blue; ripe in June.

varieties.

\[ V. \text{ T. 2 hirta Ait. Hort. Kew. ii.} \]
p. 166; \[ V. \text{ Tinus Mill. Dict. No. 4; } V. \text{ lucidum Mill., Pers., and Schultes.} \] Leaves oval-oblong, hairy beneath and on the margins. The flowers of this variety appear in autumn, and continue on the shrub all the winter. A native of Portugal and Spain, and the vicinity of Nice. Very distinct, from the comparative roundness of its leaves, and the hairiness both of the leaves and branches.

\[ V. \text{ T. 3 lucida Ait. l. c.} \] Leaves ovate-oblong, glabrous on both surfaces, shining. The cymes, as well as the flowers and leaves, are larger than those of the common sort, and seldom appear till the spring. When the winters are sharp, the flowers are killed, and never open unless they are sheltered. This is quite a distinct variety, with fewer and more spreading branches than the common kind, and much larger leaves, which are shining. There is a subvariety of it with leaves more or less variegated with white. It is a native about Algiers, and on Mount Atlas.

\[ V. \text{ T. 4 virgata Ait. l. c., Clus. Hist. No. iii. with a fig.} \] Leaves oblong-lanceolate, pilose on the margins, as well as on the under surface. It is a native of Italy, about Rome and Tivoli, &c.

\[ V. \text{ T. 5 stricta Hort. has somewhat erect and fastigiate habit. Horticultural Society's Garden. There is also a variegated subvariety.} \]

One of the most ornamental of evergreen shrubs, the foliage tufting in beautiful masses, and covered with a profusion of white flowers which commence expanding in November, and continue flowering till April or May. In British nurseries, it is frequently, for expedition's sake, increased by layers; but all the varieties are readily propagated by cuttings, taken off in autumn, and planted in a sandy soil, on a northern border. In two years, these cuttings will form saleable plants of the smallest size. The variety \[ V. \text{ T. lucida,} \] being somewhat more difficult to strike than the others, is generally increased by layers, which are made in autumn, and root in a year.

§ ii. Viburnum Tourn.

\[ \text{pseud. Lentago Dec. Prod. 4. p. 424.} \]
\[ \text{vict. Char., &c. Leaves deciduous. All the flowers fertile, and equal in shape and size, except in } V. \text{ lantanoides. Corolla rotate. Fruit oval.} \]

\[ \text{2} \] \[ \text{v. Lentago L. The Lentago, or pliant-branched, Viburnum.} \]


\[ \text{pseud. Tree Viburnum, Canada Viburnum; Viorae à Rameaux pendans, Vierne luisante, Fr. ; Braunblätteriger Schneeball, Ger. ; Canadische Schwalmenbeerstrauch, Schwalmenstrauch, Hayne.} \]

\[ \text{gravings. Wats. End. Brit., t. 21; Schmidt Baum., 3. t. 175; and our fig. 538.} \]

\[ \text{pec. Char., &c. Leaves broad-ovate, acuminate, sharply serrated, glabrous. Petioles with narrow curled margins. Corymbs terminal, sessile. Serratures} \]

\[ \text{L L 3} \]
of leaves hooked a little, and somewhat cartilaginous. (Don's Mill.) A robust shrub or low tree. New England to Carolina, among hedges and on the borders of woods; and found throughout Canada. Height 6 ft. to 10 ft. Introduced in 1761. Flowers white; July. Fruit black; ripe in September. Decaying leaves purple red and yellow. Naked young wood yellowish and reddish green.

In British gardens, this species forms, when pruned to a single stem, a handsome small tree, flowering freely and producing abundance of fruit, which is greedily eaten by birds. Propagated by layers, or by seeds.

3. V. (L.) PRUNIFOLIUM L. The Plum-tree-leaved Viburnum.


Synonyme V. Lentago Du Roi.


Engravings. Dend. Brit., t. 22.; and our figs. 940. and 941.

VIBURNUM.

Resembles the preceding species, but is not so straggling in its growth.

$\textit{5. V. (L.) nudum L.}$ The naked-corymbed Viburnum.


**Synonyme.** V. pyrifolium Poir.

**Engravings.** Wats. Dend. Brit., t. 20.; Mill. Icon., 274.; and our fig. 942.

**Spec. Char., &c.** Leaves oval-oblong, angular at the base, bluntish, with revolute obsolescently crenulated margins, quite glabrous. Petioles beset with scale-like scurf or down. Corymbs pedunculate, not involucrate. (Don's Mill.) A large shrub or low tree. Canada to Georgia, in swamps, particularly on a sandy soil. Height 6 ft. to 10 ft. Introduced in 1752. Flowers whitish; May to June. Fruit globose, black or dark blue; ripe in September.

**Variety.**

$\textit{5. V. (L.) n. 2 squamatum; V. squamatum Willd. Enum.}$ (Wats. Dend. Brit., t. 24.; and our fig. 943.) has the surface, midribs, and petioles of the leaves scaly ( whence its name), and their margins crenate, subdentate. The peduncles and pedicels are also covered with minute ferruginous scales; and the leaves are smaller, and of a bluer green than those of $\textit{V. nudum}.$

Sir W. J. Hooker says of this species, that he cannot satisfy himself of permanently distinguishing characters between it and $\textit{V. Lentago}$ and $\textit{V. prunifolium.}$ We think all the four varieties of the same form.

$\textit{6. V. Cassinoides L.}$ The Cassine-like Viburnum.


**Synonyme.** V. punctatum Rafin.

**Engravings.** Our fig. 944. from a specimen in the Lambethian herbarium.

**Spec. Char., &c.** Leaves ovate-lanceolate, acute at both ends, crenated, glabrous above, with subrevolute edges. Under side of leaves, as well as the petioles, which are keeled, and branches, which are trigonal, covered with scurfy dots. Corymbs sessile. (Don's Mill.) A large shrub or low tree. New York to Carolina, in swamps. Height 3 ft. to 5 ft. in America; 10 ft. to 12 ft. in England. Flowers white; June and July. Fruit ovate, bluish black; ripe in September.


Spec. Char., &c. Leaves lanceolate, or oblong-lanceolate, smooth, remotely or unequally serrated, cuneate at the base, and quite entire, glabrous. Branches tetragonally 2-edged, and also glabrous. Corymb s sessile. (Don's Mill.) A large shrub or low tree. Virginia and Carolina, near the sea coast. Height 10 ft. to 14 ft. Introduced in 1724. Flowers white; June and July. Fruit black; ripe in September.

2 & 8. V. Lantana L. The Wayfaring Tree.


Synonyms. V. tomentosum Lam. Fl. Fr. 3, p. 363.; wild Guelder Rose, pilant-branched Mealy Tree; Viorne cotonneuse, Camara, Viorne commune, Coudre-moinsigne, Moncienne, Fr.; Schillingstrauch, wolliger Schneeball, or Schwalmekstrauch, Ger.; Lentaggine, Ital.


Spec. Char., &c. Leaves cordate, rounded, finely serrated, venous, clothed beneath, but more sparingly on the upper side, with starry mealy pubescence, like that on the branches, petioles, and peduncles. Under side of leaves and branches white from mealy down. Cymes pedunculate, broad, flat, of numerous crowded white flowers. Bracteas several, small, acute. (Don's Mill.) A large shrub or low tree, with copious, opposite, round, pilant, mealy branches. Europe and the West of Asia, in low woods and hedges, chiefly on calcareous soils. Height 12 ft. to 15 ft. Flowers white; May and June. Fruit compressed in an early state, red on the outer side, yellow, and finally black, with a little mealy astringent pulp; ripe in August and September. Decaying leaves of a fine deep red.

Varieties.

2 & V. L. 2 grandifolia Ait., V. L. latifolia Lodd. Cat., has leaves larger than those of the species, and, according to some, ought to constitute a separate species itself. Mr. Gordon thinks this variety the same as V. (L.) lantanoides.

2 & V. L. 3 folia variegatiss Lodd. Cat. has leaves variegated with white and yellow.

It grows rapidly when young, often producing shoots 5 or 6 feet long, from stools in coppice woods; but becoming stationary when it has attained the height of 12 or 15 feet, which it does in 5 or 6 years; and, when pruned to a single stem, forms a handsome durable small tree. In Germany, the shoots of one year are employed in basket-making, and for tying faggots and other packages; and those of two or three years old are used for tubes to tobacco-pipes. Plants may be raised from seeds, which should be laid up in a heap in the rotting-ground, like haws; for, if sown immediately after being gathered, they will not come up for 18 or 20 months.

2 & 9. V. (L.) Lantana'ides Michx. The Lantana-like Viburnum, or American Wayfaring Tree.


Engravings. Bot. Cab., t. 1073.; and our fig. 947.

(Don's Miller.) The outer flowers of the corymbs are abortive and radiant; a circumstance, as Sir W. J. Hooker observes, noticed by few botanists. A shrub or low tree, very like V. Lantana, but of more humble growth, and the leaves are larger, and tomentose. Canada to Carolina, principally in the forests called Beech Woods, about Quebec and Lake Huron. Height 5 ft. to 10 ft. Introduced in 1829. Flowers white; June and July. Fruit first red, afterwards black. Hort. Soc. Garden.

10. V. (L.) dahu'ricum Pall. The Dahurian Viburnum.

Synonymes. Lonicera mongolica Pall. Fl. Ros. l. t. 38. f. t. 58. f. F. G.; Cornus dahu'ria Larm.


A tolerably distinct variety; but, in our opinion, by no means entitled to be considered a species.

11. V. (L.) cotinifolium D. Don. The Cotinus-leaved Viburnum.


Spec. Char., &c. Leaves roundish oval, quite entire, clothed with stellate tomentum on both surfaces, grey beneath, as well as the branchlets. Corymbs terminal, woolly. Flowers white. (Don's Miller.) A shrub. Himalayas, at the height of from 5000 ft. to 7000 ft., 300 N. lat. Height 6 ft. to 8 ft. Introduced in 1832, or before. Flowers white, tinted with pink; April and May.

In general appearance it closely resembles V. Lantana; but the flowers are much larger, and more tinted with pink; and neither flat nor bell-shaped, but of a distinct obconical figure.

12. V. dentat'tum Lin. The toothed-leaved Viburnum.

Spec. Char., &c. Partly glabrous. Leaves ovate, and nearly orbicular, plicate, coarsely and dentately serrated, with the nerves thick and feathered, glabrous on both surfaces. Cymes or corymbs pedunculate. Berries small, and nearly globose, of a dark blue colour, and crowned by the calyx. (Don's Mill.) A large shrub. New York to Carolina, in mountain woods; and also in Mexico. Height 4 ft. to 6 ft. Introduced in 1763.

Flowers white; June and July.

Fruit small, nearly globose, dark blue, and crowned by the calyx; not very frequently ripened in England.

Varieties. In the arboretum of Messrs. Loddiges, are plants named V. d. pubescens, V. d. foliis variegatis, V. acuminatum, V. longifolium, and V. montanum, which are either varieties of, or identical with, this species.

13. V. (d.) pubescens Pursh. The downy Viburnum.


Engraving. Our fig. 953. from a specimen in the British Museum.

Spec. Char., &c. Pubescent. Leaves ovate, acuminate, on short petioles, coarsely serrate-toothed, villous beneath, with the nerves feathered and prominent. Corymbs pedunculate. (Don's Mill.) A low shrub. Virginia and Carolina. Height 3 ft. Introduced in 1736. Flowers white; June and July. Fruit small ovate; smaller in every part than V. dentatum. The fruit is dark blue, but sparingly produced; the leaves die off yellow and red.


Engraving. Our fig. 954. from a specimen in the Lambertiert herbarium.


Judging from the plant in the Horticultural Society's Garden, this is a very distinct species, and its smooth shining yellowish green leaves render it more ornamental than most of the others of this section.

§ iii. O'pulus Tourn.


Seed. Char. Outer flowers of the corymbs radiant and sterile, much larger than the rest, which are fertile. Seed-obcordate. (Don's Mill.) Leaves mostly 3-lobed, and deciduous.

15. V. O'pulus L. The Guelder Rose.


XL. CAPRIFOLIACEAE: FICUBRUM.


Derivation. Altered from Populus, the poplar, from some supposed resemblance between the leaves of the plant and those of the poplar. The English name, Guelder Rose, is derived from Guelderland, where the double-flowered variety was first originated.


Spec. Char., &c. Quite glabrous in every part. Leaves broad, 3-lobed, acuminate, unequally serrated, veiny. Pétioles beset with glands towards the top, and several oblong leafy appendages lower down. Cymes pedunculate, white, with linear bracteas; with several of the marginal flowers dilated, flat, radiant, and without stamens or pistils. Seed compressed. (Don's Mill.) A shrub or low tree. Europe, and part of Asia, in moist hedges and swampy thickets; frequent in Britain, and also in Sweden, as far north as lat. 61°. Height 6 ft. to 12 ft. in a wild state, and higher in gardens. Flowers white; May and June. Fruit elliptical, crowned by the limb of the calyx, bright red, very juicy, but bitter and nauseous. Decaying leaves beautiful pink or crimson. Naked young wood smooth, green.

Varieties.

= V. O. 2 sterilitis Dec. Prod. iv. p. 328., Don's Mill. iii. p. 442. V. O. roseum Renv. et Schult. Syst. vi. p. 635.; the Snow-ball Tree, or Guelder Rose; Rose de Gueldres, Pellotte de Neige, Boule de Neige, Poire molle, Fr.; Schneeballe, Ger.—The specific name roseum is applied on account of the form of the flowers, and not because of their colour. Layers, sometimes by suckers, or it might be grafted on the species.

= V. O. 3 foliis variegatis Lodd. Cat. ed. 1836 has the leaves variegated with white and yellow.

= V. O. 4 nivea Hort.—A very distinct little plant, scarcely 1 ft. in height. Horticultural Society's Garden.

The Guelder rose, in a wild state, is not remarkable for the beauty of its flowers; but its bright red berries, which ripen in September, and which, towards the middle of October, assume a beautiful pink, almost compensate for the inferiority of the species to the variety in point of flowers. The leaves of both die off of a fine red on the first approach of frost. The snow-ball tree, or the Guelder rose (V. O. 2 stéritis), is one of the most ornamental shrubs, or low trees, that can be planted in a pleasure-ground.


17. V. (O.) orientale Pall. The Eastern Guelder Rose.


Engravings. Pall. Fl. Ross, t. 58. f. II.; and our fig. 957.

Spec. Char., &c. Leaves 3-lobed, acuminated, coarsely and bluntly toothed. Petioles glabrous, glandular. Corymb terminal, not radiate. Fruit oblong, compressed. Seed oval, furnished with two channels on both sides, as in V. Lantana. (Don's Mill.) A low shrub. (Georgia, in Asia Minor, in woods, on the mountains. Height 6 ft. to 10 ft. Introduced in 1827. Flowers white; July. Fruit; ?.


Engravings. Our fig. 958. from a specimen in the Lamberton herbarium.

Spec. Char., &c. Leaves 3-lobed, acute behind, 3-nerved. Lobes divaricate, acuminated, coarsely and distantly serrated. Petioles glandular. Corymbes radiate. (Don's Mill.) A large shrub or low tree. New York and New Jersey, on mountains and throughout Canada, to the arctic circle. Height 6 ft. to 12 ft. Flowers white; July. Fruit subglosose, red, of an agreeable acid, resembling that of cranberries, for which they are a very good substitute; ripe in September.

Varieties.

V. (O.) 0. 2 SUBINTEGRIFOLIUS Hook. Fl. Bor. Amer. i. p. 281., Don's Mill. iii. p. 442.—Leaves but little cut, very pubescent beneath. A native of the banks of the Columbia.


Very like V. O'Pulus, and there can be no doubt but that it is only the American form of that species. The fruit is comparatively large, and not disagreeable to the taste. Were a great number of seedlings grown till they produced fruit, and then the plant producing the largest and best-flavoured fruit selected and propagated by extension, the cranberry-fruited guelder rose might be cultivated in our kitchen-gardens and orchards for the same purpose as the common cranberry. We have no doubt whatever that its fruit would be soon as much relished by the public as the cranberry; and, as the guelder rose is less difficult in regard to soil and situation than that plant, a crop of fruit might be depended on with greater certainty. At all events, this and similar experiments offer interesting and useful employment to the amateur who has nothing better to do.


XL. CAPRIFOLIACEAE: DIERVILLA.


Engraving. Our fig. 970, from a specimen in Dr. Lindley's herbarium.

Spec. Char., &c. Leaves 3-lobed, bluntish behind, and 3-nerved. Lobes very short, denticulately serrated; serratures acuminate. Petioles glandular. Outer flowers of corymb radiate. A smaller and more upright shrub than the preceding species. The berries of the same colour and size; but, when completely ripe, more agreeable to eat, and frequently employed as a substitute for cranberries. It does not seem to differ much from V. Oxy- coccos, except in the broader base of the leaf. (Don's Mill.)

Canada to New York, on the banks of rivers. Height 5 ft. to 10 ft. Introduced in 1812. Flowers white; July. Fruit as in the preceding species.

Sect. II. LONICERAÆ.

GENUS III.


Description. Named by Tournefort, in compliment to M. Dierville, a French surgeon, who was the first to introduce D. canadensis into Europe.


Leaves simple, opposite, exstipulate, deciduous; ovate, acuminated, serrated. Flowers in axillary peduncles, bracteate, usually dichotomous.—Shrubs, deciduous. North America. Common soil, and suckers. Five species, natives of Japan, and figured by Sieboldt, are probably hardy, but they have not yet been introduced.


Spec. Char., &c. Leaves on short petioles, ovate, acuminated, serrated, and, as well as the petioles, glabrous. Fruit a dry brown capsule. Root
creeping, throwing up suckers. (Don's Mill.) A bushy shrub. Carolina, New England, and Newfoundland, on rocks and the highest mountains. Height 3 ft. to 4 ft. Introduced in 1739. Flowers yellow; June and July. Fruit brown; ripe in September.

There are a number of varieties of this species, differing in respect to the size of the flowers and of the leaves, but they are not worth keeping distinct.

**GENUS IV.**

**LONYCERA** Desf. **THE LONYCERA, or HONEYSUCKLE.** Lin. Syst. Pentándria Monogynía.


**Derivation.** Named after Adam Lonicer, a German, who was born in 1528, and died in 1555. There was another Lonicer, John, who wrote comments on Dioscorides.


Leaves simple, opposite, stipulate, deciduous, or evergreen; sometimes connate, entire, occasionally runcinate in the same species. Flowers axillary, or capitate, variously disposed. — Shrubs. erect or twining; natives of Europe, the North of Africa, Asia, and America.

The greater number of the species and varieties are of easy culture in British gardens, in common garden soil; and they are all propagated by cuttings, or some of them more readily by layers. The flowers of some of the species are highly fragrant and ornamental; and that of the common European honeysuckle is supposed to have given rise to one of the most beautiful ornaments of Greek architecture. “The honeysuckles offer an easy opportunity of improvement, by intermixing the fragrant and more vigorous with the yellow and the scarlet.” (Herb. Amaryll., p. 363.) The genus Lonicer of Linnaeus was separated by Ræmer and Schultes into the genera Lonicera and Caprifoliun; but they were reunited by DeCandolle, whose arrangement has been followed by Sir W. J. Hooker and G. Don, and is adopted by us on the present occasion. The distinctive characters of the sections are as follows:—

**Caprifoliun.** Plants twining. Flowers in capitate whorls.

**Xylosteum.** Plants twining or erect. Flowers axillary.

§ 1. **Caprifoliun** Dec.


**Derivation.** From *capra*, a goat, and *folium*, a leaf; in reference to the climbing habit of the species; or, as appears much more probable, because goats are fond of browsing on its leaves.

**Sect. Char.** Berries solitary, while young 3-celled, but when mature usually 1-celled, crowned by the tube of the calyx, which is permanent. Flowers disposed in capitulate whorls. Twining shrubs, mostly deciduous; natives of Europe, the North of Africa, China, Nepal, and North America; all of easy culture, and tolerably hardy, but none of them of long duration.

### A. Flowers ringent.— *Caprifolium* Tourn. Inst., p. 608.

#### 1. L. *Periclymenum L.* The Woodbine, or common Honeysuckle.


**Derivation.** *Periclymenum*, from *peri*, round about, and *kubit*, to roll. Woodbine is a corruption of woodbind, and both allude to the habit of the common sort, of winding itself round every tree and shrub within its reach, and binding them together. In the time of Chaucer, the woodbine was considered as the emblem of true love, from this property. The name of Honeysuckle has reference to the fondness of children for this plant, who amuse themselves with drawing the trumpet-shaped corollas from the calyx, to suck the honey from the nectary. Chêvreuille and Geissblätt both signify literally, goat's leaf. The Spanish and Italian names, Madre Selva, wood mother, and the Dutch name Kamperfoele, the champion mace, seem to have little relation to the plant.

**Engravings.** Engl. Bot., t. 800; Schmidt Arb., t. 167; and our fig. 963.

**Spec. Char., &c.** Leaves all separate, deciduous, sometimes downy, glaucous beneath, ovate, obtuse, attenuated at the base; upper ones the smallest. Heads of flowers all terminal, ovate, imbricated. Flowers ringent. There are varieties of this species with either smooth, pubescent, or variegated leaves; and, when the plant grows by the sea side, they are occasionally more glaucous and rather succulent. Corollas externally deep red; or, in the earlier-flowering varieties, all over buff-coloured; in the maritime plant, smaller and greenish. Berries nearly globose, accompanied by permanent bracteas. *(Don's Mill.)* A twining deciduous shrub, which always turns from east to west. Europe; common in hedges, groves, and thickets; plentiful in Britain. Stem 15 ft. to 30 ft. Flowers rich yellow; June and July, and, in moist summers, also in August, and sometimes in September. Fruit deep red, bitter and nauseous; ripe in September.

**Varieties.**

#### 2. L. P. 2 *serotinum* Ait. Hort. Kew., i. p. 378. *Periclymenum germanicum Miller Dictan., No 4., (Schmidt, Oester. Baumz. t. 108.; and our fig. 964.)—Branches glabrous. Flowers late, and reddish. This, the lat: red honeysuckle, produces a greater number of flowers together than either the Italian *(No. 3.*) or Dutch honeysuckle, so that it makes a finer appearance than either of them during its period of flowering. Introduced in 1715.

#### 3. L. P. 3 *bélégium.* *Periclymenum germanicum Mill. Dict., No. 4.—Branches smooth, purplish. Leaves oblong-oval, of a lucid green above, but pale beneath, on long petioles. Flowers in terminal verticillate heads; each flower arising out of a scaly cover, reddish on
the outside, and yellowish within; of a very agreeable odour. This, which is commonly called the Dutch honeysuckle, may be trained with stems, and formed into heads; which the wild sort cannot, the branches being too weak and trailing for the purpose.

L. P. 4 quercifolium Ait. Hort. Kew., the Oak-leaved Honeysuckle, has the leaves situated like those of an oak. Found wild in several parts of England. There is a subvariety of this, with the leaves slightly marked near the margin with yellow. The flowers are like those of the species.

All the varieties of the common honeysuckle are beautiful and fragrant; and, either trained against a wall, twining round a pole and over a parasol top, or climbing and rambling among bushes, form great ornaments to gardens. They are propagated by cuttings; but a large proportion of these do not succeed, owing to the tubular shoots admitting the wet during winter, and rotting the upper part of the cutting, that the more common mode of propagation is by layers. Both layers and cuttings are made in the autumn, as soon as the leaves have dropped; and they become sufficiently rooted in one year. (See Encyc. of Gard., edit. 1835.)

2. L. Caprifolium L. The Goat’s-leaf, or pale perfoliate, Honeysuckle.


**Synonyms.** Perie, vainum perfoliatum Ger. Enunc. p. 581.; Chévreuille des jardins, Fr.; Durewachsene, Ger.; Caprifolium, lat.

**Engravings.** Eng. Bot., t. 799.; and our fig. 965.

**Spec. Char., &c.** Leaves deciduous, ovate, acutish, glaucous; uppermost ones broader and connate. Flowers ringent, terminal, disposed in capitulate whorls. Stems twining from left to right. Buds acute, glaucous. The lower leaves are distinct, and somewhat stalked; two or three of the upper pairs united; the uppermost of all forming a concave cup. Flowers in one or more axillary whorls, the uppermost whorl terminal; with a central bud, 6 in each whorl, highly fragrant, 2 in. long, with a blush-coloured tube. Berries each crowned by an almost entire calyx. (Don’s Mill.) A deciduous twining shrub. Middle and South Europe, even to the river Terek in Siberia, and on Mount Caucasus, in woods, hedges, and thickets; in England, it has been occasionally found in similar situations, in an apparently wild state. Stem 15 ft. to 20 ft. Flowers blush-coloured; May and June. Fruit elliptical, tawny or orange-coloured; ripe September.


**Engravings.** Santi Viagg., 1. p. 113. t. 1.; and our fig. 966.

**Spec. Char., &c.** Leaves deciduous, obovate, obtuse, pubescent; lower ones on short petioles, upper ones connately perfoliate, acute, glabrous. Flowers disposed in verticillate heads, with usually about three heads on the top of each branch; glabrous. (Don’s Mill.) A deciduous twining shrub. South of France, Sicily, Valais, Carniola, and Dalmatia, on hills. Stem 15 ft. to 20 ft. Introduced 1700.
Flowers purplish on the outside, yellow within, scented; May and June. Fruit yellow; ripe in August.

4. L. _implexa_ Ait. The interwoven, or _Minorea_, Honeysuckle.


**Synonyms.** Caprifolium _implexum_ Roon. et Schult. Syst. 5. p. 261; Vinebosco _sempreverde_, Ital. Engravings. Bot. Mag., t. 640; and our fig. 967.

**Spec. Char., &c.** Quite glabrous. Leaves permanent, evergreen, glaucescant; lower ones oblong, distinct; middle ones perfoliate; uppermost ones connate, forming a hollow roundish cup. Flowers disposed in capitate whorls, ringent; purplish before they open, but becoming paler on the outside as they expand, white on the inside; but finally changing to yellow, as in the common woodbine. (Don's Mill.) A twining evergreen shrub. Balearic Islands, and Sicily. Stems, 10 ft. to 15 ft. Introduced in 1772. Flowers purplish, finally changing to yellow; June to September. Fruit ?.

**Variety.**


5. L. _flava_ Sims. The yellow-flowered Honeysuckle.


**Synonyms.** Caprifolium _flavum_ Ellis. Sketch. i. p. 271; Caprifolium _Fraseri_ Pursh Sept. 1. p. 271.

**Engravings.** Bot. Mag., t. 1318; and our fig. 968.

**Spec. Char., &c.** Quite glabrous. Branches twining a little. Leaves ovate, sometimes glaucous beneath, with cartilaginous margins; upper leaves connately perfoliate. Flowers in terminal verticillate heads. Corollas rather ringent; with oblong obtuse lobes. Flowers bright yellow, but, as they fade, becoming orange-coloured; very fragrant. (Don's Mill.) A twining, deciduous shrub. Paris Mountains, in South Carolina; and the Catskill Mountains, New York. Stem 10 ft. to 12 ft. Introduced in 1810. Flowers bright yellow; June and July. Fruit ?.

A very desirable species, from the large size, rich yellow colour, and grateful fragrance of its flowers; but somewhat tender, and, even in the neighbourhood of London, requiring the protection of a wall.

6. L. (f.) _pubescent_ Sweet. The pubescent Honeysuckle.


Engravings. — Hook. Exot. Fl., t. 27; Bot. Mag., t. 3108; and our fig. 969.

Spec. Char., &c. — Leaves broad-ovate-elliptic, on short petioles, pubescent and ciliated, glaucous beneath; upper ones connately perfoliate. Spikes or racemes composed of verticillate heads of flowers. Corollas beset with glandular pubescence. Flowers yellow. (Don's Mill.) This appears to hold the place in the more northern parts which L. flava does in the south; of which, indeed, Dr. Torrey suspects it to be a variety. (Hook. Fl., Bot. Amer., p. 282.) A deciduous twining shrub, North America, in Massachusetts, Vermont, New York, and Canada, in many places. Stems 10 ft. to 12 ft. Introduced in 1822. Flowers yellow; June and July. Fruit?.

It appears harder than the preceding sort.

$7$. L. PARVIFLOR'A Lam. — The small-flowered Honeysuckle.


Engravings. — Krauss, t. 27; and our figs. 970 and 971.

Spec. Char., &c. — Quite glabrous. Leaves elliptic, sessile; lower ones somewhat connate; upper ones connately perfoliate, very glaucous beneath. Flowers disposed in verticillate heads. Corollas glabrous, with tubes gibbous at the base on one side. Filaments rather hairy. Flowers yellow, and smaller than in any of the foregoing species, but varying exceedingly in their colour; for there is a variety mentioned by M. Chevaux in which they are purple. (Don's Mill.) A deciduous twining shrub. New England to Carolina, in rocky shady situations; frequent in Canada. Stem 10 ft. to 15 ft. Introduced in 1776. Flowers small, yellow; June and July. Fruit scarlet.


Engravings. — Our fig. 972, from a specimen in Dr. Lindley's herbarium.

XL. **CAPRIFOLIA'CE.E: LONI'CERA.**

9. L. **hisp'idula** Doug!. The bristly Honeysuckle.

**Identification.** Doug., MSS.
**Engravings.** Bot. Reg., t. 1761.; and our figs. 973 and 974.

**Spec. Char., &c.** Higidly pilose.


A very rare species, quite different from all the other honeysuckles. In common soil it can scarcely be kept alive; but in peat and loam it grows as readily as any other hardy American plant.

10. L. **gra'ra** Ait. The pleasant, or evergreen, Honeysuckle.

**Engravings.** Hort. Angl., p. 15. No. 10. t. 8.; and our fig. 975.


The plant is of vigorous growth, with woody stems, and will live longer than most of the other species. It is inferior in vigour only to L. japonica, the Caprifolium flexuosum of the nurseries.

B. **Limb of Corolla nearly equal. — Periclymenum** Tourn.

11. L. **semperv'i'rens** Ait. The evergreen Trumpet Honeysuckle.

**Synonyme.** Caprifolium sempervirens Michz. Fl. Bor. Amer. 1. p. 105.; Periclymenum sempervirens Mill. Dict. No. 1.;

Varieties.

\[ L. s. 2 \text{ major Ait. Curt. Bot. Mag. 1781. (Schmidt Baum. t. 104.; and our fig. 977.)} \]

Leaves roundish, and flowers very large, and of a brilliant scarlet.

\[ L. s. 3 \text{ minor Ait. Sims Bot. Mag. 1753. (Ker Bot. Reg. t. 556.; and our fig. 978.)} \]

L. connata Meerb. Icon. t. 11.? — Leaves oblong, acute at both ends; upper ones obtuse, perfoliate. Flowers small, and scarlet both outside and inside.

\[ L. s. 4 \text{ Bruni&l Gordon.} \]

Flowers larger and brighter than those of the species. A very desirable variety.

The fine scarlet flowers of this species, and the length of time during which they are produced, render it a very desirable one; but it is somewhat tender, and rather capricious in regard to situation. It will not thrive in clayey or wet soil; neither in the smoke of cities, nor in a confined situation. It grows well in sand, but still better in sandy peat.

\[ 12. L. cilifo'sa Poir. \]

The ciliated-leaved Honeysuckle.


Spec. Char., &c. Upper part of the branches hairy on one side. Leaves ciliateous, reticulated, ovate, on short petioles, glaucescent beneath, and ciliated on the margins; upper ones connately perfoliate. Spikes composed of approximate verticillate heads of nearly sessile flowers. Tube of corolla hairy, ventricose in the middle; limb nearly equal. Peduncles beset with glandular hairs. (Don's Mill.) A deciduous twining shrub. North America, on the banks of the Kooskooksy. Stem 6 ft. to 12 ft. Introduced in 1825. Flowers deep yellow; July and August. Fruit?.

\[ 13. L. occidenta'lis Hook. \]

The Western Honeysuckle.


Spec. Char., &c. Leaves oval, almost sessile, glabrous, ciliated, glaucous
beneath; upper ones connately perfoliate. Flowers disposed in verticillate heads. Corolla glabrous, with an elongated tube, which is gibbous above the base; the limb nearly equal. Stamens almost enclosed. (Don's Mill.) Branches and peduncles glabrous. A deciduous twining shrub. Fort Vancouver, on the Columbia. Stems 6 ft. to 12 ft. Introduced in 1824. Flowers large, orange red; June, July, and August. Fruit ?.

A great acquisition to our gardens; quite different from L. pubescens, L. parviflora, and L. Douglastii; and, if the presence or absence of hairs in the corolla are to be depended on, it is also different from L. ciliosa, which inhabits nearly the same country.


§ ii. Xylösteum Dec.


Derivation. From xylon, wood, and osteum, a bone; the wood of L. Xylösteum being as hard as bone.

Sect. Char., &c. Pedicels axillary, 2-flowered, bibracteate at the apex. Berries twin, distinct, or joined together more or less; 3-celled in the young state; rarely 2-celled in the adult state. The limb of the calyx is generally deciduous, therefore the fruit is usually not crowned. (Don's Mill.) Climbing or erect shrubs, deciduous, with leaves never connate. Of the easiest culture, and extremely hardy.

A. ovaries and berries altogether distinct. Stems twining. Flowers irregular. —


Derivation. Nintoo, or Sintoo, is the name of L. japonica in China.


Spec. Char., &c. Branches twining, pubescent. Leaves ovate, acute, rounded at the base, downy on both surfaces, as well as the peduncles. Pedicels axillary, longer than the petioles, 2-flowered, opposite, disposed in something like a thyrse at the tops of the branches. Calycine segments ovate, and, as well as the corollas, pubescent. The flowers are snow-white at first, but gradually change to a golden yellow colour; hence it is called Suikadsara and Kinginqua, that is gold and silver flowers, by the Japanese. Corolla about an inch long, bilabiate. (Don's Mill.) A deciduous twining shrub. Japan, China, and the Himalayas. Stem 10 ft. to
15 ft. Introduced in 1805. Flowers silvery white, changing to gold colour, June and July. Fruit?

It is somewhat tender; nevertheless, it will grow and flower freely against an open wall in the neighbourhood of London; and the extraordinary fragrance of its flowers, which are produced in the greatest abundance, well entitles it to a place in every collection.


ed. 2.; Cupriifolium japonicum D. Don Prod. Fl. Nep. 140.; Cupriifolium nepalense


Spec. Char., &c. Glabrous in every part. Branches twining. Leaves petiolate, ob-
long-lanceolate, shining above, and pale beneath. Peduncles short, 2-flowered,
about the length of the petioles. Tube of corolla very long and filiform; limb
bilabiate. Flowers several inches long, at first snow-white, but finally changing to a
Stem 10 ft. to 15 ft. Introduced in 1826. Flowers snow white, changing to gold
colour; July to September. Fruit?

A very showy species, but it is somewhat 984. L. Longi-
floora.


Spec. Char., &c. Stems twining, flexuous, hairy. Branchlets opposite, very hairy. bearing 2 leaves
and 2 sessile flowers at the base of each. Leaves about an inch long, petiolate,
ovate, acutish, villous, pale be
neath; uppermost ones the smallest.
Corolla tubular, irregular,
about an inch long, red and vil
lous on the outside, and white
inside, sweet-scented, equal in
length to the stamens. (Don's
Mill.) A twining shrub. China,
Japan, and the Himalayas. Stems
15 ft. to 50 ft. Introduced in 1806.
Flowers yellow and red; July to
September.

Perhaps the most valuable species of the genus, next to the indigenous
one. It is nearly evergreen, apparently as hardy as the common woodbine,
and of far more robust habit of growth; and, probably, a much longer-
lived plant. Its flowers, which are produced for several months together, are
exceedingly fragrant; and, by pruning and watering, it may be kept in flower
in the open garden from April to November, and in a conservatory through-
out the year. No garden whatever, whether large or small, should be without
this species. Intending purchasers of this species will find that plants in pots
are much to be preferred, though they are one half dearer; because, if they
are turned out into a large mass of prepared light rich soil, and placed against a wall, the ball being broken, and the roots spread carefully out in every direction, the shoots will cover several square yards of wall the first summer, and flower abundantly.

L. longifolia Hort. and our fig. 987., of which there are plants in the London gardens, probably belongs to this section. The plants are apparently only half-hardy. Fruit blue.

B. Berries distinct, or usually connate together at the Base, and diverging at the Tip. Corolla hardly gibbous at the Base, or equal. Erect deciduous shrubs. — Chamaecerasi Dec.

Derivation. The name signifies a kind of false cherry; the fruit of some of the species resemble cherries. (Dec. Prod. iv. p. 333.)

17. L. tatarica Lin. The Tartarian Honeysuckle.


Varieties.


© L. t. 4 lutea Lodd. Cat. has yellowish flowers and yellow fruit.

© L. t. 5 latifolia Lodd. Cat. has broad leaves.

This is one of the most hardy of European shrubs, and one of the few which grow in the open gardens of Petersburg and Stockholm, without protection during winter. In British gardens, the plant is very common, and it is valued for its early leafing and flowering. It will grow in any soil, and almost in any situation, and is readily propagated by cuttings.

18. L. (t.) nigra L. The black-fruited Honeysuckle.


Spec. Char., &c. Erect. Leaves oval-oblong or elliptic, on short petioles, rather villous when young, but nearly glabrous in the adult state. Peduncles 2-flowered, elongated.

989. L. tatarica.
shorter than the leaves. Corolla reddish, and pubescent on the outside, but whitish on the inside. Bracteas 4, under the ovaries; the two outer ones lanceolate, and the inner quadridaf. Berries black, globose, joined together at the side. (Don's Mill.) An erect shrub. Middle Europe, in subalpine woods, as in France, Switzerland, Austria, Silesia, Piedmont, &c. Height 3 ft. to 4 ft. Introduced in 1597. Flowers whitish; March to May. Fruit black; ripe in August.

Variety.

L. (t.) n. 2 campaniflora; Xylosteum campaniforum Lodg. Cab. t. 1361., and our figs. 990, 991.; has the flowers bell-shaped.


Engraving. Our fig. 992. from a living specimen.

Spec. Char., &c. Erect. Leaves ovate or oblong, cordate, thin, ciliated, villous beneath in the young state. Peduncles elongated. Bracteas 2, ovate, three times shorter than the ovaries, which are distinct. Corolla bluntly spurred at the base; with short, nearly equal lobes. Berries distinct, red, divaricate. Flowers white, with a tinge of red or yellow; tube ventricose above; limb with short acute segments; style protruded. (Don's Mill.) An erect shrub. Canada to Virginia, and throughout Canada, on mountains among rocks, in rich soils. Height 4 ft. to 6 ft. Introduced in 1824. Flowers reddish or yellowish white; June, July.

20. L. pyrena'ica L. The Pyrenean Honeysuckle.

Engraving. Our fig. 993. from a specimen in the British Museum.


Synonymes. Symphoricárpus puniécus Sut.
Engraving. Bot. Mag., t. 2469.; and our fig. 994.

Spec. Char., &c. Erect. Leaves ovate, subcordate at the base, of the same colour on both surfaces. Peduncles axillary, and almost terminal, 2-flowered, shorter than the leaves. Tube of corolla rather gibbous at the base; segments of corolla nearly equal, irregularly arranged, 3 one way and 2 another. Berries distinct?. Leaves sometimes three in a whorl on the young shoots. (Don's Mill.) An erect shrub. Native country unknown. Height 2 ft.
to 4 ft. Cultivated in 1822. Flowers deep red, scarlet, or crimson; April and May. Fruit ?.

22. L. Xylosteum L. The buoy-wooded, or upright, Fly Honeysuckle.


**Varieties.**

- L. X. 3 xanthocarpum Dec. l. c. has the berries yellow.
- L. X. 4 melanocarpum Dec. l. c. has black berries.

Linnæus says that it makes excellent hedges in a dry soil; that the clear parts between the joints of the shoots are used in Sweden for tobacco-pipes; and that the wood, being extremely hard, makes teeth for rakes, &c., and yields only in beauty to that of L. tatarica for walking-sticks. It is one of the oldest and hardiest inhabitants of British shrubberies. In the English garden, or rather park, at Munich, it is planted in masses and groups, along with other masses and groups of Cornus alba, Salix vitellina, and Viburnum O’pulus; and, in the winter time, the whitish-grey bark of its shoots contrasts finely with the red, yellow, or brown, bark of the shrubs mentioned.

23. L. Hispida Pall. The hispid Honeysuckle.


**Engravings**. Led. l. c.; and our fig. 996.

**Spec. Char., &c.** Branches hispid. Leaves ovate, ciliated, petiolate, glabrous on both surfaces. Peduncles 2-flowered. Bracteas ovate-elliptic, exceeding the berries. (Don’s Mill.) An upright shrub. Siberia, on the Altaian Mountains. Height 2 ft. to 3 ft. Introduced?. Flowers greenish white, pendulous; May and June. Berries distinct, purple; ripe in August.

Branches opposite, glabrous or bristly, brownish. Leaves 1½ or 2 inches long, and 1 in. broad, glabrous on both surfaces, cordate at the base.

24. L. Flexuosa Thunb. The flexible-stemmed Honeysuckle.


C. Berries either distinct or joined together. Corolla very gibbous at the Base. Erect bushy Shrubs.—Cuphanthae Dec.

Identification. From hyper, gibbous, and anthos, a flower; in reference to the flower being gibbous on one side at the base.

25. L. involucrata Banks. The involucrated Honeysuckle.

Spec. Char., &c. Erect. Branches acutely tetragonal. Leaves ovate or oval, petiolate, membranous, beset with appressed hairs beneath. Peduncles axillary, 2—3-flowered. Bracteas 4; two outer ovate, two inner broad, obcordate, at length widening, clothed with glandular pubescence. Corolla pubescent, gibbous at the base on the outside; yellowish, tinged with red. Style exserted. (Don's Mill.) An erect shrub. North-west America, between lat. 54° and 64° (but probably confined to the vicinity of the Saskatchewan); thence to the Rocky Mountains. Height 2 ft. to 3 ft. Introduced in 1824. Flowers yellowish, tinged with red; May. Fruit.


Very nearly allied to L. involucrata.
D. Berries two on each Peduncle, joined together in one, which is bi-ambulate at the Apex. Erect, bushy, deciduous Shrubs. — Isika Adans.

Erect. A name, the origin of which is unknown, employed by Adanson to designate this division of the genus.

27. L. alpigena H. The alpine Honeysuckle.


**Engravings.** Jacq. Fl. Aust., t. 274.; N. Du Ham., 1. t. 16.; and our figs. 1001. and 1002.

**Spec. Char., &c.** Erect. Leaves oval-lanceolate or elliptic, acute, glabrous or pubescent, on very short petioles, rather eiliated. Peduncles 2 flowered, shorter than the leaves. Corolla gibbous at the base, and greenish yellow tinged with red or purple. Berries red, and of the size and appearance of those of a cherry; whence it is called cherry woodbine by Johnson. Leaves large. (Don's Mill.) A large, upright, deciduous shrub. Middle and South of Europe, in sub-alpine places and mountains. Height 5 ft. to 8 ft. Introduced in 1596. Flowers greenish yellow, tinged with red; April and May. Fruit red; ripe in August.

**Variety.**

2 L. a. 2 sibirica Dec. Prod. iv. p. 336. L. sibirica Vest in Ravn. et Schult. Syst. 5. p. 259. — Lower leaves rather cordate. Peduncles thickened a little under the flowers. Like most other varieties of trees and shrubs, natives of the West of Europe, and also indigenous to Siberia, coming into leaf and flower a week, or more, earlier than the species.


**Synonymy.** L. alpigena Sievers.; L. montana, and L. mexicana Hort.

**Engravings.** Led. Fl. Ros. Alt. III., t. 218.; and our fig. 1003.

**Spec. Char., &c.** Leaves elliptic, acute at both ends, glaucous beneath, rather villous on both surfaces, and sometimes rounded at the base. Peduncles 2 flowered, and shorter than the leaves. Corollas greenish yellow. Berries joined, of a reddish orange colour. The epidermis falls from the branches. (Don's Mill.) An erect shrub. Eastern Siberia. Height 3 ft. to 4 ft. Introduced in 1818. Flowers greenish yellow; April and May. Fruit reddish orange; ripe in August.

29. L. oblongifolia Hook. The oblong-leaved Honeysuckle.


**Synonymy.** Xylosteum oblongifolium Goldie in Edin. Phil. Journ. 6. p. 232

**Engravings.** Hook. Fl. Bor. Amer., 1. t. 100.; and our fig. 1004.
Spec. Char., &c. Erect. Leaves oblong or oval, clothed with velvety pubescence beneath. Peduncles elongated, erect. Bracteas obsolete. Tube of corolla hairy, gibbous at the base on one side. Limb unequal, deeply 2-lipped; the upper lip 4-toothed, and the lower one nearly entire. Berries joined in one, which is bi-umbilicate at the top, bluish black in the dried state, and about the size of a pea. (Don's Mill.) An erect shrub. Island of Montreal, in the St. Lawrence, about Montreal; Lake Winnipeg; and the western parts of the state of New York. Height 3 ft. to 4 ft. Introduced in 1823. Flowers yellow, April and May. Fruit bluish black; ripe in August. Horticultural Society's Garden.

Spec. Char., &c. Erect. Leaves oval-oblong, ciliated, stiffish, densely clothed with pubescence while young. Peduncles short, 2-flowered, reflexed in the fructiferous state. Bracteas 2, subulate, longer than the ovaria. Tube of corolla glabrous, short, gibbous on one side at the base; lobes of limb short, nearly equal. Berries closely joined in one, which is bi-umbilicate at the apex. Flowers greenish yellow, tubular. Berries elliptic or globose, dark blue, and covered with a kind of bloom. Dark shrub. Europe, and throughout the woody country of British North America, as far as lat. 66°; and of Siberia and Kamtschatka. Height 3 ft. to 5 ft. Introduced in 1629. Flowers greenish yellow; March and April. Fruit dark blue; ripe in August.


Spec. Char., &c. Erect. Leaves petiolate, cordate, roundish, tormentose of
Genus V.


Derivation. From samphoros, to accumulate, and karpos, fruit; species bearing the fruit in groups.

How it obtained the name of St. Peter’s Wort we have not been able to ascertain.


Leaves simple, opposite, exstipulate, deciduous; oval, quite entire. Flowers on short peduncles, axillary or many together, bibracteate, small, white or rose-coloured, on short pedicels.—Shrubs erect, bushy, oppositely branched; natives of Europe and North America; of the easiest culture in common garden soil; and readily increased by suckers, which they throw up in abundance.

S. vulgarius Michx. The common St. Peter’s Wort.


Engravings. Schmidt Baum., t. 116. ; and our fig. 1010.

Spec. Char., &c. Flowers disposed in axillary capitate clusters, composed of nearly sessile racemules. Corolla white. Berries red, size of hempseed; but, in America, according to Pursh, the flowers are small, red and yellow, and the berries purple. Branches brown, smooth. Leaves elliptic ovate, obtuse, glaucous, and pubescent beneath. The berries are numerous, and ripe in winter. (Don’s Mill.)

An erect bushy shrub. Virginia, Carolina, and Pennsylvania, in sandy dry fields. Height 3 ft. to 6 ft. Introduced in 1730. Flowers small, red and yellow; August and September. Fruit purple; ripe in December.
Variety.

2. S. v. 2 foliis variegatis, S. glomerata foliis variegatis Lodd. Cat., has the leaves finely variegated with green and yellow.


Engravings. Mamad's Botanist, 1. t. 20; and our fig. 1011.

Spec. Char., &c. Leaves ovate, acute, slightly mucronate, rounded at the base, pubescent beneath. Flowers axillary, mostly solitary. A dense erect subevergreen shrub. Mexico, on mountains, 7000 to 8000 ft. of elevation. Height 5 ft. to 6 ft. Introduced in 1829. Flowers pinkish; August to October. Fruit globose white; ripe in December.

A very desirable shrub, perfectly hardy, and almost evergreen. It commences flowering in August, and does not cease till it is checked by frost. Layers in common soil.


Engravings. Bot. Mag., t. 2211; Lodd. Bot. Cab., t. 236; and our fig. 1012.

Spec. Char., &c. Flowers disposed in nearly terminal, loose, interrupted racemes, which are often leafy. Corolla densely bearded inside. Style and stamens enclosed. Leaves glaucous beneath. Corolla rose-coloured. Berries large, white. (Don's Mill.) A bushy shrub, with numerous ascending shoots. North America, on mountains, near Lake Mistassins, on the banks of the Missouri, and various other places. Height 4 ft. to 6 ft. Introduced in 1817. Flowers rose-coloured; July to September. Fruit large, white; ripening in October, and remaining on great part of the winter.

The S. elongatus and S. heterophyllus Prest in Herb. Hanke, which were collected about Nootka Sound, do not differ from this species, in which the lower leaves are sometimes deeply sinuated. In small gardens, this shrub is rather troublesome, from the numerous suckers it throws up from the roots; but, as its flowers are much sought after by bees, and its berries are excellent food for game; that habit, when it is planted for these purposes, is found rather advantageous than otherwise. For single specimens in small gardens, it might be desirable to graft it on Lonicera Xylosteum, or some allied species of suitable habit. So grafted, standard high, it would form a very elegant little tree.


Synonyme. Wolf-berry. Amer.

Engraving. Our fig. 3013, from a specimen in Sir W. J. Hooker's herbarium.

Spec. Char., &c. Spikes dense, terminal and axillary, drooping. Corolla and seg-
ment densely bearded inside. Style and stamens a little exserted. (Don's Mill.) A dense shrub, bearing a close resemblance to S. racemosus. British North America, in the woody country between lat. 51° and 64°. Height 4 ft. to 6 ft. Introduced?. Flowers pinkish; July to September. Fruit white; October, and remaining on during the winter.

Distinguished from S. racemosus by the larger, less glaucous, more rigid, and denser foliage, and by the flowers being arranged in dense drooping spikes, longer than in S. racemosus, and by the prominent style and stamens.

**Genus VI.**


*Description.* Named by Dr. Wallich after his friend William Leycester, formerly chief judge of the principal native court under the Bengal Presidency; “who during a long series of years, and in various parts of Hindoostan, has pursued every branch of horticulture with a munificence, zeal, and success, which abundantly entitle him to that distinction.”


Leaves simple, opposite, exstipulate, sub-evergreen; ovate-lanceolate, acuminate, petiolate, smooth, entire, membranous, glaucous, with an obtuse subcordate base. Petioles pilose. Flowers white, with a tinge of purple; disposed in whorls, forming short leafy drooping racemes, which terminate the branches and branchlets. Bractees large, foliaceous, purplish, pubescent and ciliated, lanceolate, acuminate; generally 6 under each whorl of flowers. Berries deep purple, approaching to black, as large as a common-sized gooseberry. Shrub large, rambling, with elongated fistular branches, which rise from scaly buds. Native of Nepal.

This genus appears to be intermediate between Caprifoliacæ and Rubiaceæ; but from the last it is distinguished by the want of stipules.
2 I. FORMOSA Wall. The beautiful Leycesteria.


Synonym. Hamelia connata Ducardi MSS.

Engravings. Plant. As. Rar., 2. t. 129.; and our fig. 104.

Spec. Char., Syc. As in Gen. Char. A large, rambling, sub-evergreen shrub. Nepal, on mountains; between 6000 ft. and 8000 ft. high, among forests of pine and oak. Height in England, against a wall, 6 ft. to 8 ft. Introduced in 1824. Flowers white, with a tinge of purple; August to October. Fruit purple; ripe in October.

Trained against a wall, this shrub has proved quite hardy, but in our cloudy atmosphere it has rather disappointed expectation in the colour of its bracteas, which are much less brilliant than they appear to be in the Himalayas. Cuttings or seeds, which are ripened freely, in common soil.

ORDER XLI. RUBIACEÆ.

ORD. CHAR. Calyx with a variable limb. Corolla monopetalous, with a variable limb, but generally 4—5-lobed; aestivation twisted or valvate. Stamens equal in number to the segments of the corolla, and more or less adnate to its tube. Anthers introrse. Ovarium 2- or many-celled, crowned by the limb of the calyx. Style 1. Stigma 2. Fruit baccate or capsular. Cells 1—2- or many-seeded. Albumen horny and fleshy. (G. Don.)

Leaves simple, opposite, or 3 in a whorl, stipulate, deciduous. Stipules short, distinct, or a little combined. Flowers on peduncles, naked, rising from the axils of the leaves, or from the tops of the branches; heads globose, in consequence of the flowers being sessile, and seated on a sessile piliferous receptacle.

This order includes a great number of genera; but there is only one of these that contains any ligneous species truly hardy in British gardens.

GENUS I.


Derivation. From cephalæ, a head, and anthos, a flower; in allusion to the flowers being disposed in globular heads.

Gen. Char. Syc. Calyx with an inversely pyramidal tube, and an angular 5-toothed limb. Corolla with a slender tube, and a 4-cleft limb; lobes erectish. Stamens 4, short, inserted in the upper part of the tube, hardly exserted. Style much exserted. Stigma capitata. Fruit inversely pyramidal, crowned by the limb of the calyx, 2—4-celled, and separating into 2—4 parts; cells, or parts, 1-seeded, indehiscent, and sometimes empty by abortion. Seeds oblong, terminating in a little callous bladder. (Don's Mill.) —A shrub, with terete branches; native of North America.

Leaves and Flowers as in the order.

2 I. OCCIDENTALIS L. THE WESTERN BUTTON-WOOD.


Synonym. C. oppositifolius Menchth Meth., p. 487.; Swamp Globe Flower, Amer.

Engravings. Du Ham. Arb., 1. t. 54.; Schmidt Arb., 1. t. 45.; and our figs. 1015, and 1016.

Spec. Char., Syc. Leaves opposite, or 3 in a whorl, ovate or oval, acuminate.
Peduncles much longer than the heads, usually by threes at the tops of the branches. Petioles reddish next the branches. Heads of flowers globular, size of a marble. Stipules deciduous. (Don's

Mill.) A bushy shrub. Canada to Florida, in marshy places. Height: 3 ft. to 6 ft. Introduced in 1735. Flowers yellowish white; July and August. Fruit brownish; ripe in October.

Variety.

Cephalanthus occidentalis.

Order XLII. COMPO'SITÆ.

Ord. Char. Calyx limb membranous or wanting; or divided into bristles, paleæ, or hairs. Corolla 5-toothed or 5-lobed, tubular, ligulate, or bilabiate on the top of the ovarium. Anthers combined, rarely free. Ovarium 1-celled, 1-seeded. Style 1. Stigmas 2. Fruit an achenium, crowned by the limb of the calyx. Albumen none. Characterised by the cohesion of the anthers, and the arrangement of the flowers in involucrated heads on a common receptacle. (G. Don.)

Leaves simple, or compound, stipulate or exstipulate, deciduous or evergreen. Flowers grouped in heads; those in each head so disposed, and so environed by an involucre composed of bracteas that corresponds to a calyx, as to seem to constitute but one flower.

The genera that include hardy ligneous species are mostly natives of Europe and North America; they are all of the easiest propagation and culture in any common garden soil, and are thus contradistinguished: —


Poa L. Flowers monoecious, all tubular. Receptacle flat paleaceous. Achenia naked, but horned.

Santoli'na L. Receptacle furnished with somewhat flower-clasping paleæ. Achenia naked.

**Genus I.**

**Stéheliina Lessing. The Stehelia.** Lin. Syst. Synignum Aequalis.


**Synonymy.** Stehelia, Fr. and Ger.

**Derivation.** So named in honour of John Henry Stehelin, and his son Benedict, Swiss botanists and physicians.

**Gen. Char., &c.** Heads homogamous, equal-flowered. **Involucrum** cylindrical, the scales imbricated and adpressed. **Receptacle** flat, palesaceous; the paleae narrow, persistent, hardly concrete at the base. **Corolla** 5-cleft, regular. **Filament** glabrous. **Anthers** appendiculate at top, bisetose at the base; the tails more or less bearded. **Style** bearded on the thickened part. **Stigma** concrete at base, and free at apex, obtuse. **Fruct** oblong, areolate at apex. **Pappus** in one series, the hairs combined at the base into 4 or 8 bundles. (G. Don.)

**Leaves** simple, alternate, extipulate, evergreen; linear, hoary or silky beneath. **Flowers** in terminal spikes, usually naked. — **Subshrubs,** evergreen; South of Europe, of easy culture in dry soil, and propagated by cuttings or seeds.

1. *S. duinia L.* The doubtful, or Rosemary-leaved, Stehelia.


**Engravings.** Ger. Prov., p. 190. t. 6.; Lam. Ill., 666. f. 4.; and Cupl. Fig. 1017.

**Spec. Char., &c.** Leaves sessile, linear, finely toothed, tomentose beneath. Inner bracteas of the involucre lanceolate, elongate. (Willd.) An evergreen undershrub. South of Europe. Height 2 ft. to 3 ft. Cultivated in 1640. **Flowers** purple, fragrant; June and July.

**Genus II.**

**Baccharis R. Br. The Baccharis, or Plooughman’s Spikenard.** Lin. Syst. Synignum Superflua.


**Synonymy.** Baccharis, Fr.; Baccharis, Ger.
XLII. Compo’site: Bac’charis.

Derivation. From Bacchus, wine; because of the vinous odour of its root. Pliny says the root smells of cinnamon: but as the ancients sometimes boiled down their wines, and mixed them with spices, these wines may have had an odour similar to that of the root of the baccharis.

Gen. Char., &c. Heads many-flowered, dioecious. Corolla homogamous, tubular. Receptacle naked, seldom subpaleaceous. Involuturum subhemispherical, or oblong, in many series, imbricated. Corollas of the male flowers 5-cleft, dilated at the throat; anthers exerted, tailless; style more or less abortive. Corolla of the female flowers filiform, subtruncate; style bifid, exerted; anthers wanting. Achene generally furrowed, or ribbed. Pappus pilose, of the male in one series, of the female in one or many series. (G. Don.)

Leaves simple, alternate, exstipulate, deciduous; oblong lanceolate, notched, serrated, or entire. Flowers terminal.—Shrubs, of short duration; natives of North America; of common culture and propagation.

2. B. Halimifolia L. The Sea-Purslane-leaved Baccharis, or the Groundsel Tree.

Engravings. Schmidt Baum., t. 82; Du Ham. Arb., t. 35.; and our fig. 1018.

Spec. Char., &c. Leaves obovate, crenately notched on the terminal portion. (W illd.) A large rambling shrub. Maryland to Florida, on the sea coast. Height 8 ft. to 10 ft. Introduced in 1683. Flowers white, with a tint of purple, and resembling those of the groundsel, but larger; September to November.

Chiefly remarkable for the glaucous hue of its leaves, in consequence of the whole plant being covered with a whitish powder. Its general appearance accords with that of the genus Atriplex, and the shrubs of both families are, accordingly, well calculated for being grouped together. Baccharis halimifolia will grow in any common soil which is tolerably dry, attaining the height of 6 or 8 feet in 3 or ½ years; and forming a large, loose-headed, robust-looking bush, of from 10 ft. to 12 ft. in height, and 12 or 15 feet in diameter, in 10 years. Cuttings, in dry soil and an open situation.

2. B. (II.) Angustifolia Pursh. The narrow-leaved Baccharis, or Ploughman’s Spikenard.

Engraving. Our fig. 1019, from a specimen in the Lambertiun herbarium.


Neither the flowers nor the leaves of this or the preceding species can be said to be either beautiful or ornamental; partly because they, as well as the seeds, bear a strong general resemblance to the leaves, flowers, and seeds of the common groundsel, a weed of tiresome occurrence in gardens, and with which all our associations are the reverse of those of rarity or elegance. Add also that groundsel trees can hardly be considered as truly ligneous plants, for which reason we consider them wanting in that dignity of character which belongs to all plants truly woody.
ARBORETUM ET FRUTICETUM BRITANNICUM.

Genus III.


Derivation. Uncertain. Perhaps from Iva, a name used by the elder botanists.

Gen. Char., &c. Flowers monoecious, male and female on the same head: female ones few on the same head, in a single series around the circumference, they are tubular or campanulate; the male flowers are numerous in the disk, they are tubular and 3-toothed. Involucrum usually 3-5-leaved, campanulate. Scales ovate, in one series; rarely imbricate, with 3 or 4 series of scales. Receptacle flat, beset with linear or linear spatulate pales. Styles on the female flowers subulate, exserted, rather hispid; those of the males shorter, and thickened at top. Achenia of the disk abortive, those of the ray a little compressed, naked, but furnished with horns. (G. Don.)

Leaves simple, opposite, exstipulate, deciduous; lanceolate, serrated. Flowers in terminal heads, solitary or three together, constituting a folliceous terminal raceme.—Suffrutescent deciduous shrubs, with the habit of Artemisia, but readily distinguished by the monoecious flowers. Indigenous in North America, on the banks of rivers. There is only one shrubby species in British gardens.

1. L. frutescens L. The shrubby Iva.

Synonymes. Agastache affinis peruviana frutescens Pluk. Alm. 12, t. 27, f. 1.; Bastard Jeunesi's Bark Tree.
Engravings. Pluk. Alm., 12, t. 27, f. 1.; and our fig. 1020.

Spec. Char., &c. Leaves lanceolate, deeply serrated, rough with dots. (Willd.) A suffrutescent deciduous bush, of little or no beauty in the popular sense of that word. New England to Florida, on the sea coast. Height 3 ft. to 4 ft. Introduced in 1711. Flowers greenish white; August and September.

In sheltered dry situations it is tolerably hardy; but, when freely exposed in moist soil, it is apt to be killed to the ground in severe winters. Cuttings. The Pva frutescens can, however, hardly be considered a truly ligneous plant.

Genus IV.


Synonymes. Santoline, Fr.; Heiligenpflanze, Ger.; Santolina, Ita.
Derivation. From sanctus, holy, and linum, flax; so called from its supposed medical qualities.

below into a ring or hollow, which girds the top of the ovarium. *Achenia* oblong, subtetragonal, quite glabrous. (G. Don.)

Leaves simple, alternate, exstipulate, evergreen; small, linear, toothed, in rows. Flowers capitate, bractless; yellow, rarely white. — Diminutive evergreen undershrubs, natives of the South of Europe, and aromatic in all their parts; of easy culture, and propagation by cuttings, in any poor sandy soil, but of short duration.

1. S. CHAMECYPARIS**SUS** L. The Dwarf Cypress Santolina, or common lavender cotton.

*Synonymes.* Petit Cyprès, Fr. l'Abrotano femmina, Ital.; Cypresenkraut, Ger.  
*Engravings.* Lam. iii., fig. 1.; and our fig. 1021.

*Spec. Char., &c.* Branches tomentose. Leaves hoary, toothed; the teeth obtuse, and in four rows. Each peduncle bearing a single head of flowers, which has a downy involucre. (Willd.) A low evergreen bush. South of France, in poor dry soils. Height 2 ft. to 3 ft. Introduced in 1573. Flowers yellow; July.

The lavender cotton was common in gardens in Gerard's time, who says it is acrid, bitter, and aromatic, and has much the same qualities as southernwood. It was formerly employed as a vermifuge, but is now disused.

*Other Species.* — *S. squarrosa* W., *S. viridis* W., and *S. rosmarinifolia* L. (our fig. 1022.), are in gardens, but they are better adapted for being treated as herbaceous plants than as shrubs.

**Genus V.**


*Derivation.* From *Artemis*, one of the names of Diana; or, as some suppose, from *Artemisia*, the wife of Mausolus; there is a cypress-like and drooping character in some of the species, that may be associated with the latter etymology.

*Gen. Char., &c.* Heads discoïd, homogamous or heterogamous. Flowers of the ray in one series, usually female, 3-lobed. *Style* bifid, exserted. Flowers of the disk 5-toothed, hermaphrodite, or sterile or male from the abortion of the ovarium. *Involucrem* imbricate; scales dry, with scabrous margins. *Receptacle* chaffless, flatish or convex, naked or hairy. *Achenia* obovate, naked, with a minute epigynous disk.—Herbs or undershrubs. The species are nearly all dispersed through the northern hemisphere. Leaves alternate, variously lobed. Heads disposed in spikes or racemes, and the spikes or racemes usually disposed in panicles. Corollas yellow or purple. Plants more or less bitter or aromatic. (G. Don.)

Leaves simple (apparently compound), alternate, exstipulate, deciduous; deeply cut and divided. Flowers terminal. — Woody or suffrutescent evergreen plants, natives of Europe and Asia; all of them highly fragrant and aromatic, and of the easiest culture in any dry soil.
1. A. ABRO'TANUM L. The Abrotanum Artemisia, or Southernwood.


Derivation. The Greek name for this plant is Abrotanum, which is variously derived from abroton, incorruptible; from the soft delicacy (abrotos) of its appearance; or from abrotas, soft, and tonos, extension, because it is extended, or grows in a very soft manner. Why Linnaeus and others write it Abrotanum is not known. The name of Old Man, doubtless, has reference to its grey and powdery appearance. It is called Garderobe in French, from its being used to prevent moths from getting into clothes-presses and wardrobes. Eberraute is boar's rue; and Wermuth, wormwood; Stabwurtz means staff root; and Gartenwurtz garden root.

Engravings. Blackw., t. 36. Woodv., 366. t. 119.; and our fig. 1023.

Spec. Char., &c. Stem straight. Lower leaves bipinnate, upper ones pinnate, with the segments hair-like. Calyxes pubescent, hemispherical. (Willd.) A suffruticosus bush. South of Europe, Siberia, Syria, and China. Height 3 ft. to 4 ft. in low situations, and in mountains not above half that height, with the branches recumbent. Introduced in 1596. Flowers yellowish; August to October.

Varieties.

n. A. A. 2 hümile Hort. is a low-growing spreading shrub, found on mountains in the South of Europe, and retaining its dwarf habit for some years in British gardens.

n. A. A. 3 tobolskianum Hort., A. tobolskiana Lodz. Cat., was introduced from Siberia in 1820 or before, and is a much more vigorous-growing variety, and larger in all its parts, than the species.

Well known for its fragrance, which appears to proceed from glandular dots in the leaves.

Other Species.—A. arboréseus L., a native of the South of France and the Levant, is said to attain the height of 6 or 8 feet, but it is more suffrutescens than A. Abrotanum. A. procërera Willd., South of France, is equally ligneous with the common southernwood, and grows to the height of 5 or 6 feet in the Paris garden, where it stands the winter without protection. A. Santénica L., and our fig. 1024., is a low spreading bush, not exceeding a foot in height.

Genus VI.

SENE'ECIO Lessing. THE SENECIO. Lin. Syst. Syngenésia Superflína.


Derivation. From senec, an old man; the receptacle of the flowers being left naked when the seeds drop.

Gen. Char., &c. Heads homogamous, discoid, or heterogamous. Flowers of the ray ligulate, female. Involucres in one series, sometimes naked, and sometimes calyculate by accessory scales. Scales usually sphenulat at apex, with subscariosous margins, frequently marked by two nerves on the back. Receptacle desitute of palea, naked or alveolate. Styles of hermaphrodite.
flowers truncate, and penciled at apex. *Achenia* beakless, wingless, nearly terete, and sulcately angular. *Paipus* pilose, in many series, caducous; bristles erect, nearly equal, very slender, scarcely scabrous.—Herbs or shrubs, very variable in habit. Leaves alternate. Flowers solitary, corymbose, or panicked. Ligule of heads yellow, rarely purple or white; the disks usually yellow. (G. Don.)

Leaves simple, apparently compound, alternate, exstipulate, evergreen; pinnatifid. *Flowers* terminal.—A suffrutescent bush, native of the South of Europe.


**Synonymes.** Cineraria maritima Lin. Sp. 1244; Jacobse'a maritima Bosp.; Sicilian Ragwort; Centrafrico, Fr.; Meerstrands Aschenplazne, Ger.; Cinerina, Ital.

**Engravings.** Flor. Gracc., t. 571.; and our fig. 1025.

**Spec. Char., &c.** Leaves pinnatifid, tomentose beneath; the lobes obtuse, and each consisting of about 3 obtuse lobulets. Flowers in panicles. Involucre tomentose. (Wild.) A suffrutescent bush, remarkable for the white mealy aspect of its rambling branches and foliage. South of Europe, on the sea coast and on rocks. Height 3 ft. to 4 ft. Introduced in 1596. Flowers yellow, ragwort-like; June to August.

Unless planted in very dry soil, it is liable to be killed to the ground in severe winters; but such is the beauty of its whitish, large, and deeply sinuated foliage, at every season of the year, that it well deserves a place on rockwork or against a wall, where it may be associated with *Solanum marginatum*, and any other ligneous whitish-leaved species of that genus.

**Genus VII.**

![Image of Cineraria](https://example.com/cineraria.png)

**MUTISIA Cav. The MUTISIA. Lin. Syst. Syngenésia Polygámia Supérflua.**


**Derivation.** Named by Linnaeus after his learned friend and correspondent, Don Jose Celestino Mutis, chief of the botanical expedition to New Grenada.

**Gen. Char., &c.** Heads heterogamous, unequal-flowered. *Involucre* of many series of flat imbricated scales; outer ones shorter. *Receptacle* naked. *Flowers* of the disk hermaphrodite, those of the ray female. *Corollas* bilabiate, the tube 5—10—15-nerved; those on the disk rather tubular, the throat not distinct from the tube; outer lip of the limb tridentate, inner one bipartite: the outer lip of the ray flowers large, ligula-formed, and tridentate at apex; under one bipartite, with linear lobes. *Anthers* wanting in the ray flowers; those in the disk exserted, long-tailed. *Style* cylindrical, bident. *Achenia* beaked, ribbed, long, and glabrous; the pales being conferredinated at the base, fall off altogether or in one piece. (G. Don.)

Leaves simple or apparently compound, alternate, exstipulate, evergreen; entire or serrated; the common petiole usually drawn out at the end into a tendril. *Flowers* purple, rose-coloured, or yellow.—Climbing shrubs, natives of South America, requiring the protection of a wall in the climate of London.

N N 4


**Engravings.** Swt. Brit. Fl. Gard., 1, c.; and our fig. 1026.

**Spec. Char., &c.** Stem winged. Wings broad, leafy. Leaves cordate-oblong, dentate-spinose, woolly beneath. Involucre scaly, appendiculate. Pappus arranged in a double series, feathery, equal, truncate at the apex.  

(D. Don.) A climbing evergreen shrub. Valparaíso in Chili, on hills, among bushes. Stem 10 ft. to 15 ft. Introduced in 1832. Flowers pink, or rosy, and yellow; September and October.

A very singular and at the same time beautiful shrub, which no collection ought to be without, where there are a wall and a dry soil.

**Other Species.** — M. illicifolia, M. infléx, M. linearifolia, M. runcinata, and M. subspinosa, are figured and described in Hooker’s Botanical Miscellany, vol. i.; and M. arachnóidea Mart. is figured in Bot. Mag., t. 2705.

Most of these species would probably live against a wall in a warm situation, on a dry soil. At all events M. latifolia is tolerably hardy, having stood out several years in the climate of London, without the slightest protection; and as it represents a family of climbers so very different from every other hitherto cultivated in British gardens, we cannot but strongly recommend it to every one who is curious in plants.

---

**Order XLIII. ERICACEÆ.**

**Ord. Char.** Calyx and Corolla each with 4—5 segments. Stamens 4—5—8—10, inserted variously, but alternately with the segments of the corolla, where not more numerous than they. Anthers, in most, with 2 cells. Ovary with its cells, in most, agreeing in number with the segments of the calyx or corolla. Style and stigma undivided. Seeds many. Albusmen fleshy. Embryo erect, slender.

Leaves simple, opposite or whorled, stipulate or exstipulate, deciduous or evergreen; entire or serrated. Inflorescence variable, the pedicels generally bracteate. — Shrubs, deciduous and evergreen, and some of them low trees; natives of most parts of the world; and containing many of our finest and most ornamental harpy shrubs in British gardens.

All the species have hair-like roots, and require a peat soil, or a soil of a close cohesive nature, but which is yet susceptible of being readily penetrated by the finest fibrils which belong to any kind of plants. Peat, thoroughly rotted leaf mould, or very fine loamy sand, are soils of this description, and are accordingly required, more or less, for all the plants of this order. The hair-like roots of the Ericaceæ soon suffer, either from a deficiency or a superfluity of moisture; and hence an important part of their culture in gardens consists in keeping the soil in which they grow equally moist. In transplanting hair-rooted plants, they are very apt to suffer from their slender fibrils coming in contact with the air: but, fortunately, these fibrils are so numerous, and so interlaced with each other, as to form a kind of network, which encloses and supports a portion of the soil in which they grow; and the plants are, consequently, almost always sent from the nurseries.
with small balls of earth attached to them. All the species are readily propagated by seeds, layers, or cuttings.

The following characteristics of the genera, and of the groups which they form, are deduced from Don's Miller, in which the whole order has been remodelled by Professor Don:

Sect. I. **Ericaceae.**


§ i. **Ericaceae Normal.** Calyx and Corolla each with 4 Segments. Corolla permanent. Stamens 8. Fruit with 4 Cells.

**Erica** D. Don. Filaments capillary. Anthers not protruded beyond the corolla; the cells short, opening by an oblong hole. Stigma peltate. Leaves needle-shaped, scattered, or in whorls.

**Gypsocalis** Sal. Filaments flat. Anthers protruded beyond the corolla the cells opening by an oblique hole. Stigma simple. Leaves needle-shaped, in whorls.

**Calluna** Sal. Corolla shorter than the calyx. Filaments dilated. Anthers not protruded beyond the corolla, with two small appendages at the base: their cells end in a point, and open lengthwise. Leaves arrow-shaped at the base, obtuse at the tip; in transverse section triangular, imbricate in 4 rows.

§ ii. **Andromedaceae.** Corolla deciduous. Stamens, in most, not protruded beyond the Corolla.

A. The following 7 Genera have all been instituted out of the Genus Andromeda; and all have 10 Stamens, 1 Pistil, and Fruit that has a loculicidal Dehiscence.


**Cassandra** D. Don. Calyx bibracteate, 5-cleft. Corolla oblong, with a contracted 5-toothed mouth. Filaments glabrous. Anthers with cells elongated at the tip, and tubular there. Stigma annulated. Leaves with short petioles, and elliptic oblong disks, that have peltate scales on both surfaces. Flowers axillary, disposed as if in racemes along the terminal parts of the branches.

**Zenobia** D. Don. Calyx 5-toothed. Corolla bell-shaped, with a revolute 5-lobed limb. Filaments glabrous. Anthers with cells elongated at the tip, and tubular. 2-awned at the tip. Stigma truncate. Leaves dilated, with the margins usually toothed. Flowers in racemes.

**Lyonotis** Nutt. Calyx 5-parted. Corolla ovate or tubular, with a contracted 5-toothed mouth. Filaments short, flat, downy. Anthers with membranous cells that open lengthwise. Stigma obtuse. Capsule 5-cornered. Flowers for the most part terminal, disposed in racemose panicles.


**Préris** D. Don. Calyx 5-parted. Corolla tubular or ovate, with a contracted, 5-toothed, revolute mouth. Filaments dilated, furnished with 2 bristles at the tip. Anthers with short incumbent cells that open length-

B. Capsule with the Dehiscence septicidal.


C. Calyx and Corolla each with 5 Segments. Stamens 10, not protruded beyond the Corolla.

A'rbutus Camer. Corolla globose or ovate, with a small reflexed border. Anthers compressed at the sides, opening at the tip by 2 pores, fixed by the back beneath the tip, and there furnished with 2 reflexed awns. Ovary with 5 cells, ovules in each cell many. Berry externally granulate.

Arcto'sta'phylos Adams. All as in A'rbutus, except that the fruit is not externally granulate, and that the cells, which are 5 in number, include each but 1 seed.

Perne' ttya Gaudichaud. Corolla globose, with a revolute limb. Anthers with the 2 cells 2-lobed at the tip, the lobes bifid. Hypogynous scales 10, 3-lobed, surrounding the ovary. Berry with 5 cells and many seeds.

Gaulther'ia L. Corolla ovate, inflated. Anthers bifid at the tip, each lobe with 2 awns. Ovary half-inferior. Hypogynous (? perigynous) scales 10, usually united at the base. Capsule with 5 cells, the dehiscence loculicidal.

Epig'e'a L. Corolla salver-shaped. Capsule with 5 cells.

Ecle'thura L. Corolla so deeply 5-parted as to seem 5-petaled. Filaments membranous. Capsule with 3 cells, many seeds, and a loculicidal dehiscence.

D. The Characteristics as under.


Sect. II. Rhodo'ree.


Kal'mia L. Corolla of the shape of a wide-spread bell, and with 10 cavities on the inside, in which the anthers of 10 stamens repose before shedding their pollen. Capsule 5-celled. Dissepiments marginal.

Menzie'sia D. Don. Calyx 4-cleft. Corolla globose, 4-cleft. Stamens 8. Capsule 4-celled, 4-valved.


Ledum L. Calyx minute, 4-toothed. Corolla in 5 segments, so deep as to seem petals. Stamens 5—10, exserted. Anthers opening by pores at the tip. Capsule 5-celled, 5-valved, opening at the base. Seeds terminating in a wing at each end.

Sect. III. Vacciniæ.


Vaccinium L. Calyx 4—5-toothed. Corolla pitcher-shaped or bell-shaped, 4—5-cleft. Stamens 8—10. Anthers 2-horned; and, in some, furnished at the back with spreading spurs or bristles. Berry globose, 4—5-celled, many-seeded.


Sect. I. Ericeæ.

§ 1. Ericeæ normâles.

In British gardens all the species are propagated by layers or division, or by cuttings from the points of the growing shoots planted, but not deep, in pure sand, and covered with a hand-glass. All the plants require a peaty soil, mixed with sand; a cool subsoil, moist rather than dry; and an open airy situation. They also require to be renewed every 3 or 4 years.

Genus I.


Synonyms. Erica sp. of Linnaeus and other authors; Bruyère, Fr.; Heide, Ger.; Erica, Ital.

Derivation. The eriga of Pliny is altered from the erica of Theophrastus, which is derived from erikós, to break; from the supposed quality of some of the species of breaking the stone in the bladder.

Gen. Char. Calyx 4-parted, with a naked base. Corolla globose or urceolate, with a 4-lobed limb. Stamens enclosed. Filaments capillary. Anthers bifid; cells of anthers opening by an oblong hole, awned or crested at the base or mutic. Stigmas peltate. Capsule 4-celled, many-seeded. (Don's Mill.)

Leaves simple, alternate or verticillate, exstipulate, evergreen; linear or chaffy. Flowers terminal, fascicled, or racemose. Pedicels scaly.—Shrubs, diminutive, evergreen, with hair-like roots; natives of Europe.

n. 1. E. Tetralix L. The four-leaved Heath.


Varieties.


b. E. T. 2 carnea Loudon's H. B. — Corolla of a flesh colour.


The badge of the clan Macdonald, and the species most commonly used for making besoms.

2. E. cine'rea L. The grey Heath.


Spec. Char., &c. Leaves 3 in a whorl. Corolla ovate-urceolate. Flowers verticillate, on the naked stems. Crests of anthers ear-formed. Corolla 3 lines long, purple, changing to blue as it fades. This is easily distinguished from E. Têtrâlix by its glaucous deep green hue, and deep purple or sometimes white flowers. (Don's Mill.) A diminutive evergreen shrub. Europe, but not in the south, nor in the extreme north; plentiful in Britain. Height 6 in. to 1 ft. Flowers purple, changing to blue as they fade; July to September.

Varieties.


b. E. c. 3 alba Lodd. Cat. — Flowers white.


d. E. c. 5 carnescens Lodd. Cat. — Flowers flesh-coloured.

e. E. c. 6 propífera Lodd. Cat. — Flowers prolificous.

f. E. c. 7 stricta Lodd. Cat. — Branches erect.

The badge of the clan Maenalister. Readily distinguished from E. Têtrâlix by its glabrous deep green hue, and deep purple flowers.

3. E. australis L. The southern Heath.


One of the most showy of all the arboreous heaths, and flowering profusely when planted in an open situation.

n. 4. E. Cilia'ris L. The ciliate-leaved Heath.


A comparatively rare and very beautiful species.

Genus II.

GYPSOCA'LLIS Sal. The Gypsocallis, or Moor Heath.
Lin. Syst. Octándria Monogynía.

Synonymy. Ericace sp. of other authors.

Derivation. "From gypsoa, lime, and kallitos, most beautiful; the species are very elegant, and generally inhabit calcareous districts." (Don's Mill.)

Gen. Char. Calyx 4-parted, glumaceous, naked at the base. Corolla campanulate, or short tubular, with a dilated mouth. Stamens exerted; filaments flattened or filiform. Anthers bipartite, having the cells mutic at the base, distinct and subtusculate, dehiscing by an oblique pore. Stigma simple. Capsule 4-celled, many-seeded. (Don's Mill.)

Leaves simple, alternate, exstipulate, evergreen; acerose, whorled, lateral or terminal. Flowers crowded.—Shrubs, diminutive, evergreen; natives of Europe and Africa. This genus is easily distinguished from Erica, by the exerted anthers, flattened filaments, and simple stigma.

n. 1. G vap'gans Sal. The wandering Gypsocallis, or Cornish Moor Heath.


Spec. Char., &c. Stem glabrous. Leaves 4—5 in a whorl, contiguous, glabrous. Flowers small, upon footstalks, axillary, mostly 2 in an axil, and those of any branch seeming as if disposed in a raceme, from the flowers being stalked and produced from axils near one another. Bracteas remote from the calyx. Corolla short, bell-shaped. (Don's Mill.) A diminutive evergreen shrub. England, in Cornwall; and the South of France and North of Africa. Height 6 in. to 1 ft. Flowers pale purplish red; July to September.

Varieties.

n. G. v. 2 pállida.—Corolla pale red. (Don's Mill.)


v. G. v. 5 alba. — Flowers axillary. Corolla white. (Don's Mill.)

v. G. v. 6 tenella. — Flowers terminating the small branches. Corolla white. (Don's Mill.)

2. G. multiflóra D. Don. The many-flowered Gypsocalis, or Moor Heath.


Spec. Char., &c. Leaves 4—5 in a whorl, glabrous, linear. Flowers axillary, disposed in a racemose coryb. Bracteas remote from the calyx. Corolla 1½ to 2 lines long, pale red, bell-shaped, with a reflexed limb. Pedicel twice as long as the corolla. Anthers black, their orifices near the tip. (Don's Mill.) A diminutive evergreen shrub. France, Spain, and the South of Europe generally. Height 1 ft. to 2 ft. Introduced in 1751. Flowers pale red; May or June; and, under favourable circumstances, till November or December. Capsule brown.

Like other heaths, to flower freely, it requires to be kept in a cool, open, airy situation, in which it will attain the height of 2 ft.

3. G. cárnea D. Don. The flesh-colour-flowered Gypsocalis, or Moor Heath.


4. G. mediterránea D. Don. The Mediterranean Gypsocalis, or Moor Heath.


Engravings. Bot. Mag., t. 471.; and our fig. 1054.

Spec. Char., &c. A shrub, 4 ft. to 6 ft. high. Leaves 4—5 in a whorl, linear, cuneate, glabrous. Flowers axillary, disposed in the manner of a raceme, directed to the lower side, so nodding. Bracteas above the middle of the pedicels. Corolla pitcher-shaped, red. Anthers dark, foraminose from the
middle. (Don's Mill.) A pyramidal shrub. South of Europe, in the region of the Mediterranean; and Cumnemara, on the western coast of Ireland. Height 4 ft. to 6 ft. sometimes 10 ft. Cultivated in 1596. Flowers red, with dark anthers; March to May.

The hardiest of arboreous heaths in British gardens; though plants at Syon, which had stood upwards of half a century, and were above 10 ft. high, were killed to the ground by the winter of 1837-8.

Genus III.

CALLUN'À Sal. The CALLUNÀ. Lin. Syst. Octándria Monógynia.


Species, &c. Leaves 3-cornered in a transverse section of them, arrow-shaped at the base, obtuse at the point, revolute in the lateral margins, imbricate in 4 rows. Flowers disposed in long, terminal, spicate racemes. Under-shrub, small, spreading; native of Europe on poor soils.

1. C. vulg'aris Sal. The common Ling, or Heather.


Species, &c. Leaves 3-cornered in a transverse section of them, arrow-shaped at the base, obtuse at the point, revolute in the lateral margins, imbricate in 4 rows. Flowers disposed in long, terminal, spicate racemes. (Don's Mill.) A small, spreading, evergreen shrub. Europe, plentiful in Britain. Height 6 in. to 3 ft. Flowers purplish; July to September.

Varieties.

1. C. v. 1 purpurea.—Flowers purplish red.
4. C. v. 4 tomentósa.—Leaves and branches woolly. Flowers purplish red.
5. C. v. 5 álba.—Flowers white, less crowded. Corolla shorter.
6. C. v. 6 flóre pléno.—Flowers double, pale purplish red.
7. C. v. 7 fólius varíégátis.—Leaves variegated. Flowers purplish.
8. C. v. 8 al'âera.—Leaves variegated with yellow.
9. C. v. 9 cócineà.—Flowers deep red.
10. C. v. 10 spícáta.—Racemes long. Flowers red or white.
11. C. v. 11 and 12. —Two varieties are mentioned by Sir W. J. Hooker, as being in cultivation in the Glasgow Botanic Garden, where they have retained their differences for years. They have both pubes-
cent branchlets: but the one has deep red flowers, and was received from Aberdeenshire; and the other, which was received from Arran, has white flowers, that appear later than those of the other varieties. The first may be called *C. v. 11* *atro-rubens*, and the second *C. v. 12 scrotilna*.

Very ornamental, either as detached bushes, or as edgings to beds and borders, in sandy or eady soil.

§ ii. *Andromédæce.*

All the species are propagated by layers, and some of them also by division, though most of them might, doubtless, be rooted in sand from the points of the growing shoots, as in the preceding section; but layers soonest make saleable plants. They all require a soil more or less peaty, and a situation cool, open, and moist, rather than dry and airy. Most of the genera are of comparatively short duration, though some species of *Androméda* and *Arbutus* attain an almost tree-like size, and endure many years.

**Genus IV.**

**ANDROMÉDA L.** *The Andromeda.* *Linn. Syst. Decándria Monogónia.*


**Synonyme.** Polifolia Buchanan Cent. 5, p. 5. t. 56 fig. 1.; Andromeda sp. L.

**Derivation.** *Andromeda* was the name of the daughter of Cephalus, king of Ethiopia. How a plant came to be named by Linnaeus after this personage, will be found given at length in our first edition.

**Gen. Char.** Calyx 5-cleft. Segments acute, simple at the base. Corolla globose, with a contracted 5-toothed mouth. Stamens 10, enclosed; filaments bearded; cells of anthers short, furnished with 1 awn each. Stigma truncate. Capsule with a loculicidal dehiscence. Placenta 5-lobed; lobes simple. Seeds elliptic, (Don’s Mill.)

Leaves simple, alternate, exstipulate, evergreen; linear lanceolate, mucronulate. Flowers terminal, umbellate, reddish or snow white.—Under-shrubs, evergreen, spreading; natives of Europe and North America.

**n. 1. A. POLIFOLIA L.** *The Poly-leaved Andromeda, or Moorwort.*


**Synonyme.** Rhododédrón polifolium Scop. *Carn.* No. 482.; wild Rosemary, Poly Mountain, Marsh Cistus, Moorwort, Marsh Holy Rose; Andromède, Fr. and Ger.

**Engravings.** Lin. Fl. Lapp., t. 1, f. 3.; Eng. Bot., t. 713.; and our fig. 1035.

**Spec. Char.**, &c. Leaves oblong, glaucous beneath. Corollas ovate, flesh-coloured or pale red. Segments of calyx ovate, spreading, white, sometimes tipped with red. (Don’s Mill.) A diminutive evergreen shrub. Northern countries of Europe, on turfy bogs; and also in Britain; North America, from Canada to Pennsylvania. Height 6 in. to 1 ft. Flowers white, tipped with red; May to September. Capsule brown.

**Varieties.**

**n. A. p. 1 angustifolia** Lodd. Bot. Cab. t. 1591., and our fig. 1037., has narrow leaves.

**n. A. p. 2 erectædes** has the habit of a heath.

**n. A. p. 3 grandiflora** Lodd. Bot. Cab. t. 1714., and our fig. 1038., has large flowers.
A. p. 4 latifolia Lodd. Bot. Cab. t. 546., and our fig. 1039., has broad leaves, and is a larger plant.

A. p. 5 minima has small flowers.

A. p. 6 revoluta Lodd. Bot. Cab. t. 725., and our fig. 1040., has the flowers bent back.

A. p. 7 scótica is common in Scotland.

A. p. 8 stricta has the branches erect.

Cultivated in gardens in moist peaty soil; and it is only in such a soil, and in an open airy situation, that it can be preserved for any length of time.

2. A. Rosmarinifo'lia Pursh. The Rosemary-leaved Andromeda.


Engravings. Pall. Fl. Ross., 2. p. 53. t. 70. f. B.; and our fig. 1041.


Andrómeda Drummondii Hook., Gard. Mag. 1840 p. 4., is a slender-growing plant, with the young leaves and shoots covered with a scurf, like that which is found on the Elaeagnus. Horticultural Society's Garden.

Genus V.


Synonyme. From Cassiòpe, wife of Cepheus, and mother of Andromeda, whose foolish boast that her beauty was superior to that of the Nereides, provoked the wrath of Neptune.

Spec. Char. Calyx 5-leaved; leaves imbricated at the base. Corolla campanulate, 5-cleft. Stamens 10, enclosed; filaments gibrous; cells of anthers short, tumid, furnished with one awn each. Style dilated at the base. Stigmas obtuse. Capsule with a loculicidal dehiscence; valves bifid at the apex. Placenta 5-lobed; lobes simple. Seeds oblong, compressed, shining. (Don's Mill.)

Leaves simple, alternate, exstipulate, evergreen; very small, acerose, imbricated. Flowers solitary, pedunculate, rose-coloured, lateral or terminal. — Shrubs, small, heath-like; natives of Asia and North America.

1. C. Hypnóides D. Don. The Hypnum-like Cassiópe.


Engravings. Pall. Fl. Ross., t. 73. f. 2.; Bot. Mag., t. 2936.; and our fig. 1042.

Spec. Char. &c. A small creeping shrub, resembling a kind of moss. Leaves
loose, flat, and needle-like. Flowers small, with a red calyx and white corolla. (Don's Mill.) A diminutive creeping evergreen shrub. Lapland, Denmark, and Siberia, on the mountains, where it covers whole tracts of land; and on the north-west coast of North America. Height 6 in. Intro. 1798. Flowers white, tinged with red; June and July. Rare in British gardens.

2. C. tetragona D. Don. The 4-cornered-branched Cassiope.


Engravings. Pall. Fl. Ross., t. 72, f. 4.; Bot. Mag., t. 3181.; and our fig. 1043.

Spec. Char., &c. Leaf obtuse, minutely ciliated, its margin revolute, in such a manner as to render the leaf tumid, and somewhat 2-celled. Leaves adpressedly imbricate in 4 rows, and into a 4-cornered column, of which the stem or branch is the axis and support. (Don's Mill.) A diminutive creeping evergreen shrub. Lapland, Siberia, North America, from Canada to the north-west coast. Height 6 in. Introduced in 1810. Flowers white, tinged with red; March and April. Lodde.


Engravings. Pall. Ross., l. c., t. 73, f. 3.; and our fig. 1044.


Engravings. Pall. Ross., l. c., t. 73, f. 3.; and our fig. 1045.


C. fastigiata D. Don, a native of Nepal, and C. Redlowski G. Don, a native of the East of Siberia, are described in our first edition, but they have not yet been introduced.  

Genus VI.


Synonyme. Andromeda sp. Lin. and others.

Derivation. The name of a daughter of Priam and Hebea.

Gen. Char. Calyx 5-leaved, bibracteate at the base; leaflets imbricat
the base. *Corolla* oblong, with a contracted 5-toothed mouth. *Stamens* 10, enclosed; filaments glabrous, simple at the base; cells of anthers elongated, and tubular at the apex, mutic. *Stigma* annular, with a 5-tubercled disk. *Capsule* with a loculicidal deliscence. *Placenta* 5-lobed; lobes simple. (Don's Mill.)

Leaves simple, alternate, exstipulate, evergreen; acrose, on short petioles. *Flowers* axillary, on short pedicels, drooping, snow white, disposed in the manner of racemes at the tips of the branches. — Undershubs, evergreen; natives of Europe, Asia, and North America.

1. C. calyculata D. Don. The calyculated Cassandra.


*Spec. Char., &c.* Leaves elliptic-oblong, bluntish, obsoletely serrulated, rusty beneath. Racemes recurved, leafy. Bracteas of the calyx (these constitute the calyculus, or secondary and outer calyx, implied by the term calyculata) broad, ovate, acuminate. Corollas oblong-cylindrical. (Don's Mill.) A low evergreen shrub. North America, from Canada to Virginia, and also in the North of Europe and Siberia. Height 1 ft. to 2 ft. Introduced in 1748. Flowers white; April and May.

*Varieties.*


2. C. c. 2 latifolia Lodd. Bot. Cab. t. 530., and our fig. 1047. — Leaf broad.


2. C. (c.) angustifolia G. Don. The narrow-leaved Cassandra.


*Engraving.* Our fig. 1044.


**Genus VII.**


*Synonym.* *Andromeda* sp. Michaux.

*Introduction.* From Zeno &ia, a queen of Palmyra, distinguished for her virtue and learning.

*Char. Calyx* 5-lobed. *Corolla* campanulate; limb revolute, 5-lobed. *Slamens* 10; filaments glabrous, dilated at the base; cells of anthers o o 2
elongated, tubular, biaristate at the apex. Stigma truncate. Capsule with a loculicidal dehiscence. Placenta 5-lobed; lobes cuneate, thick, a little arched. Seeds angular. (Don's Mill.) Leaves simple, alternate, exstipulate, deciduous; scattered, dilated, with the margins usually toothed. Flowers racemose. Pedicels solitary or aggregate.—Undershrubs, deciduous; natives of North America.

1. Z. speciosa D. Don. The showy-flowered Zenobia.


Synonym. Andromeda speciosa Michx. Fl. Bor. Amer. 266.

Engravings. Bot. Cab., t. 581; and our fig. 1049.


Genus VIII.


Synonym. Andromeda sp. 1 in. and various authors.

Derivation. In commemoration of John Lyon, an indefatigable collector of North American plants who fell a victim to a dangerous epidemic amidst those savage and romantic mountains which had so often been the theatre of his labours.

Gen. Char. Calyx 5-parted. Corolla ovate or tubular, with a 5-toothed contracted mouth. Stamens enclosed; filaments flattened, dilated, very short, downy; cells of anthers membranous; dehiscing lengthwise, altogether mutic. Style robust, pentagonal, fusiform, thickened at bottom. Stigma simple, truncate. Capsule pentagonal, 5-celled, with a loculicidal dehiscence.
ence; margins of valves closed by 5 other external nerve valves. Seeds acicular, imbricated. (Don's Mill.)

Leaves simple, alternate, exstipulate, evergreen or deciduous; usually membranous and downy. Flowers for the most part terminal, disposed in racemose panicles.—Shrubs, natives of North America.

A. Leaves evergreen.

1. L. ferruginea Nutt. The rusty-looking Lyonia.


Engravings. Vent. Malm., t. 80; and our fig. 1032.

Spec. Char., &c. Shubby, evergreen. Leaves on long petioles, coriaceous, obovate, usually obtuse, quite entire, with hardly revolute edges, and covered with brown, umbilicate, bran-like scales, as is every other part of the plant. Flowers axillary, 3 or 5 together, upon pedicels. Corolla small, ovate, globose, white inside, rusty-looking outside. (Don's Mill.) An evergreen shrub. Georgia, Florida, and Mexico, in pine woods. Height 3 ft. to 5 ft. Introduced in 1784. Flowers white; June and July.

2. L. rigida Nutt. The rigid-leaved Lyonia.


Engravings. Bot. Cab., t. 430; and our fig. 1033.

Spec. Char., &c. Leaves crowded, coriaceous, rigid; their petioles short; their disks cuneate-lanceolate, acute, entire, convex, with revolute edges, and clothed with brown, umbilicate, bran-like scales, as is every other part of the plant. Flowers produced, in Britain, in April and May; axillary, several together. Corolla globose, white inside. Closely akin to L. ferruginea; but the two are distinguishable by their different habits, especially by their times of flowering. (Don's Mill.) An arboreal evergreen shrub or low tree. Carolina and Florida, in barren sandy woods. Height 15 ft. to 20 ft.; in British gardens 3 ft. to 5 ft. Introduced in 1744. Flowers white; April and May. Capsule brown.

Nearly allied to the preceding species, but of a different habit, and flowering at a different season.

3. L. marginata D. Don. The marginated-leaved Lyonia.


Engravings. Bot. Mag., t. 1055; Jacq. Icon. Rar. t. 465; and our fig. 1034.

Spec. Char., &c. Branchlets indistinctly 3-sided. Leaves coriaceous, oval, acuminate, quite entire, glabrous, and very finely punctured; with the mid-rib running through the deflexed margin. Flowers upon pedicels.

1053. L. ferruginea.

1055. L. rigida.

1054. L. marginata.
ARBORETUM ET FRUTICETUM BRITANNICUM.


Variety.

\( L. m. 2 \) vibra Lodd. Bot. Cab. t. 672., and our fig. 1055.—Flowers deep red.

B. Leaves deciduous.

4. \( L. \) maria'na \( D. \) Don. The Maryland Lyonia.


Engravings. Bot. Mag., t. 1579.; and our fig. 1056.


Variety.

\( L. m. 2 \) oblonga Swt., and our fig. 1057., has oblong leaves.

5. \( L. \) racemo'sa \( D. \) Don. The racemose-flowered Lyonia.


Engravings. L'Herit. Stirp., 2. t. 13.; and our fig. 1058.


A very desirable species. According to Pursh it is reckoned one of the finest shrubs in America, from the graceful appearance of its flowers, and their fine odour.

6. \( L. \) arbo'rea \( D. \) Don. The Tree Lyonia.


Spec. Char., &c. Branches taper. Leaves deciduous, oblong, acuminate, serrate, with mu.

The leaves have a very pleasant acid taste, from which the species has been called the sorrel-tree. In America they are frequently made use of by hunters in the mountains to alleviate thirst.

**7. L. PANICULATA Nutt.** The paniced-flowered Lyonia.

*Synonyme.* Andreómeda paniculáta Lin. Sp. 564.

*Spec. Char., Sc.* Downy. Leaves deciduous, obovate-lanceolate, narrowed to both ends, almost entire, the upper surface of the older leaves nearly glabrous. Flower-bearing branches terminal, paniced, nearly naked of leaves. Flowers small, in peduncled racemes. Corollas nearly globose, downy, white. (Don's Mill.) A deciduous shrub. Canada to Carolina, in all swamps and woods. Height 5 ft. to 4 ft. Introduced in 1748. Flowers small, white; June and July.

**8. L. SALICIPOLIA Wats.** The Willow-leaved Lyonia.

*Engravings.* Dend. Brit., t. 38.; and our fig. 1061.

*Spec. Char., Sc.* Leaves alternate, long-lanceolate, acuminate, scarcely serrulate, shining, strewed with a few short gland-like hairs. Racemes of flowers compound, alternately sessile on the terminal branches. Flowers white, 1-petaled, globose, contracted at the mouth. (Wats.) A desirable species, nearly allied to L. paniculata, but which is less remarkable in point of floral beauty, than for its fine shining foliage. Native country? Height 3 ft. to 4 ft. Flowers white; June and July.

**9. L. (p.) FRONDOSA Nutt.** The branchy Lyonia.

*Engravings.* Our fig. 1063. from a specimen in Dr. Lindley's herbarium.

*Spec. Char., Sc.* Densely villose with whitish hairs. Leaves deciduous, oblong or oblong ovate, blunt or acutish, often rusty, prominently veined; the lateral margins revolute, entire, and rough. Flowers white, in a terminal leafy panicle. Corollas globose, hispid or downy. (Don's Mill.) An upright deciduous shrub. Virginia and Carolina. Height 3 ft. Introduced in 1806. Flowers white; May and June.

**10. L. (p.) MULTIFLORA Wats.** The many-flowered Lyonia.

*Engravings.* Dend. Brit., t. 128.; and our fig. 1063.

*Spec. Char., Sc.* Leaves deciduous, narrow, lanceolate, serrate, sprinkled with hair-like atoms. Flowers numerous, small, white, disposed in terminal panicles.


Engraving. Dend. Brit., t. 127 ; and our fig. 1064.


Genus IX.


Synonyme. Andromeda sp. of previous authors.

Derivation. Leucothoe was a beautiful nymph, beloved by Apollo; who was buried alive by her father when he discovered her amor, and changed into the tree that bears the frankincense by her lover. (Ovid. Met., iv. 195.) Leucothoe was also a name given to Ino after she was changed into a sea deity.


Leaves simple, alternate, exstipulate, evergreen; coriaceous, dentately spinulose. Flowers white, racemose, axillary, or terminal.—Shrubs, evergreen, low; natives of North America.

n. 1. L. AXILLA'RI'S D. Don. The axillary-racemed Leucothoe.

Engraving. Our fig. 1065.

Spec Char., &c. Leaves oblong or oval, acuminate; in the out ward part of its length cartilaginous in the margin, and serrulate with mucronate teeth; upper surface glabrous, under surface covered with glandular hairs. Young branches clothed with powdery down. Flowers white, in short, spicate, sessile, axillary racemes, attended by scaly bracteas. Corolla ovate cylindrical. Filaments ciliated, very short, Capsule depressed, globose. (Don's Mill.) A low evergreen shrub. Virginia to Georgia, on mountains. Height 2 ft. to 3 ft. Introduced in 1765. Flowers white; May and June.
Variety.


n. 2. L. spinulosa G. Don. The spinulose-toothed-leaved Leucothoe.


Spec. Char., &c. Leaves glabrous, coriaceous, ovate-oblong, rounded at the base, gradually narrowed to the tip, acuminate, serrulate with teeth that are spinulose in some degree. Flowers white, disposed unilaterally and rather loosely, in subspicate, axillary, subsessile racemes, and attended by scaly bracteas. Corolla short, ovate-cylindrical. It resembles L. axillaris D. Don in several respects. (Don's Mill.) A low evergreen shrub. Lower Carolina. Height 2 ft. Introduced in 1793. Flowers white; May and June.

n. 3. L. acuminata G. Don. The acuminate-leaved Leucothoe.


n. 4. L. floribunda D. Don. The numerous-flowered Leucothoe.


Spec. Char., &c. Glabrous. Leaves ovate oblong, acute, finely serrulate, appressedly ciliate, coriaceous. Flowers white, numerous; disposed unilaterally in racemes that are axillary and terminal, and constitute panicles. Pedicles with 2 bracteas. (Don's Mill.) An erect evergreen shrub. Georgia, on mountains. Height 2 ft. to 3 ft. Introduced in 1812. Flowers white; May and June.

Extremely difficult to propagate, therefore rare. Profile in flowers, when covered with them very beautiful. Leaves, which do not root under two or three years.

n. 5. L. spicata G. Don. The spicate-racemted Leucothoe.


**Genus X.**


**Synonymes.** Andrómeda sp. Wallach.

**Derivation.** *Pieris,* a general appellation of the Muses, who were called Pierides, from their birthplace, Pieria, in Thessaly.

**Gen. Char.** Calyx deeply 5-parted. **Corolla** tubular or ovate, with a contracted, 5-toothed, revolute border. **Stamens** enclosed; filaments dilated, bisetose at top; cells of anthers short, incumbent, dehiscing lengthwise. **Style** robust, pentagonal. **Stigma** truncate. **Capsule** with a loculicidal dehiscence. **Seeds** scrobiform. (Don's Mill.)

Leaves simple, alternate, stipulate, evergreen; coriaceous. Flowers drooping, terminal, racemose.—Shrub or low tree, evergreen, native of Nepal.

**P. 1. P. ovalifo'lia D. Don.** The oval-leaved Pieris.


**Synonymes.** Andrómeda ovalifo'lia Asiat. Res. 13, p. 391.; A. capricida Hamilton MSS.

**Engravings.** Asiat. Res., 13, p. 391.; and our fig. 1070.

**Spec. Char., &c.** Leaves oval, acuminate, 2 in. to 6 in. long, 1 in. to 2 in. broad, rounded at the base, entire, downy when young. Flowers upon downy pedicels, and disposed unilaterally in lateral, leafy, lengthened racemes, many in a raceme. Racemes numerous. Segments of calyx ovate and acute. **Corolla** oblong, downy, pale flesh-colour. (Don's Mill.) An evergreen low tree. Nepal, at Suembu and Sirmagar. Height 20 ft. to 40 ft.; in British gardens 2 ft. to 3 ft. Introduced in 1825. Flowers white; May.

**Genus XI.**


**Synonymes.** Andrómeda sp. L.; Menzi'sia sp. Swartz, Smith.

**Derivation.** Phyllo'doce, the name of one of the nymphs of Cyrene, daughter of the river Peneus.

**Gen. Char.** Calyx 5-parted. **Corolla** globose, with a contracted 5-toothed mouth. **Stamens** 10, enclosed; filaments slender, glabrous; cells of anthers short, truncate, mucic. **Stigma** petalate, 5-tuberculately. **Capsule** 5-celled, with a septicidal dehiscence. **Seeds** compressed, shining. (Don's Mill.)

Leaves simple, alternate, exstipulate, evergreen; linear, obtuse, spreading. Flowers terminal, solitary, or many together in a kind of umbel.—Shrubs, evergreen, very diminutive. Natives of the North of Europe, Asia, and North America.
XLIII. **ERICA'CEÆ**: **BRYA'NTHUS.**

2. **P. TAXIFO'LIA Sal.** The Yew-leaved Phylloclode.


**Spec. Char., &c.** Leaves with denticulated margins. Peduncles aggregate, glanded. Segments of the calyx acuminate. Anthers one third of the length of the filaments. Corolla blue or purple; red, on the authority of Pursh, in the species as found in North America. (Don's Mill.) A low, trailing, evergreen, heath-like shrub. Europe, North America, and Asia; in Scotland on dry heathy moors, rare. Height 6 in. Flowers pale red; June and July.

2. **P. EMPETRIFÓRMIS D. Don.** The Empetrum-like Phylloclode.


**Synonymes.** Menziësia empetrifórmis Smith in Linn. Soc. Trans. 10. p. 286.

**Engravings.** Bot. Mag., t. 3176.; and our fig. 1072.


**GENUS XII.**

**BRYA'NTHUS Gmel.** The BRYANTHUS. **Lin. Syst. Decándria Monogynia.**


**Synonymes.** Andrömeda sp. Lin.; Menziësia Swartz and Pursh.; Erica sp. Thunb.

**Derivation.** From bryon, a moss, and enthos, a flower.

**Gen. Char., &c.** Calyx 5-leaved, imbricate. Corolla deeply 5-parted, spreading. **Stamens** 10, shorter than the corolla; filaments flattened, glabrous; cells of anthers short, mutic, or awned behind, dehiscing by a terminal hole. **Stigma** obtuse. **Capsule** 5-celled, with a septicial dehiscence, many-seeded. **Seeds** ovoid, shining, with a keeled raphe. (Don's Mill.)

**Leaves** simple, alternate, exstipulate, evergreen; small, crowded, spreading, flattish. **Flowers** terminal, solitary, or somewhat racemose.—Shrubs, small, trailing, evergreen. Natives of Asia and North America; rare in British gardens.

2. **1. B. GME'LINI D. Don.** Gmelin's Bryanthus.


**Engravings.** Pall. Fl. Ross. p. 57. t. 74. f. 1.; and our fig. 1073.

**Spec. Char., &c.** Branchlets pruinose. Leaves with denticulated margins. Peduncles glandular, many-flowered. Anthers mutic. Style filiform. (Don's Mill.) A trailing, moss-like, evergreen, diminutive shrub. Kamtschatka, about Port Ochotsk, and of Behring's Island, where it grows in thick masses covering a great extent of surface, like wild thyme; and various other
places, in mosses and bogs, with Ephedrum. Height 6 in. Introduced? Flowers red; June.

2. B. STELLERI D. Don. Steller's Bryanthus.


Engravings. Pall. Fl. Ross., p. 58, t. 74, f. 2; and our fig. 1074.


Genus XIII.


Derivation. D. polifólia D. Don is called, in Ireland, St. Dabeoc's heath.

Gen. Char. Calyx 4-parted. Corolla oval, ventricose; limb 4-toothed. Stamens 8, enclosed; filaments dilated, glabrous. Anthers linear, sagittate at the base; cells of anthers parallel, loosened at the apex, dehiscing lengthwise. Stigma simple, truncate. Capsule 4-celled, with a septical deliscence. (Don's Mill.)

Leaves simple, alternate, exstipulate, evergreen; acerose, elliptic, flat, clothed with white tomentum beneath. Flowers terminal, racemose, purple. — A shrub, evergreen, diminutive, bushy; native of Ireland and the Pyrenees.


Engravings. Eng. Bot., t. 35; Sweet's Brit. Fl.-Gard., 2, s. t. 276; and our figs. 1075 and 1076.

Spec. Char., &c. Leaves elliptic, flat, clothed with white tomentum beneath. Flowers in terminal racemes. (Don's Mill.) A bushy, heath-like, evergreen undershrub. Ireland and the Pyrenees, on the sides of mountains and dry heaths, where it is very ornamental. Height 1 ft. to 2 ft. Flowers purple; June to September.

Variety.

Genus XIV.

Arbutus Camer. The Arbutus, or Strawberry Tree. Lin. Syst.


Definition. From ar bois, austere bush, Celt; in allusion to the austere quality of the fruit.

Gen. Char. Calyx 5-parted. Corolla globose, or ovately campanulate; limb 5-cleft, reflexed. Stamens 10, enclosed. Anthers compressed on the sides, dehiscing by two pores at the apex, fixed by the back beneath the apex, where they are furnished with two reflexed awns. Ovarium seated on a hypogynous disk, or half-immersed in it, 5-celled; cells many-seeded. Style 1. Stigma obtuse. Berry nearly globose, granular. (Don's Mill.)

Leaves simple, alternate, exstipulate, evergreen; serrated or entire. Flowers in racemes, terminal, panicled, pedicellate, bracteate, with white or flesh coloured corollas.—Trees and shrubs, evergreen; natives of Europe, Asia, and America.

They are of easy culture, in sandy loam, or loam and peat; and they are readily propagated, the common kinds by layers, cuttings, or seeds, and thearer and tenderer sorts by grafting on those that are more common and hardy. All the species have the outer bark more or less tinged with red, and scaly.

1. A. Unedo L. The Unedo Arbutus, or Strawberry Tree.


Synonymes. L'Arbousier commun, Arbousier des Pyrénées, or Frâisier en Arbre, Fr.; Erdbeere, Ger.; Konna, Mod. Greek.

Illustrations. Eng. Bot., t. 2577.; and our fig. 1077.

Spec. Char., &c. Arboreous. Branchlets clothed with glandular hairs. Leaves oblong-lanceolate, glabrous, serrulata. Flowers nodding. Peduncles smooth. (Don's Mill.) An evergreen shrub or low tree. South of Europe, Palestine, and Ireland, in the county of Kerry, near the Lake of Killarney, on barren limestone rocks, where the country people eat the fruit. Height 10 ft. to 20 ft. Flowers white; September and December. Fruit large, scarlet; ripe in December.

Varieties.

1. A. U. 1 albus Ait. Hort. Kew. ii. p. 71. — Flowers white. This is the common sort, raised in nurseries by seed. The flowers are sometimes of a greenish or yellowish white, and sometimes reddish. The colour of the fruit, also, varies in a similar manner.

2. A. U. 2 ruber Ait. Hort. Kew. ii. p. 71. — Flowers reddish. This is the handsomest variety in cultivation. It is commonly propagated by layers, or by grafting on the species, and sometimes by cuttings.

A. U. 4 schlizopetalus. — Corolla cut into more than the number (5) of segments constant to the corolla of the species. Hort. Soc. Garden.


A. U. 6 crispus. — Leaves curled and cut, and the plant dwarf.

A. U. 7 salicifolius — Leaves narrow, very distinct.

The common arbutus will grow to the height of 20 or 30 feet; but, unless pruned to a single stem, it assumes more the character of a huge bush than that of a regular-headed tree. The rate of growth, when young and properly treated, will average 1 ft. a year for the first 10 years; and the plant is of considerable durability. It will thrive in any tolerably free soil; though it seems to grow fastest, and attain the largest size, in deep sandy loam. It will grow either in open or sheltered situations, but does not thrive under the shade of trees. The species is readily propagated by seeds, which should be sown, as soon as they are separated from the pulp of the fruit, in pots of light, rich, sandy soil, or heath mould, and then placed in the shade, where they can be protected from the frost and the sun. Plants raised from seed do not generally flower till 5 or 6 years old. The double and the scarlet-flowered, and all the other varieties, are propagated by layers, by grafting, or by cuttings of the wood in a growing state, taken off in July, and treated like cuttings of heath.

2. A. hybrida Ker. The hybrid Arbutus, or Strawberry Tree.


Synonyme. A. andrachnoides Link Enum. l. p. 205.


An evergreen shrub or low tree. Originated in gardens about 1800. Height 10 ft. to 20 ft. Flowers white; September to December. Fruit scarlet; rarely produced.

This hybrid appears to have been originated between the first and the third species, and to be intermediate between them both in appearance and constitution. It is less tender than No 4., and more so than No. 3. In British gardens it is very ornamental from its foliage and flowers; but, as might be expected, it rarely perfects fruit. Propagated by grafting on the common species.
Variety.

1 A. h. 2 Milleri (A. Milleri Mayes in West of England Journal of Science and Lit., Jan. 1835; and Gard. Mag., xi. p. 259.) was raised from seed in the Bristol Nursery, from the scarlet-flowered variety of A. U'nedo and A. Andrachne. The flowers are of a delicate pink, the leaves are large, and the plant vigorous.

Apparently a hybrid between A. U'nedo and A. Andrachne. It grows as rapidly as the A. U'nedo, forms fully as large a tree, is more beautiful in its flowers, which are in larger panicles, and is nearly as hardy.

2 3. A. Andrachne L. The Andrachne Arbutus, or Strawberry Tree.

Synonyms. A. integrifolia Lam.; Andrachne Theophr. Hist. 1. p. 48.; Andrachne Park. Theatre, 1490. f. 2. This is the Adrachne of Theophrastus; and it is called Adrachia in modern Greek.

Spec. Char., &c. Leaves oblong, bluntish, entire in some, a little serrated in others, glabrous. Panicles terminal, erect, clothed with viscid down. Flowers

greenish white. Fruit like that of A. U'nedo. (Don's Mill.) An evergreen shrub or low tree. Greece, Asia Minor, and Tauria. Height 20 ft. to 30 ft. Introduced in 1724. Flowers greenish white; March and April. Fruit like that of A. U'nedo; ripe in December.

Variety.

1 A. A. 2 serratifolia, A. serratifolia Nois., (Lodd. Bot. Cab., t. 580.; and our fig. 1083.) has the leaves serrated, and narrower than those of the species. The flowers are yellowish, and disposed in rather large terminal clusters.

It differs from the common arbutus in having much longer leaves, smooth, coriaceous, and shining, and but slightly if at all serrated, and polished; but the outer bark cracks, and peels off in very thin
papery layers annually, by which alone it is readily distinguished from the common arbutus. The plants, when young, are somewhat tender; but, if kept in pots till 2 or 3 feet high before they are planted out, they will endure the winters in the neighbourhood of London without any protection; and will grow nearly as rapidly as the common arbutus, becoming eventually much larger and finer trees.

2 = 4. A. procera Douglas. The tall Arbutus, or Strawberry Tree.


Spec. Char., &c. Leaves oblong, serrated, or entire, smooth; petioles smooth. Racemes terminal, panicles secund. (Lindl.) A small evergreen tree; in British gardens an evergreen bush, with fine broad glossy foliage. North-west coast of North America. Height 10 ft. to 20 ft. Introduced in 1825. Flowers delicate, greenish white; May. Fruit like that of the common arbutus.

Nearly allied to A. Andrachne; but differing in the form and serratures of its leaves, and in the form and size of its flowers. The root shoots are covered with scattered bristles, as also are the leaf stalk, and the leaves themselves on such shoots are very strongly serrated.

w. A. tomentos a Pursh. The downy Arbutus, or Strawberry Tree.


Spec. Char., &c. The whole plant, except the flowers, downy while young. Branches hispid. Leaves with short and hispid petioles, midribs hispid, and disks oval, acute, subcordate at the base, and clothed with white tomentum beneath. Flowers bracteated, disposed in somewhat headed racemes, which are axillary, and shorter than the leaves. Corolla campanulate, pitcher-shaped, pure white. (Don's Mill.) A low evergreen shrub. West coast of North America. Height 3 ft. to 4 ft. Introduced in 1826. Flowers pure white; Dec.

Variety.


Spec. Char., &c. Branches angular, pilose. Leaves 4 in. to 5 in. long; their petioles long, pilose; their disks oblong, acute, sharply toothed, coriaceous, glabrous above, and shining beneath, clothed with brown-tined down, and the middle nerve with long rusty-hued hairs. Flowers crowded, disposed
in panicles that are terminal and composed of approximate racemes. Pedicels furnished with 3 bracteas at the base. Corolla oval, white. Filaments dilated and pilose at the base. (Don’s Mill.) A robust shrub or low tree. Mexico, on the eastern declivities between La Plata and Xalapa. Height 20 ft.; in British gardens 5 ft. to 10 ft. Introduced in 1826. Flowers white; December.

Other Species apparently hardy. — A. speciosa Dickson, Gard. Mag. 1840, p. 4. Leaves lanceolate, finely serrated, glaucous on the under side, and bright green above. Probably a large bush or small tree. Mexico, 1837. Another species, and also A. nepalensis Royle, have been raised in the H. S. Garden.

Genus XV.


Syneogynes. U’va-ursi Lodd.; A’butus sp. Lin.
Derivation. From arkto, a bear, and staphylê, a grape.

Gen. Char. Calyx 5-parted. Corolla globose or ovate-campanulate; limb 5-creft, reflexed. Stamens 10, enclosed; filaments dilated at the base, and pilose. Anthers compressed at the sides, dehiscing by two pores at the apex, fixed by the back beneath the middle, where they are furnished with two reflexed horns. Ovarium seated on the hypogynous disk, or half-immersed in it, usually 5-celled, rarely 6—9-celled; cells 1-seeded. Styles 1 Sigma obtuse. Drupes nearly globose. (Don’s Mill.)

Leaves simple, alternate, extipulate, evergreen or deciduous; entire or serrated. Flowers in terminal racemes, pedicellate bracteate. Corollas white or flesh-coloured. Drupes red or black. — Shrubs or subshrubs, deciduous or evergreen, low or trailing; natives of Europe or America.

1. A. U’va-ursi Spreng. The common Bearberry.


Spec. Char., &c. Stems procumbent. Leaves permanent, obovate, quite entire, coriaceous, shining, resembling those of the common box. Flowers fasciculate; pale red, or white with a red mouth; growing in small clusters at the extremities of the branches. Drupe 5-celled. (Don’s Mill.)

A trailing evergreen shrub. Canada and New England in rocky situations, and in the Island of Unalaska; also in the middle of Europe; and upon dry heathy mountains throughout the Highlands and Western Isles of Scotland. Height 1 ft.; trailing stems 2 ft. to 4 ft. Flowers pale red; May and June. Berries red; ripe in September.

Variety.

A. U. 2 austriaca Lodd. — Leaves somewhat larger than those of the species.

The berries are filled with an austere meally pulp, and serve as food for grouse and other birds in Britain; and in Sweden, Russia, and America, they form a principal part of the food of bears. The whole plant is powerfully astringent; it abounds in the tannin principle; and, both in Sweden and P P
America, it has been used for tanning leather, and dyeing it an ash-grey colour. On rockwork in gardens it is very ornamental.


**Synonyme.** *Arbusus alpína Lin. Sp. 566.**

**Engravings.** Engl. Bot., t. 2630.; and our fig. 1088.

**Spec. Char., &c.** Stem procumbent. Leaves obovate, acute, wrinkled, serrated, deciduous. Racemes terminal. Pedicels rather hairy. The flowers grow in reflexed racemes, and are pure white. (Don's Mill.) A trailing evergreen shrub. Denmark, Switzerland, Siberia, Lapland, &c.; the Highlands of Scotland, on dry moors; also in Canada, &c. Height 1 ft.; shoots 2 ft. to 4 ft. Flowers in reflexed racemes, pure white; April to June. Fruit black, of the size of a sloe, with a taste somewhat resembling that of black currants, but more mawkish; ripe in September.

In British gardens, it has long been a favourite peat-earth trailing shrub, requiring an airy situation. It does not thrive in the immediate vicinity of London, nor where it is much sheltered; but, either on rockwork, in beds of dry peat, or in moist peat, it grows with great luxuriance, and occasionally ripens fruit.

*A. píngenes H. B. et Kunth (Don's Mill., iii. p. 836.)* is a native of Mexico, in elevated places, near Moran and Villalpando, where it forms a branchy shrub, about a foot in height. Introduced in 1839. Hort. Soc. Garden.

**GENUS XVI.**

**PERNETTAYA** Gaud. THE PERNETTAYA. *Lin. Syst. Decándria.*

**Monogynía.**

**Identification.** Gaud. in Frey. Voy., p. 454. t. 67.; Don's Mill, 3 p. 836

**Derivation.** Named after Don Pernetty, the author of the *Account of a Voyage to the Falkland Isles*; a work remarkable for its interest, as well as for its candour and exactness. The original species of this genus was mentioned by this traveller under the name of "Bruyère à feuilles pointues." (Lindl. in Bot. Reg.)

**Gen. Char.** Calyx inferior, 5-parted. Corolla globose; limb 5-parted, revolute. Stamens 10, almost hypogynous, enclosed; filaments thickened at the base. Cells of anthers bifid, and dehiscing at the apex. Ovary free, depressed, globose, 5-celled; cells many-seeded; hypogynous scales or glands 10, 3-lobed, forming a ring round the ovary, and alternating with the stamens. Style terminal, short. Stigma convex, obsoletely 5-lobed. Berry propped by the rather fleshy calyx. Seeds minute, oblong-ovate. (Don's Mill.)

Leaves simple, alternate, stipulate, evergreen; very small, approximate flowers axillary, solitary, drooping, with bracteate peduncles.—Shrubs evergreen, small, spreading, much branched; natives of Europe and America

1. *P. mucroná'ta Gaud.* The mucronate-leaved Pernettya.


**Synonyme.** *Arbusus mucronátta Lin. fil. Suppl. p. 539.

**Engravings.** Bot. Reg., t. 1675.; Bot. Mag., t. 3693.; and our fig. 1099.

**Spec. Char., &c.** Leaves ovate, cuspidate, denticulately serrulate, stiff, shining on both surfaces. Pedicels axillary, bracteate, about equal in length to the leaves. Flowers white, drooping. (Don's Mill.) A neat little evergreen shrub. Terra del Fuego, Cape Horn, and the Straits of Magellan. Height 2 ft. to 3 ft. Introduced in 1828. Flowers white; May.
Variety.

2. P. pilosa G. Don. The pilose, or hairly, Fernettlya.


Synonyme. Arbutus pilosa Graham.

Engravings. Bot. Mag., t. 3177.; and our fig. 1190.


P. microphylla Gaud. (Don's Mill, iii. p. 336.), Arbutus microphylla Forst., A. serpyllifolia Lam., is a native of the Straits of Magellan, where it grows to the height of 2 or 3 feet, but has not yet been introduced.


Genus XVII.


Derivation. So named by Kalm, from Gaultheria, a physician and botanist of Canada.


Leaves simple, alternate, exstipulate, evergreen; toothed, ciliated. Flowers axillary and terminal, racemose, rarely solitary; pedicels bibracteolate. Corollas white, rose-coloured, or scarlet. Filaments usually hairy. — Shrubs, evergreen, procumbent; natives of America.

1. G. Procumbens L. The procumbent Gaultheria.


Spec. Char., &c. Stem procumbent. Branches erect, naked at bottom, but with crowded leaves at top. Leaves obovate, acute at the base, finely and
cilately toothed. Flowers few, terminal, nutant.  
(Don's Mill.) A very small evergreen shrub. Canada to Virginia, in dry woods, on mountains, and in sandy places. Height 6 in. Introduced in 1762. Flowers white; July to September. Berries red; remaining on the plant great part of the winter.

A very pretty little shining-leaved plant, improperly termed procumbent, which makes very ornamental edgings in peat soil, kept moist; in which soil alone it can be well grown. The leaves, if properly cured, make a most excellent tea.

2. G. SHA'LLON Pursh. The Shallon Gaultheria.

**Genus XVIII.**

**EPIGÆ'A L. THE EPIGÆA.** Lin. Syst. Decándria Monogénia.


Derivation. From epi, upon, and gaia, the earth; the plant creeps upon the surface of the earth.


1. E. rep'ens L. The creeping Epigæa.


Spec. Char., &c. Branches, petioles, and nerves of
leaves very hairy. Leaves cordate-ovate, quite entire. Corollas cylindrical. Flowers white, tinged with red, very fragrant. (Don's Mill.) A creeping evergreen shrub. Nova Scotia to Carolina, on shady rocks and in stony woods, on the sides of hills, and at the roots of pines. Height 6 in. Introduced in 1736. Flowers white, tinged with red, very fragrant; May to July.

**Variety.**

*E. r. 2 rubicunda* Swt. Fl. Brit. 2d ser. t. 384. has brilliant pink flowers. Raised from seed, 1836.

Succeeds in peat soil, kept rather moist, and protected with a frame or hand-glass, or with snow, during very severe frosts.

### Genus XIX.

**Phalerocarpus G. Don. The Phalerocarpus. Lin. Syst. Octandria Monogynia.**


**Synonyme.** Vaccinium *Lin.; Gaultheria Pursh; Oxycoccus Nutt.; Arbutus Lam.*

**Derivation.** From phaleros, white, and karpos, a fruit; in reference to the colour of the berries.

**Gen. Char.** Calyx 4-cleft, bibracteate at the base. Corolla short, campanulate, 4-cleft. Stamens 8; filaments hairy? Hypogynous disk 8-toothed. Anthers seminifid. (Don's Mill.)

Leaves simple, alternate, exstipulate, evergreen; small, roundish-oval, acute. Flowers axillary, solitary, nearly sessile, white.—A shrub, creeping, evergreen, of diminutive size, with hispid branches and the habit of wild thyme.

**1. P. Serpyllifolius G. Don. The Wild-Thyme-leaved Phalerocarpus.**

**Identification.** Don's Mill, 3. p. 841.


**Engravings.** Michx. Fl. Bor. Amer., 1. t. 28.; Pursh Sept., t. 13.; and our fig. 1094.

**Spec. Char., &c.** Berries white, produced in considerable quantities, aromatic, not very acid, and rather insipid than agreeable. The shrub has the same aromatic taste and smell as 'Gaultheria procumbens. (Don's Mill.) A creeping evergreen shrub. Canada to Pennsylvania; and more particularly where cedars and other evergreens are predominant; and growing always amidst Sphagnum. Height 6 in. Introduced in 1815. Flowers white; April and May. Berries white.

---

**Genus XX.**

**Clethra L. The Clethra. Lin. Syst. Decandria Monogynia.**


**Synonyme.** Cüllhira Ruiz et Pav. Syst. 105.

**Derivation.** From *Clethra,* the Greek name of the alder; alluding to a supposed resemblance in the leaves.

**Gen. Char.** Calyx 5-parted. Corolla so deeply 5-parted as to appear pentapetalous. Stamens 10, enclosed, or nearly so. Anthers behind, at length infelexely pendulous and obverse, cordate, mucronate at the apex, mutic.
Ovarium free. Styles straight. Stigma trifid. Capsule girded by the calyx, 3-celled, with a loculicial dehiscence; cells many-seeded. (Don's Mill.)

Leaves simple, alternate, exstipulate, deciduous; serrated. Flowers in racemes, terminal, solitary, or panicled, bracteate, with white corollas. — Shrubs, deciduous; natives of North America. From the appearance of the plants in British gardens, we are strongly inclined to think that all the sorts may be referred to one species. Peat soil kept moist.

1. C. ALNIFO'LIA L. The Alder-leaved Clethra.

Engravings. Schmidt Baum., t. 47; and our fig. 1095.


2. C. (A.) TOMET'O'SA Lam. The downy Clethra.

Engravings. Wats. Dend. Brit., t. 39; and our figs. 1096, and 1097.


Engravings. Our fig. 1098, from a specimen in the British Museum.


Synonyme. C. montana Bartr. Cat.
Engravings. Bot. Cab., t. 1427; and our fig. 1099.

Spec. Char., &c. Leaves oval, acuminate, bluntish at the base, serrated, glabrous on both surfaces, rather glaucous beneath. Racemes spicate, almost solitary, bracteate, clothed with white tomentum. Flowers resembling those of C. alnifolia. (Don's Mill.) A large shrub or low
tree. Carolina, on high mountains. Height 10 ft. to 15 ft. Introduced in 1806. Flowers white; July to October.


**Lugares.** Our fig. 2053. In p. 1167.

**Spec. Char., &c.** Leaves broad, cuneate-ovate, acute, scabrous on both surfaces, coarsely serrated; serrations hooked. Racemes spicate, sub-pauciled bracteated, finely tomentose. *Don's Mill.* A deciduous shrub. Western parts of Georgia. Height 3 ft. to 4 ft. Introduced in 1806. Flowers white; July to October.

**Sect. II. Rhodo'ree.**

The Rhodòreæ include genera of some of the most singularly ornamental evergreen and deciduous peat-earth shrubs that adorn our gardens; for what would our American grounds be without rhododendrons and azaleas? The culture of all the species is nearly the same; they all require peat-earth, or, at least, thrive best in it; and some of them will not live without it. They may all be propagated by cuttings of the growing shoots, planted in fine sand, and covered with a glass, or by layers; but the best plants of all the species are procured from seed. The varieties can, of course, only be continued by cuttings or layers; and the stools for these require to be planted in beds of peat, which should be kept tolerably moist. The seeds, if ripened in this country, should be sown soon after gathering; and those imported from America, immediately on being received: because, though the seeds of all the *Eri- areae* will retain the vital principle for several years, yet the longer they are kept out of the soil, the less likely they are to germinate, and the greater will be the risk of losing some of them. They should be sown in pots or boxes, or in a border shaded from the direct influence of the sun; and kept in a uniform state of moisture, and protected from the frost. In sowing, the surface of the soil should previously be made quite smooth, and gently pressed down, or watered till it has settled to a level surface; and, after the seeds have been equally distributed over this surface, they should be covered with no more soil than is barely requisite to conceal them from the eye. Seeds sown in autumn will germinate in the following spring, and be fit for transplanting into nursery lines or pots by the autumn, or by the spring of the following year. These directions will apply generally to all the species, but are more particularly applicable to those which are perfectly hardy. In France, some of the species have been increased by herbaceous grafting.

**Genus XXI.**

**RHODODE'NDRON.** The Rhododendron, or Rose Bay. Lin. Syst. Penta-Decandria Monogynia.


**Synonyms.** Azàlea sp. of authors; Rhodora *Lin.*; Chamaerhododendros Tourn. Inst. t. 373.; Rhododendron, Fr., Ital., and Span.: Alphabasam, Ger.

**Description.** From rhodon, a rose, and dendron, a tree; in reference to the terminal bunches of flowers, which are usually red, or rose-colour.

**Gen. Char.** Calyx 3-parted. Corolla somewhat funnel-shaped, or campanulate, rarely rotate or 3-parted; limb 5 cleft, somewhat bilobate; upper lip the broadest, and usually spotted. Stamina 5—10, usually exerted, declinate.

**Authors** opening by two terminal pores. Capsule 5-celled, 5-valved, rarely

Leaves simple, alternate, exstipulate, deciduous, or evergreen; quite entire, terminated by a sphaecelate apex, or yellow gland. *Flowers* terminal, corymbose, showy. — Shrubs, usually evergreen; natives of Europe, Asia, and North America.

In the Azalea division of this genus the species are almost entirely deciduous, with quite entire alternate leaves, terminated by a withered tip, or yellow gland; and terminal, corymbose, showy flowers. All the species thrive best in sandy peat, kept rather moist; and they are propagated chiefly by layer and seeds.

§ i. Ponticum. D. Don.


1. *R. ponticum* L. The Pontic Rhododendron, or Rose Bay.


**Engravings.** Pall. Fl. Ross., t. p. 43. t. 90.; Bot. Mag., t. 650.; and our fig. 1100.

**Spec. Char., &c.** Leaves oblong-lanceolate, glabrous on both surfaces, attenuated towards the thick petioles, with a streak on the upper surface, of a wide lanceolate form. Racemes short, corymbose. Leaves sometimes becoming ferruginous beneath. Corolla purple or purplish pink, large; with ovate, acute, or lanceolate segments. Calyx minute, 5-toothed, somewhat cartilaginous. (Don's Mill.) An evergreen shrub; Pontus (now Armenia), in Asia Minor. Height 10 ft. to 12 ft. Introduced in 1763. Flowers purple; May and June. Capsules brown; ripe in September.

**Varieties.**

1. *R. p. 2 obtusum* Wats. Dend. Brit. t. 162., Don's Mill., has the leaves subcordate, coriaceous, obtuse, and the calyx very short, and unequally and undulately crenate. It grows from 3 ft. to 4 ft. high, and has purple flowers. Wild in Armenia.

2. *R. p. 3 myrtifolium* Lodd. Bot. Cab. t. 908. (and our fig. 1101.), Don's Mill., has the leaves small, and the flowers purple. It is a native of Gibraltar.

3. *R. p. 4 Smithii Swt. Brit. Fl.-Gard. n. s. t. 50., Don's Mill., has the leaves lanceolate, and clothed with white tomentum beneath; corollas many-flowered; ovaryum tomentose, and 10-celled. The flowers are of a rosy purple, approaching to crimson, elegantly spotted with black. A hybrid, raised by Mr. Smith, at Coombe Wood, from the seed of *R. ponticum*, impregnated by the pollen of *R. arboreum*.

4. *R. p. 5 Löwii Gard. Mag. vol. xi. p. 190.— Corolla white; the upper segments marked by a few dull scarlet spots. This is a most striking variety, originated by M. Jacob Makoy.

379., and our fig. 1102; is a hybrid between *R.* ponticum and some species of Azalea with fragrant blossoms. It was originated about 1820, and is a favourite in collections.

* R. p. *frigra*ns Chandler (Herb. Anamyl., p. 356.) was raised in the Vauxhall Nursery.

**Nursery Varieties.** The following are cultivated by Messrs. Loddiges:

<table>
<thead>
<tr>
<th>Variety</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>angustifolium.</td>
<td>contortum.</td>
</tr>
<tr>
<td><em>angustissimum</em>.</td>
<td>grandiflorum.</td>
</tr>
<tr>
<td><em>arundinatum</em>.</td>
<td>incarnatum.</td>
</tr>
<tr>
<td><em>branched</em>.</td>
<td>intermedium.</td>
</tr>
<tr>
<td><em>bullatum</em>.</td>
<td><em>hybridum</em>.</td>
</tr>
<tr>
<td><em>cassicolum</em>.</td>
<td><em>pallidum</em>.</td>
</tr>
<tr>
<td><em>crispum</em>.</td>
<td><em>platyphyllum</em>.</td>
</tr>
<tr>
<td><em>esculentum</em>.</td>
<td><em>purpureum</em>.</td>
</tr>
<tr>
<td><em>frondiflorum</em>.</td>
<td><em>rubyfolium</em>.</td>
</tr>
<tr>
<td><em>frondiflorum</em>.</td>
<td><em>salicifolium</em>.</td>
</tr>
<tr>
<td><em>fragrans</em>.</td>
<td><em>sanguineum</em>.</td>
</tr>
<tr>
<td><em>grandiflorum</em>.</td>
<td><em>spectabile</em>.</td>
</tr>
<tr>
<td><em>hybridum</em>.</td>
<td><em>viviparum</em>.</td>
</tr>
<tr>
<td><em>imbricatum</em>.</td>
<td><em>violaceum</em>.</td>
</tr>
<tr>
<td><em>maculatum</em>.</td>
<td><em>villosum</em>.</td>
</tr>
<tr>
<td><em>marginata</em>.</td>
<td><em>violaceum</em>.</td>
</tr>
</tbody>
</table>

The *Rhododendron* ponticum is the commonest species of the genus in British gardens, where it grows to the height of from 5 ft. to 15 ft., or upwards; forming a dense bush, which will spread over a large space, if it be allowed abundance of room. In proper soil, if kept moist, the plant will make shoots, when young, of 1 ft. or more in length in a season, attaining the height of 4 or 5 feet in 5 or 6 years: but afterwards it grows more slowly; and, when a large bush, seldom makes shoots above 6 in. in length. It appears to be of considerable durability. In cool, loamy or sandy, and somewhat moist soils, it is planted in woods as ornamental undergrowth, and succeeds perfectly, both in England and Scotland. It will grow in almost any soil; but, in England, it seems to thrive best in sandy peat, or deep sandy loam. In the common manured earth of gardens it succeeds worse than in unmanured loams of a close texture, even strong clays, particularly if the latter be kept moist. The want of tenacity of the manured garden soil alluded to, more especially in a dry season, seems not to allow it to cohere sufficiently to the small hair-like roots of this order of plants, to enable their very minute spongioles to imbibe nourishment from it.

* 2. *R. maxima* L. The largest *Rhododendron*, or *American Rose Bay*.


**Spec. Char., &c.** Arborescent. Leaves elliptic-oblong, acute, convex, bluntish at the base, whitish or rusty beneath, glabrous. Calycine segments oval-obtuse. Segments of corolla roundish. Flowers pale red, in umbellate corymb, studded with green, yellow, or purple protuberances. (Don's Mill.) An evergreen shrub. Canada to Carolina, on the mountains, near rivulets and lakes, upon rocks and barren soils. Height 10 ft. to 15 ft. Introduced in 1736. Flowers pale red, and yellowish; June to August. Capsules brown; ripe in September.

**Varieties.**

* R. *m. 2 album Hort.* — Flowers pure white, and is comparatively rare in British gardens.

* R. *m. 3 hybridum Hook. Bot. Mag. t. 3454. (and our fig. 1104.) *R.* frigra*ns Hort., *R.* hybridum Lodd. Cat.* — Supposed to be a hybrid originated by fertilising the common white glaucous-leaved Azalea with the pollen of *R.* maximum. This
variety has fragrant flowers, and, according to Sir W. J. Hooker, is "amply worthy of a place in every garden and shrubbery."

Readily known from *R. ponticum* and *R. catawbiense* by the rusty under surface of the leaves, and the comparatively pale green of the entire plant. It neither grows nor flowers so freely in British gardens as the other species.

* 3. *R. (M.) purpureum* G. Don. The purple-flowered Rhododendron, or American Rose Bay.

**Identification.** Don's Mill, 3, p. 843.
**Synonyms.** *R. maximum* Pursh Fl. Amer. Sept. 1, p. 297; *R. ponticum* macrophyllium Lindl. Cat.
**Engraving.** Our fig, 1105. In p. 1108.

**Spec. Char., &c.** Leaves large, oblong-elliptic, flattened, acute, bluntish at the base, green, and glabrous on both surfaces. Segments of corolla oblong and obtuse. Calycine segments obtuse. This shrub approaches near to *R. ponticum*; but it differs in its foliaceous calyx, and otherwise. It grows to an immense size; its stem being often found 18 in. and more in diameter; and its foliage triple the size of that of any other species. (Don's Mill.) A large evergreen shrub, or low tree. Virginia and Carolina, on the highest mountains, near lakes. Height 25 ft.; in England seldom seen otherwise than as a shrub. Introduced?. Flowers large, purple; May and June. Rare in British gardens.


**Identification.** Don's Mill, 3, p. 843.
**Engraving.** Our fig, 1105. From a specimen in Dr. Lindley's herbarium.


**Engravings.** Bot. Mag., t. 1671.; Bot. Cab., t. 1176.; and our fig, 1106.

**Spec. Char., &c.** Leaves short-oval, rounded, and obtuse at both ends, glabrous, of a different colour beneath. Calycine segments elongated oblong. Flowers purple, disposed in umbellate corymbs. (Don's Mill.) A large evergreen shrub. Virginia and Carolina, particularly near the head waters of the Catawba River. Height 4 ft. Introd. in 1809 and
now one of the most common species, and the hardiest, in gardens. Flowers rosy lilac; June to August. Capsule brown; ripe in September.

**Varieties.**


b. **R. c. 3 tigrinum Hort.—** A variety with a corolla much resembling that of *R*. Russelliainum, but with obvious spots on the inside.

It is of more robust growth than either *R*. ponticum or *R*. maximum, but, in other respects, seems intermediate between them. There are many hybrids in cultivation between it and the former species, though without names.

**a. 6. R. chrysanthum L.** The golden-flowed Rhododendron.


*Synonyme.* R. officinalis Salisb. p. 121. t. 54.

*Engravings.* Salisb. Par. Lond., t. 80; and our fig. 1167.


A low evergreen undershrub. Siberia, on the highest mountains; and Caucasus and Kamtschatka. Height 6 in. to 1 ft. Introduced in 1796, but not common in collections, being very difficult to keep. Flowers yellow; June and July.

It requires to be grown in rather moist peat, kept firm, in an open airy situation.

**b. 7. R. caucasicum Pall.** The Caucasian Rhododendron.


*Engravings.* Bot. Mag., t. 1145; and our fig. 1108.


**Varieties.** The following hybrids are among the handsomest rhododendrons in cultivation:

a. **R. c. 2 strawneum Hook. Bot. Mag. t. 3422.**—Corollas straw-coloured. A plant of this variety in the Glasgow Botanic Garden, in April, 1833, was 2 ft. high, and 3 ft. in diameter, with the extremities of its fine leafy branches terminated with clusters of large, beautiful, straw-coloured flowers. The climate of Scotland seems to suit this, and some of the other species found in the coldest parts of the Russian empire, better than that of the South of England.

b. **R. c. 3 pulchérimum Lindl. Bot. Reg. t. 1820. f. 2.**—A hybrid ob-
tained by Mr. Waterer of the Knaphill Nursery, between R. arbo-
reum and R. caucasicum, in 1832; a most beautiful variety, quite
hardy, and an abundant flowerer.

\[ R. c. 4 Noble\lum Hort. (Bot. Reg., t. 1820. f. 1.) \] is a hybrid, very
much like the preceding one in all respects, except that its flowers
are of a deep and brilliant rose colour.

\[ 8. R. Puncta'tum Andr. \] The dotted-leaved Rhododendron.


**Synonymes.** R. ferrugineum var. minus Pers. Ench. 1. p. 473.; R.

our fig. 1108.

**Spec. Clar., &c.** Leaves oval-lanceolate, acute at
both ends, glabrous, beset with rusty resinous
dots beneath. Pedicels short. Calycine teeth
short. Segments of corolla ovate, a little undu-
lated. Flowers pink, disposed in umbellate
corymbbs. Corollas funnel-shaped. Capsules
elongated. (Don's
Mill.) A low ever-
green shrub, Carolina,
on mountains, par-
ticularly at the head
waters of the Savannah
River. Height 1 ft.
Introd. 1786. Flowers
pink; July and August.

\[ 9. R. Ferru'gin'eum L. \] The rusty-leaved Rhododendron.


**Engravings.** Bot. Cab., 65.; and our fig. 1111.

**Spec. Clar., &c.** Leaves oblong, attenuated at both ends, glabrous, shining,
and green above, but thickly beset with rusty dots beneath. Calycine seg-
ments dentately ciliated. Leaves like those of the box tree; when young, cili-
ated with a few hairs at bottom. Flowers of a beautiful rose colour or scarlet,
dispersed in umbellate corymbbs, marked with
ash-coloured or yellow dots. Corollas
funnel-shaped. Filaments hairy at bottom.

(Don's
Mill.) A low evergreen shrub.
Alps of Switzerland, Austria, Savoy, Da-
uphine, and Piedmont; where this species
and R. hirsutum terminate ligneous vege-
tation, and furnish the shepherds with
their only fuel. Height 1 ft. Introd-
uced in 1752. Flowers rose-coloured or scarlet; May to July.

\[ Variety. \]

\[ R. p. 2 mäjus Ker. (Bot. Reg., t. 37.; and our fig. 1110.) \] Leaves
and flowers larger.

\[ 10. R. (? F.) Hir'su'tem L. \] The hairy Rhododendron.


**Engravings.** Bot. Mag., t. 1883.; Bot. Cab., t. 479.; and our fig. 1112

**Spec. Clar., &c.** Flowers white.
XLIII. ERICA'CE.E: RHODODE'NDRON.

**R. arboreum.** Leaves ovate-lanceolate, or elliptic, acutish, ciliated with rusty hairs on the margins, glabrous above, dotted and hairy beneath. Calyceine segments fringed, bearded. Flowers pale red or scarlet, disposed in umbellate corymbbs. Corollas funnel-shaped. (*Don's Mill.*) A low evergreen shrub. Alps of Switzerland, Austria, Styria, Dauricum, &c. Height 1 ft. to 2 ft. Introduced in 1855. Flowers pale red or scarlet; May to July.

variety.

a. **R. (f.) hirsutum.** Leaves edged with yellow. Possibly only a variety of the preceding species.

b. **R. setosum D. Don.** The bristly Rhododendron.


drawings. Our fig. 1113, from a specimen in the herbarium of Professor decandolle.


b. **R. macrophyllum D. Don (G. Don's Mill., iii. 843.)** is a native of the north-west coast of North America, where it was collected by Mr. Fienies; and there are specimens in Mr. Lambert's herbarium; but the plant has not yet been introduced. The petioles of the leaves are 1 in., and their disks from in. to 8 in. long; and the flowers are smaller than those of *R. maximum*, and brittle.

§ ii. **Booram.**

determination. The name of *R. arboreum* in Nepal.

determination. **R. campanulatum D. Don.** The bell-shape-flowered Rhododendron.


drawings. Lodg. Bot. Cab., t. 1044; Swt. Fl.-Gard., 2d s., t. 241; and our fig. 1114.

determination. Leaves elliptic-oblong, mucronate, rusty beneath, rather coriace at the base. Segments of corolla flat, emarginate. Ovariium 6-celled, glabrous. Under surfaces of leaves clothed with fine scaly pubescence, at first of a purplish hue, then changing to nearly white, and afterwards to a deep ferruginous brown. Flowers copious, disposed in corymbose clusters. Pedicels glabrous. Bracteas fringed. Corollas large, pale pink, changing to white, having the upper lip marked with irregular purple spots. Filaments bearded at the base. This species surpasses all others in the size of its...
flowers, except one found in Java by Dr. Horsfield. (Don’s Mill.) A glabrous evergreen shrub. Nepal, on Gossainthan. Height 3 ft. to 5 ft. Introduced in 1825. Flowers pale pink, changing to white; April.

A beautiful and very distinct species, and quite as hardy in British gardens as any of the American kinds.

Rhododendron arboreum Smith.—Several hybrids between this species and R. ponticum and R. catawbiense have been raised, but those only between the American and the more northerly European species have been found tolerably hardy.

R. a. venustum D. Don (Brit. Fl.-Gard. May, 1835, 2d ser. t. 285.) is a hybrid, and an exceedingly showy and interesting plant. It was raised by Mr. Wm. Smith, nurseryman, Norbiton Common, near Kingston, Surrey, from seeds of R. catawbiense that had been fertilized by the pollen of R. arboreum; and appears sufficiently hardy to survive our winters with a little protection.

§ iii. Pogonanthum.

Derivation. From págōn, a beard, and anthes, a flower; throat woollen inside.


œ. 13. R. ANTHOPOGON D. Don. The bearded-flowered Rhododendron.


Smyrnium. R. aromático Wall. Cat.

Engravings. Royle Illust., t. 64. l. 2.; and our fig. 1115.


A very interesting species, from the colour of its flowers and their early appearance. Plants have survived the winter of 1837–8 in the Hackney Arboretum.

§ iv. Lepiphereum D. Don.

Derivation. From lepis, a scale, and phérō, to bear; leaves covered with small scales.


Engravings. Bot. Mag., t. 3106.; and our fig. 1116.

Spec. Char., &c. Shrub branched, procumbent. Branches divaricate. Corollas rotatebly funnel-shaped. Young branches obscurely pubescent, warty. Leaves oblong, obtuse, stiff, beset with honeycomb-like dots, yellowish an scaly beneath; deep green above; and pale green, and at length yellowish beneath; thickly beset with hollow dots on both surfaces, which are covere
by umbilicate permanent scales. Flowers crimson, disposed in umbellate coryumbs, 5—6 together, surrounded by large dotted scales, or bracteas. Calyx covered with yellow scales, ciliated. Segments of corolla unequal, and undulated. Stamens 5—8, equal in length to the corolla. Stigma capitulate, 5-lobed.

Filaments hairy at the base. (Don's Mill.) A procumbent evergreen shrub. Europe, Asia, and North America, in the Arctic regions. Height 6 in. to 1 ft. Introduced in 1825. Flowers crimson; May.

15. **R. Dauricum** L. The Dahurian Rhododendron.


**Spec. Char., &c.** Leaves deciduous; oblong, attenuated at both ends, glabrous, but sprinkled with rusty scales, especially beneath. Limb of calyx 5-toothed. Corollas rotate. Roots knobbed, abounding in fibres. Stems twisted and knobbed in the wild state. Petioles downy. Leaves dotted on both surfaces, but ferruginous beneath. Before they fall in autumn, they become of a dusky red colour. The flowers rise before the leaves, from the tops of the branches, from buds which are composed of concave downy scales. (Don's Mill.) A deciduous shrub. Siberia, peculiar to the alpine tracts of Eastern Asia. Height 2 ft. to 6 ft. Introduced in 1780. Flowers purple; December to March.

**Variety.**

* R. d. 2 trovèrens Ker. (Bot. Reg., t. 191; Bot. Mag., t. 1888.)—Sub-evergreen. Leaves deep green, and shining above; persistent. Siberia.

Very desirable low shrubs, from their flowering so early in the season; but, to thrive, they require peat soil.

**R. leptidótum** Wall. (Royle Illust., p. 260, t. 64, f. 1; Don's Mill., 3, p. 845.) is a native of Nepal, with the habit of *R. dauricum,* but with leaves of a thinner texture; and with every part of the plant beset with ferruginous scale-like dots. It grows to the height of 2 or 3 feet, but has not yet been introduced.

§ v. **Chamaecistus** D. Don.

**Derivation.** From *chamae,* on the ground, and *cista,* the rock rose; plants with the habit of species of *Helianthemum*.


16. **R. Camtschaticum** Pall. The Kamtschatka Rhododendron.


2. 17. R. Chamæcístus L. The Ground-Cistus Rhododendron.


*Spec. Char., &c.* Leaves oblong-lanceolate, attenuated at both ends, stiffish, glandularly ciliated. Peduncles usually twin, and, as well as the calyxes, beset with glandular hairs. Corollas rotate, pale purple. *(Don's Mill.)* A dwarf tufted evergreen shrub, with small leaves, about the size of those of a species of Helianthemum. Alps of Austria, Carniola, Mount Baldo, and near Salzburg; and in Eastern Siberia. Height 6 in. Introd. 1786. Flowers purple; May and June.

§ vi. *Pentanthèra D. Don.*

*Synonyme.* Azalea L.

*Derivation.* From *pente*, five, and *anthèra*, an anther; flowers pentandrous.

*Sect. Char.* Limb of calyx short, 5-lobed. Corolla funnel-shaped. Stamens 5. Ovarium 5-celled. Leaves deciduous. This group includes the hardy azaleas of the gardens, which have mostly deciduous leaves, and are quite distinct in their appearance from the plants of the preceding groups of this genus, which are all evergreen and sub-evergreen. After Mr. Don's name, we have given the name previously applied, and then the common English name, leaving them to be adopted by the practical gardener, if he should think fit. At the same time, those who prefer following Mr. Don have only to pass over the names which we have put in parenthesis.

3. 18. *R. Flavum* G. Don. *(Azælea pontïca L.)* The Pontic, or common, Azalea.


*Engravings.* Bot. Mag., t. 2883.; and our fig. 1120.


Varieties and Hybríds. There are a great number of varieties of this species in the gardens, differing principally in the colour of their flowers, and the hue of the leaves. The flowers of the species are of a fine bright yellow; but those of the varieties are of all shades, from yellow to copper, or orange colour; and they are sometimes of a pure white, or of white striped with yellow and red. Besides, as this species seeds freely, and is easily cross-essicated with the North American species, an immense number of varieties of it have been originated in British and Continental gardens. The varieties and hybrids which are considered as belonging to Azalea pönïca, which are given in Loddiges's *Catalogue* for 1836, are the following, but new kinds are originated every year, and we therefore refer to the yearly catalogues of nurserymen.

- A. p. 2 alba. 4 crocita. 6 flâmmea. 8 glâuca. 10 ochroleuca. 12 tricolor.
- 3 aurantià. 5 cùrea. 7 ilígens. 9 ignèsca. 11 pallida.


vii

April

evergreen

of

May

A.

a

r

A.

n

Savannah.

scarlet,

striped,

red,

purple,

&c., disposed in terminal clustered racemes, appearing before the leaves. Tube of corolla longer than the divisions. Teeth of calyx short, rather rounded. Stamens much exerted. (Don’s Mill.) A deciduous shrub. Canada to Georgia, on the sides of hills. Height 3 ft. to 4 ft. Introduced in 1734. Flowers of various colours; April to June. Capsule brown.

It is the parent of numerous varieties, and, in connection with the preceding species, of many beautiful hybrids.

varieties and Seedlings.

R. n. 1 coccineum D. Don. Azâlea n. coccinea Sims Bot. Mag. t 180. — Flowers scarlet, and the leaves lanceolate. It is a native of Georgia, near Savannah.


R. n. 3 carnea D. Don. A. n. carnea Ait. l. c., Bot. Reg. t. 120.; A. p. carnea Pursh l. c. — The corollas are pale red, having the tube red at the base, and the calyx folidaceous.

R. n. 4 albus D. Don. A. n. alba Ait. l. c.; A. p. alba Pursh. — The flowers white, and the calyx middle-sized.

R. n. 5 papilionaceum D. Don. A. p. papilionaceum Pursh. — Flowers reddish, with the lower segment white, and the calyx folidaceous.

R. n. 6 partitum D. Don. A. p. partita Pursh. — The flowers are pale red, 5-parted, even to the base.

R. n. 7 polyandrum D. Don. A. p. poly-

áandra Pursh l. c. — Flowers of a rose colour, short. Stamens 10—20. It is found near Philadelphia.

varieties and Hybrids chiefly raised at

R. n. 8 Goventanium D. Don (Brit. Fl.-Gard., iii. t. 263.; and our fig. 1123.) — The branches tomentously downy. Leaves evergreen or deciduous, oblong, acute, downy while young, but glabrous in the adult state, and recurved at the apex. Tube of corolla a little shorter than

1121. R. nudiflorum.

1122. R. n. rutilans.


1124. R. n. rutilans.
the segments. Flowers delicate light purple, disposed in terminal racemose corymbs. It is a hybrid raised from the seed of _A. nudiflora_ impregnated by the pollen of a hybrid raised between _R. ponticum_ and _R. catawbiense_.

R. _n._ 9 _rübrum_ Lodd. Bot. Cab. t. 51.—Flowers red.

R. _n._ 10 _carniium_ D. Don.—Raised, in 1829, from seeds of _R. nudiflora_ cocineaum mājus, to which pollen of _Rhododendron arboreum_ had been applied. It resembles its female parent, having very little affinity with _R. arboreum_, except in its evergreen leaves and deciduous flowers.

R. _n._ 11 _thysiflorum_ Bot. Reg. 1367., and our fig. 1124.—Raised at High Clere in 1835 or before.

R. _n._ 12 _scientiflans_ Bot. Reg. 1461., and our fig. 1125.—Raised at High Clere in 1835 or before.

R. _n._ 13 _Seymoiri_ Bot. Reg. 1975., and our fig. 1126.—Raised at High Clere in 1835 or before.

Varieties and Hybrids assigned to _A. nudiflora_ in Loddiges's Catalogue for 1836 are the following:

- A. _n._ 2 _alba_ et _rübrata_.
- 3 _amœna_.
- 4 _blanda_.
- 5 _carnæ_.
- 6 _caroliniana_.
- 7 _Coburgia_.
- 8 _colorata_.
- 9 _conspicua_.
- 10 _crispæ_.
- 11 _cæmula_.
- 12 _discolor_.
- 13 _fastigiata_.
- 14 _flœre pleno_.
- 15 _florida_.
- 16 _globosa_.
- 17 _grandiflora_.
- 18 _incæna_.
- 19 _incarnata_.
- 20 _mirabilis_.
- 21 _montana_.
- 22 _ochroleuca_.

A. _n._ 1124. _R. n. thysiflorum_.

A. _n._ 1125. _R. n. scientiflans_.

A. _n._ 1126. _R. n. Seymoiri_.

A. _n._ 1127. _R. n. rosea_.

The two-coloured flowered Azalea.

**Identification.** Don's Mill., 2. p. 847.


**Engravings.** Trew Ehret, 45.; and our fig. 1125.

**Spec. Char., &c.** Leaves oblong, clothed on both surfaces with fine hoary pubescence, not bristly on the nerve. Flowers small, not clammy, naked, smaller and more slender than those of most of the other species. Tube of corolla hardly longer than the segments. Calyxes very short; having one of
the segments linear, and 4 times longer than the rest. Filaments ex- 
serted. Branchlets hispid. (Don’s Mill.) A deciduous shrub. Carolina 
and Georgia, on barren sandy hills. Height 3 ft. to 4 ft. Introduced in 
1734. Flowers red and white; May.

21. R. (n.) Calendula'ceum Tort. (A. (n.) Calendula'cea Michx.) The 
Marigold-flowered Azalea.


Synonymes. Azalea calendula'ceae Michx. Fl. Bor. Amer. 1. p. 156.; A. 

and our fig. 1129.

Spec. Char., &c. Leaves oblong, pubescent on both sur-
faces, but afterwards hairy. Flowers large, not 
clammy, rather naked. Teeth of calyx oblong. Tube 
of corolla hairy, shorter than the segments. (Don’s 
Mill.) A deciduous shrub. North America, from 
Pennsylvania to Carolina. Height 2 ft. to 6 ft. In-
roduced in 1806. Flowers yellow, red, orange-
coloured, or copper-coloured; May and June.

Varieties.

R. c. 2 Morter'i Sut. Fl. Gard. 2d s. 10.— A hybrid between R. calen-

dula'ceum and one of the red varieties of R. 
nudiflorum, of which there are two subvarieties; 
one with a flesh-coloured corolla, having the 
upper segment orange-coloured, edged with 
flesh-colour, called R. Morter'i carneum; and 
another, called R. Morter'i var. præ'stans, with 
pale copper-coloured flowers, tinged with bluish.

R. c. 3 fiji'dium Hook. A. c. [fugida] Hort. — 
Corollas of an orange-red colour, with bright 
green leaves, which spread out beneath the 
cymbals of flowers, and form a rich back-
ground to them.

R. c. 4 lépidum Bot. Reg. t. 1402., and our 
fig. 1130.— Raised at High Clerce.

22. R. Cane'escens G. Don, (A. cane'escens Michx.) The canescent Azalea.


Spec. Char., &c. Leaves obovate-oblong, downy above, and tomentose be-
neath, not bristly on the middle nerve. Flowers not clammy, nearly naked. 
Tube of corolla hardly shorter than the segments. Teeth of calyx very 
short, rounded, obtuse. Stamens hardly exserted. (Don’s Mill.) A deci-
duous shrub. Lower Carolina, on the banks of rivers. Height 3 ft. to 4 ft. 
Introduced in 1812. Flowers rose-coloured; May and June.

23. R. visco’sum Tort, (A. visco’sa L.) The clammy-
flowered Azalea.


Engravings. Our fig. 1131.

Spec. Char., &c. Leaves oblong-ovate, acute, smooth 
and green on both surfaces, ciliated on the margins, 
having the midrib bristly. Flowers produced in 
terminal clusters; and clammy, leafy, and hairy. 
Tube of corolla as long as the segments. Teeth of the 
calyx short, rounded. Stamens hardly longer 
than the corolla. (Don’s Mill.) A deciduous shrub.
Canada to Georgia, in swamps and shady woods. Height 2 ft. to 6 ft. Introduced in 1734. Flowers white, sweet-scented; July and August.

**Varieties and Hybrids.**

A. *R. v. 2 ornatum* Swt. Fl.-Gard. 2d s. t. 137. (and our fig. 1132.)—A hybrid raised from the seed of *R. viscosum* & rubescens, fertilised by the pollen of *Rhododendron pittosporum*. It is evergreen or sub-evergreen, as are all the hybrids of similar parentage.

The Varieties and Hybrids of *A. viscosa*, in Loddiges's *Catalogue* for 1836, are as follows:—

### A. Varieties.

<table>
<thead>
<tr>
<th>Variety</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. v. 2 filha.</td>
<td>5 penicillata.</td>
</tr>
<tr>
<td>3 crispa.</td>
<td>6 praecox.</td>
</tr>
<tr>
<td>4 dealbata.</td>
<td>7 pubescens.</td>
</tr>
</tbody>
</table>

### B. Hybrida altaclerensae. Hybrids raised at High Clere in 1830 or before.

<table>
<thead>
<tr>
<th>Variety</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 amaena.</td>
<td>24 imperatrix.</td>
</tr>
<tr>
<td>12 actinata.</td>
<td>25 imeltya.</td>
</tr>
<tr>
<td>13 aurora.</td>
<td>26 farinolofera.</td>
</tr>
<tr>
<td>14 basilissa.</td>
<td>27 lepida.</td>
</tr>
<tr>
<td>15 calodendron.</td>
<td>28 ochroleuca.</td>
</tr>
<tr>
<td>16 calocoryphe.</td>
<td>29 polkila.</td>
</tr>
<tr>
<td>17 Cartonion. (Fig. 1133.)</td>
<td>30 pontica Hortard. hexapla.</td>
</tr>
<tr>
<td>18 charissia.</td>
<td>31 pulchella.</td>
</tr>
<tr>
<td>19 coccinea nobilis.</td>
<td>32 regalis.</td>
</tr>
<tr>
<td>20 eudeemon.</td>
<td>33 rugens.</td>
</tr>
<tr>
<td>21 euprepes.</td>
<td>34 thyrsiflora.</td>
</tr>
</tbody>
</table>
| 22 Govendia. | 35
| 23 Herbertiana. |

### C. Hybridae belgicae. Hybrids raised in Belgium in 1829 or before.

<table>
<thead>
<tr>
<th>Variety</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>33 Agate.</td>
<td>elécta maxima.</td>
</tr>
<tr>
<td>34 albo pleno.</td>
<td>rubra.</td>
</tr>
<tr>
<td>37 amabilis.</td>
<td>56 elegansissima.</td>
</tr>
<tr>
<td>38 amarantina.</td>
<td>57 exquisita.</td>
</tr>
<tr>
<td>39 amennisisina.</td>
<td>58 Ferróckii.</td>
</tr>
<tr>
<td>40 ardens.</td>
<td>59 Bamboyan.</td>
</tr>
<tr>
<td>41 atro-rubens.</td>
<td>60 fúlida.</td>
</tr>
<tr>
<td>42 aurantia maxima.</td>
<td>61 fúlva.</td>
</tr>
<tr>
<td>43 blanda.</td>
<td>62 glória mundi.</td>
</tr>
<tr>
<td>44 calendulacea globosa.</td>
<td>63 maxima.</td>
</tr>
<tr>
<td>insigina.</td>
<td>minor.</td>
</tr>
<tr>
<td>nova.</td>
<td>64 Galileum purpureum.</td>
</tr>
<tr>
<td>supérsa.</td>
<td>65 Incarnata maxima.</td>
</tr>
<tr>
<td>45 cardon.</td>
<td>rubra.</td>
</tr>
<tr>
<td>46 coccinea maxima.</td>
<td>66 lepida.</td>
</tr>
<tr>
<td>speciosa.</td>
<td>67 lutea rubescens.</td>
</tr>
<tr>
<td>47 conbroma.</td>
<td>68 magnifica.</td>
</tr>
<tr>
<td>48 coriscaus.</td>
<td>69 maritima incarnata.</td>
</tr>
<tr>
<td>49 crocea.</td>
<td>70 minaxa.</td>
</tr>
<tr>
<td>globosa.</td>
<td>71 mirabilis.</td>
</tr>
<tr>
<td>50 crucifera.</td>
<td>72 mixta triumphans.</td>
</tr>
<tr>
<td>51 cæprea.</td>
<td>73 mixta.</td>
</tr>
<tr>
<td>alba.</td>
<td>74 Morteri.</td>
</tr>
<tr>
<td>élegans.</td>
<td>75 nélus ultima.</td>
</tr>
<tr>
<td>eximia.</td>
<td>76 nécoris.</td>
</tr>
<tr>
<td>globosa.</td>
<td>77 nörita antilléscens.</td>
</tr>
<tr>
<td>rubra.</td>
<td>78 norita.</td>
</tr>
<tr>
<td>splendens.</td>
<td>79 opima.</td>
</tr>
<tr>
<td>52 decorata.</td>
<td>80 ornata pallida.</td>
</tr>
<tr>
<td>53 decus hortorum.</td>
<td>81 picturata.</td>
</tr>
<tr>
<td>54 ducedéo.</td>
<td>82 pontica globosa.</td>
</tr>
<tr>
<td>55 élécta.</td>
<td>83 proctor var.</td>
</tr>
</tbody>
</table>


**Identification.** Don's Müll., 3. p. 484.


**Engravings.** Dend. Brit., t. 5.; and our fig. 1134.
Spec. Char., &c. Branchlets hispid. Leaves oblongate, acute, glabrous on both surfaces, glaucous beneath, ciliated on the margins, having the midrib bristly. Flowers very clammy, leafy. Tube of corolla twice longer than the segments. Calyx very short. Filaments about equal in length to the segments of the corolla. **(Don's Mill)**


This shrub is dwarfer than any of the other North American species of Azalea; and it produces its fragrant white flowers in great abundance. Nuttall considers it as only a variety of **R. viscousum**, differing in nothing but in the under surface of the leaves being glaucous; in which opinion we concur.


**Engravings.** Dend. Brit., t. 6; and our fig. 1135.


Readily distinguished from the other hardy azaleas by its bluish appearance.


**Identification.** Torr., t. c.; Don's Mill., 3, p. 847.


**Engravings.** Bot. Reg., t. 414; and our fig. 1136.


27. **R. specio’sum G. Don. (A. specio’sa Willd.)** The showy Azalea.

**Identification.** Don's Mill., 3, p. 843.


**Engravings.** Bot. Cab., t. 624; Dend. Brit., t. 116; and our fig. 1137.


28. R. arborescens Torr. (A. arborescens Pursh.) The arborescent Azalea


Spec. Char., &c. Leaves obovate, rather obtuse, smooth on both surfaces, glaucous beneath, ciliated on the margins, having the midrib almost smooth. Flowers not clanny, leafy. Tube of corolla longer than the segments. Calyx leafy, with the segments oblong and acute. Filaments exserted. (Don's Mill.) A deciduous shrub or low tree. Pennsylvania. Height 10 ft. to 15 ft. Introduced in 1818. Flowers rose-coloured; June and July.

Pursh says it forms, with its elegant foliage, and large, abundant, rose-coloured flowers, the finest ornamental shrub he knows. The flowers are not so pubescent as those of the other species. The scales of the flower buds are large, yellowish brown, and surrounded with a fringed white border.

§ vii. Rhodora D. Don.

Derivation. From rhodon, a rose; in reference to the colour of the flowers.


29. R. Rhodora G. Don. (Rhodora canadensis L.)

The Canada Rhodora.

Engravings. Bot. Mag., t. 474.; and our fig. 1139.


Genus XXII.


Synonyme. American Laurel.
Derivation. Named by Linnaeus in honour of Peter Kalm, professor at Abo, in Sweden; author of Travels in America in 1753.

Gen. Char. Calyx 5-parted. Corolla salver-shaped; under side of limb producing 10 cornute protuberances, and as many cavities on the upper side, in
which the anthers lie, or are concealed. Capsule 5-celled, many-seeded; dissepiments marginal. (Don's Mill.)

Leaves simple, alternate, or ternately verticillate, exstipulate, entire, evergreen; buds naked. Flowers in terminal, racemose, compound corymbs, but in K. hirsuta solitary and axillary. Pedicels long, 1-flowered, trilabrate at the base; external bracteae originating from the rachis. Anthers opening by two oblique truncate pores. — Undershubs, evergreen; natives of North America; poisonous in all their parts, and often fatal to cattle.

1. K. *LATIFOLIA* L. The broad-leaved Kalmia.


Synonyme. Mountain Laurel, Calico Bush, Calico Flower, Amer.

Engravings. Bot. Mag., t. 175; Schmidt Baum, t. 166; and our fig. 1140.

Spec. Char., &c. Leaves on long petioles, scattered or 3 in a whorl, oval, coriaceous, smooth, and green on both surfaces. Corymbs terminal, downy, and viscid. (Don's Mill.) An evergreen glabrous shrub. Canada to Carolina, on the sides of stony hills. Height 3 ft. to 10 ft. Introduced in 1734. Flowers white, tinted with pale pink, delicately spotted; June and July.

This shrub, in its native soil, continues flowering great part of the summer; but it is only in particular places where it thrives. These are generally rocky, sterile, and near water. Leaves of this species are poisonous to cattle and sheep, but not to deer.

2. K. *ANGUSTIFOLIA* L. The narrow-leaved Kalmia.


Synonyme. Sheep Laurel, Amer.

Engravings. Bot. Mag., t. 331; Bot. Cab., t. 502; and our fig. 1141.


Variety.

3. K. a. 2 ovata Pursh Fl. Amer. Sept. i. p. 296. — A native of New Jersey, on the mountains, with broader leaves and a taller stem than the species.

3. K. *GLAU'CA* Ait. The glaucous-leaved Kalmia.


Engravings. Bot. Mag., t. 177; Bot. Cab., t. 1508; and our fig. 1142.


Variety.

n. K. g. 2 rosmarinijolla Pursh Fl. Amer. Sept. i. p. 296.—Leaves linear, more revolute on the margins, and having the under surface green.

The flower is comparable to a miniature parasol: the corolla to the covering, the stamens to the rays that keep the covering distended, and the style to the handle.

n. 4. K. cunea'ta Michx. The wedge-shaped-leaved Kalmia.


Engravings. Our fig. 1143. from a specimen in the Museum of the Jardin des Plantes.


n. 5. K. hirsu'ta Walt. The hairy Kalmia.


Engravings. Bot. Mag., t. 138.; and our fig. 1144.


Somewhat difficult to cultivate in British gardens.

Genus XXIII.


Derivation. Named in honour of Archibald Menzies, F.L.S., &c., surgeon and naturalist to the expedition under Vancouver; in which he collected many specimens of plants on the north-west coast of America, New Holland, Van Diemen's Land, &c.

Gen. Char. Calyx 4-lobed. Corolla tubular or globose; limb very short, 4-lobed, revolute. Stamens 8, enclosed. Filaments subulate, glabrous. Cells of anthers parallel, connate, mutic at the base, and opening each by an oblique foramen at the apex. Stigma obtuse. Capsule ligneous, 4-celled, with a septicidal dehiscence. Placentae 4-lobed. Seeds scobiform. (Don's Mill.)

Leaves simple, alternate, exstipulate, deciduous; very small, membranous, glaucous beneath. Flowers in numerous terminal 1-flowered fascicled pedicels. — Under-shrubs, deciduous; natives of North America.

Derivation. From azaleos, dry, or arid; in reference to the habituation of the plant.


Leaves simple, opposite, exstipulate, evergreen; small, elliptic, glabrous, with revolute margins. Flowers pedicellate, rising in fascicles from the axils of the upper leaves, small, red.—A shrub, evergreen, procumbent, small, glabrous, with the habit of wild thyme; native of Europe and North America, on mountains.

1. A. procumbens L. The procumbent Azalea.


Spec. Char., &c. See Gen. Char. A procumbent evergreen shrub. Europe, on mountains; plentiful in the Highlands of Scotland, and in the alpine regions of different parts of North America. Height 6 in. Flowers small, rose-coloured; April and May.
Requires to be grown in sandy peat, either in a border or in pots, and in an airy situation.

**Genus XXV.**

**Leiophyllum Pers. The Leiophyllum. Lin. Syst. Decandria Monogynia.**


*Derivation.* From lepis, smooth, and phyllon, a leaf; in reference to the smoothness of the leaves.


Leaves simple, alternate, exstipulate, evergreen; small, convex, oval, glabrous, shining. Flowers white, disposed in terminal corymbs. - A shrub, small, erect, bushy, very ornamental from the delicacy of its leaves and the abundance of its white flowers; native of North America, on mountains.

**Sub. 1. L. thymiophólium Pers.** The Thyme-leaved Leiophyllum.


**Genus XXVI.**

**Ledum L. The Lédam. Lin. Syst. Decandria Monogynia.**


*Derivation.* Lédum was the name applied by the ancients to a plant producing the substance called labdabum, and now known by the name of Cistus Lédum. In foliage, the Lédum of modern botanists bears some distant resemblance to the plant of the ancients.

*Gen. Char.* Calyx minute, 4-toothed. Corolla 5-petaled; spreading. Stamens 5—10, exerted. Anthers opening by two terminal pores. Capsule sub-ovate, 5-celled, 5-valved, opening at the base, pedicellate. Seed numerous, flat, linear, scabrous, furnished with a membranous wing at each extremity. (Don's Mill.)

Leaves simple, alternate, exstipulate, evergreen; coriaceous, with revolute margins, and tomentose on the under surface. Flowers white, disposed in terminal corymbs; pedicels bracteate at the base. — Shrubs, evergreen low, procumbent, or dwarf, exhaling a peculiar scent when bruised; native of Europe or North America.
XLIII. ERICAÉE: LE'ĐUM.


**Synonymes.** Ledum silesiacum Clus. Pan., 68.; Rosmarinus sylvestre Com. Epit. 546.

**Engravings.** Schmidt Baum., t. 136.; Bot. Cab., t. 560.; and our fig. 1150.

**Spec. Char., &c.** Leaves linear, with revolute margins, clothed with rusty tomentum beneath. Stamens 10, longer than the corolla. Leaves resembling those of rosemary. (*Don's Mill.*) An erect evergreen shrub. Canada, in swamps, and round the mountain lakes of New York; in Kotzebue's Sound, &c.; also the North of Europe, as Denmark, Silesia, &c. Height 2 ft. Introduced in 1762. Flowers white; April and May.

**Variety.**

2. *L. LATIFOLIUM* Ait. The broad-leaved Ledum, or Labrador Tea.


**Engravings.** Lodd. Bot. Cab., t. 1049.; and our fig. 1192.


Sect. III. *VACCINIEàE* D. Don.


**Sect. Char., &c.** Anthers 2-celled. Ovary connate with the calyx. Disk perigynous, nectariferous. Fruit baccate. Gemmation scaly. The genera in this section agree with Vaccinium in the ovary adhering to the calyx. (*Don's Mill.*) Deciduous and evergreen shrubs, natives of Europe and North America; cultivated in peat soil, and propagated, generally, by division of the plant, but sometimes by layers, and, when necessary, by cuttings or seeds.
Genus XXVII.


Synonymes. Vitis iâea Tours. Inst. t. 377; Airelle, Fr.; Heidelbeere, Ger.

Description. An ancient Latin name, but whether of a berry or a flower has been a point in dispute among critics, as well as its etymology.

Gen. Char. Calyx 4—5-toothed. Corolla urceolate or campanulate, more or less deeply 4—5-cleft; limb reflexed. Stamens 8—10, hypogynous. Anthers 2-horned, dehiscing at the back, and sometimes furnished at the back with two spreading spines or bristles. Style longer than the stamens. Stigma obtuse. Berry globose, depressed at top, 4—5-celled, many-seeded. (Don's Mill.)

Leaves simple, alternate, stipulate, deciduous or evergreen; membranous, often beset with resinous dots. Flowers pedicellate, and solitary, simply racemose, or tufted, drooping, inodorous, tinted with various shades of red or pink, never blue, scarcely yellowish, generally very elegant. Berries black, purple, bluish, or red, generally edible. — Shrubs, low, suffruticose, gemmaceous, natives of Europe or North America.

The species are in a good deal of confusion, from the whole of them never having been studied together in the same garden. We have followed the arrangement of G. Don, as the latest and best, not having had an opportunity ourselves of examining all the species said to be in cultivation in British gardens.

A. Leaves deciduous.

a. Pedicels 1-flowered, usually solitary, rarely twin, or fasciculate.

ii. V. MYRTILLUS L. The Little-Myrtle-like Whortleberry, or common Bilberry, or Bleaberry.


Engravings. Engl. Bot., t. 456; Fl. Dan., t. 974; and our fig. 1153.

Spec. Char., &c. Pedicels solitary, 1-flowered. Leaves serrated, ovate, smooth. Stem acutely angular; smooth. Calyx hardly divided. Corolla globose generally 5-cleft, of a very delicate, waxy, pink hue. (Don's Mill.) A low deciduous shrub. North of Europe, on heaths, stony moors, and mountain woods; North of Africa and Asia; and at Nootka Sound and Nova Scotia, in America. Plentiful in Britain and Ireland, and also in Iceland; and pro-cumbent about the subalpine zone in England, where it rarely produces flowers. Height 6 in. to 2 ft. Flowers delicate, waxy, pink; May. Berries bluish black, the size of currants, and covered with a mealy bloom; ripe in October.

Variety.

ii. V. M. 2 ãaccis álbus Booth has white fruit. Plants of this variety were discovered in 1835 in the Black Forest.

The berries are eaten in tarts, or with cream, or made into jelly, in the northern and western counties of England and Scotland; and, in other parts of the country, they are made into pies and...
puddings. Their juice has been employed to stain paper or linen purple. In autumn, many kinds of game live upon them, and the plant affords them shelter. In gardens, it may be cultivated in sandy peat, kept moist, in a situation airy, but somewhat shaded.

2. *V. uliginosum* L. The Bog Whortleberry, or great Bilberry.


**Synonym.** Myrtillus grandis Buch. Hort. 1. p. 518.


The berries are agreeable, but inferior in flavour to those of *V. Myrtillus*; eaten in large quantities, they occasion giddiness, and a slight headache. In France they are used to colour wines red; and in Siberia and Sweden they furnish an ardent spirit that is highly volatile and intoxicating. They afford excellent sustenance to game. In gardens, it may be cultivated like the preceding species.


**Synonym.** V. myrtilloides Michx. Fl. Bor. Amer. 1. p. 234.

**Engravings.** Bot. Mag., t. 3447.; and our fig. 1155.

**Spec. Char., &c.** Pedicels scattered, mostly solitary, 1-flowered, naked. Leaves lanceolate, nearly entire, downy at the ribs and margins. Berries large, and known by the name of blues. *(Don’s Mill.)* A low deciduous shrub. Canada, about Hudson’s Bay and Labrador; and the high alpine woods of the Rocky Mountains, from the Atlantic to the Pacific. Height 1 ft. to 2 ft. Introduced in 1776. Flowers flagon-shaped, yellowish green, or white tinged with red; April and May. Berries large, globose, blackish purple, highly esteemed by the inhabitants of the countries where the plant is indigenous; ripe in October.


**Engravings.** Bot. Mag., t. 3429.; and our fig. 1156.

**Spec. Char., &c.** Flowers lateral, solitary, nearly sessile. Leaves somewhat wedge-shaped, rounded, obtuse, serrated, membranous, very smooth. A little shrub, with many crowded stems, from 2 in. to 4 in. high, very smooth in every part. Corolla of a short urceolate form. Berries nearly sessile, globose. *(Don’s Mill.)* A small deciduous shrub, with crowded stems. Hudson’s Bay, in the Island of Sitcha, and on the Rocky Mountains. Height 6 in. Introduced in 1823. Flowers numerous, exceedingly delicate and beautiful, white, with a deep tinge of blush; May. Berry blue black, with a glaucous bloom; ripe in October.
b. Flowers in sessile Tufts.

5. V. GALE'ZANS Michx. The Gale-like Whortleberry.

Synonyme. V. galiiifrons Smith in Rees's Cyc. No. 16.
Engraving. Our fig. 1157. from a specimen in the Lambertian herbarium.


6. V. TENE'LLUM Ait. The delicate Whortleberry.

Engraving. Dend. Brit., t. 35.; Bot. Mag., t. 3434.; our fig. 1158. from Watson, and fig. 1159. from Bot. Mag.

Spec. Char., &c. Flowers in dense sessile tufts. Leaves nearly sessile, ovate-lanceolate, acuminate, finely serrated, smooth, except the rib and margins. Branches angular, with a downy line on each side. Calyx of 5 deep acute segments. (Don's Mill.) A low, very branching, deciduous shrub. New England to Virginia, on dry hills, on gravelly soil. Height 2 ft. Introduced in 1772. Flowers pale red or white; May. Berries large, bluish black, extremely sweet and pleasant; ripe October.

Variety. The mountains of Pennsylvania produce an immense variety of this species, remarkable for the size and shape of the fruit, leaves, and flowers. Leaves sometimes 1 m. long. (Don's Mill.)

7. V. LIGU'STRINUM Michx. The Privet-like Whortleberry.

Engraving. Our fig. 1160. from a specimen in the Lambertian herbarium.

Spec. Char., &c. Flowers in tufts, and nearly sessile; as are the leaves, which are also erect, lanceolate, mucronate, finely serrated, veiny and downy. Corolla longish and ovate. Branches angular. (Don's Mill.) An erect deciduous shrub. Pennsylvania to Virginia, in dry woods, and common on the mountains. Height 2 ft. to 3 ft. Introduced in 1812. Flowers purplish red; May to July. Berries black; ripe in October.

c. Flowers disposed in Racemes.

8. V. PA'LLIDUM Ait. The pale-flowered Whortleberry.

Engraving. Our fig. 1161. from a specimen in the British Museum.

9. **V. arbo'reum** Marsh. The Tree-like Whortleberry.


*Engravings*. Bot. Cab., t. 1885.; and our fig. 1162.


This species joins the solitary-flowered species with the racemose-flowered species; the axillary flowers being solitary and pedicellate, and the terminal ones racemose. In British gardens, it flowers and fruits freely in peat soil.

10. **V. stam'neum** L. The long-stamened Whortleberry.


Spec. Char., &c. Racemes downy, with oval bracteas as long as the flowers. Anthers 2-horned on the back, twice as long as the spreading bell-shaped corolla. Leaves elliptic, acute, entire, glaucous, and rather downy beneath. Stem 2 ft. high, with numerous green branches, which are downy while young. Leaves 1½ or 2 inches long, on very short downy stalks. Flowers deciduous, copious, white, having linear anthers, which are horned near the base. The bracteas resemble the leaves, but are much smaller. (Don's Mill.) A low deciduous shrub. New England to Florida. Height 1 ft. to 2 ft. Introduced in 1772. Flowers white; May and June. Berries greenish or white; ripe in October.

*Variety*. *V. s. 2 album* H. B. et Kunth Nov. Gen. Amer. iii. p. 267.—The leaves are larger, and ciliated on the nerves beneath, and on the margins. Corolla campanulate and white. It is a native of Mexico, in woods, between Pachuca and Real del Monte, where it seldom grows above 6 in. high.

11. **V. dum'o'sum** Alt. The bushy Whortleberry.


Spec. Char., &c. Racemes downy, with oval bracteas, and the pedicels with

Variety.

V. d. 2 bimile Wats. Dend. Brit. t. 32. — The flowers are white; anthers red; pedicels solitary, axillary. Shrub, 6 in. high. 1164. V. dumœum.

V. 12. V. corymbose L. The corymbose-flowered Whortleberry.


Spec. Char., &c. Flowering branches almost leafless. Racemes corymbose, drooping, with membranous bracteas, which are shorter than the downy flower stalks. Leaves elliptic, acute, minutely serrated, smooth, with downy ribs. (Don's Mill.) Leaves 1½ in. to 2 in. long, tipped with a glandular point. Racemes rising from the branches of the preceding year, and seldom accompanied by leaves. Bracteas reddish, membranous, and fringed. Calycine segments broad and shallow. Corollas white or reddish, cylindrically urceolate, rather angular, and contracted at the mouth. Stamens 10, downy. Anthers enclosed, having a double pouch at the base, but no spurs. This species has a number of varieties, in size, shape, and colour of the leaves, flowers, and fruit. A tall deciduous shrub. Canada to Carolina and Georgia, in swamps and wet woods. Height 4 ft. to 7 ft. Introduced in 1765. Flowers white or reddish; May and June. Berries black, insipid, used in tarts like those of the cranberry; ripe in October.

1165. V. corymbose.

1166. V. corymbose

1167. V. c. virgatum

Varieties.

V. c. 2 virgatum Ait. Hort. Kew. ed. 2. vol. 2. p. 358., Don's Mill. 3. p. 854.; and our fig. 976. — The flowers are white, tinged with crimson or a little red; very elegant, and smaller than the species. Racemes short, lateral, and terminal. Virginia and Carolina, in swamps; where it grows 2 ft. high.

The flowers striped with red and white, and the calyx downy. Lower Carolina and Georgia, in swamps.

V. c. & angustifolium, V. virgatum var. angustifolium Wats. Dend. Brit. t. 34. — The leaves narrow, lanceolate, and acuminate at both ends, sessile, besprinkled with brown, minute, pedicellate glands beneath, and hairy on the midrib above. Flowers almost white. This variety, like the preceding ones of V. corymbosum, is very handsome, and very distinct; and, in British gardens, of easy culture, in sandy peat soil, which, however, as in all similar cases, must be kept cool, and of an equable degree of moisture.

13. V. albi flo'rum Hook. The white-flowered Whortleberry.


Synonym. V. album Lam. f.

Engravings. Bot. Mag., t. 3425.; and our fig. 1169.


The affinity of this very pretty species is undoubtedly with V. corymbosum, but the half-superior ovary of V. corymbosum, and the wholly inferior one of V. albi florum, and other points of difference implied in those noticed in the specific character above, have induced Sir W. J. Hooker to think that the two are permanently distinct. In the Botanic Gar- den, Glasgow, it fruits abundantly every year, and the fruit is very good to eat.

14. V. maria'num Wats. The Maryland Whortleberry.


Synonym. V. marianadicum Lodd. Cat. ed. 1835.


15. V. grandiflo'rum Wats. The great-flowered Whortleberry.


R R

Engravings. Dend. Brit., t. 125. c.; and our fig. 1173.


17. V. (g.) minutsflorum Wats. The minute-flowered Whortleberry.


Engravings. Dend. Brit., t. 125. c.; and our fig. 1174.


18. V. glabrum Wats. The glabrous Whortleberry.


Engravings. Dend. Brit., t. 125. c.; and our fig. 1175.


19. V. frondosum L. The frondose Whortleberry.


Synonyms. V. glaucum Michx. Fl. Bor. Amer. 1. p. 231.; Blue Tangles, Amer.


Spec. Char., &c. Racemes loose. Bracteas obovate, not half so long as the slender pedicels, which bear 2 small linear bracteoles in the middle. Leaves obovate-oblong, obtuse, entire, smooth. Flowers small, almost glabular, and white. Branchlets frondose (that is, abounding in leaves), terete, smooth, and slender. Leaves 2 in. to 3 in. long, glaucous beneath, and sprinkled with minute resinous dots. Racemes lateral, from the former year’s wood. Flowers drooping, greenish white, and shaped like those of the fly of the valley, but smaller. Anthers not prominent. (Don’s Mill.) A low deciduous shrub. New Jersey to Carolina, in woods. Height 3 ft. Introduced in 1761. Flowers white; May and June. Berries blue, globular, catale; ripe in October.

1172. V. grandifloraum.
Variety.

\[ V. f. 2 \] *venátum* Ait. Hort. Kew. ed. 2 vol. ii. p. 357. *V. frondósum* var. 8 lanceolátum *Pursh Fl. Amer. Sept.* i. p. 786. — The leaves are lanceolate, and acute at both ends.

\[ 20. V. resíno'sum Ait. \] The resinous Whortleberry.


Synonyme. *Andrómeda bacéta* *Wangh. Amer.* t. 38. f. 69.


1177. *V. resíno'sum*.

Varieties.

\[ V. r. 2 \] *rubéscent* *Pursh Fl. Amer. Sept.* i. p. 286., Curt. Bot. Mag. t. 1288. — Corollas reddish.

\[ V. r. 3 \] *lutéscent* *Pursh l. c. V. parviflórum* *Andr. Bot. Rep.* t. 125. (our fig. 1178.) — Leaves lanceolate, and the flowers reddish yellow.


Engravings. Our fig. 1179. from the plant in the Horticultural Society's Garden.

Spec. Char., &c. Racemes lateral. Bracteoles all at the base of the pedicels. Leaves elliptic, acute, minutely serrated, hairy beneath. Stamens as long as the corolla, which is bell-shaped, with very hairy filaments. Calyx slightly 5-lobed. Young branches downy on both sides. Leaves 2 1/2 in. long. Racemes from the wood of the preceding year, below the fresh leafy shoots, drooping, rather hairy; each composed of 6—10 pendulous flowers, of a dirty white colour, tinged with purple. Anthers spurred at the base. Corollas bell-shaped, hairy. (*Don's Mill.*) A large deciduous shrub. Coast of the Black Sea. Height 8 ft. to 10 ft. Introduced in 1800. Flowers white, tinged with purple; May and June. Berries purple; ripe in October.

Commonly grown only as an ornamental shrub, yet it might be cultivated for its fruit, which is produced in very great abundance, is agreeable to the taste, and makes excellent tarts. All the garden culture required is, to place the plants in sandy peat, or in peat and leaf mould, kept moist. There seems to be a good deal of confusion, in British gardens, between this species and the following one.

\[ 22. V. (? A.) pâ'difo'lium Smith. \] The Bird-Cherry-leaved Bear's-Grape Whortleberry.


Spec. Char., &c. Racemes lateral. Bracteas all at the base of the pedicles. Leaves ovate-lanceolate, acute, serrated, smooth on both surfaces, except the midrib. Stamens nearly as long as the bell-shaped corolla, with smooth slightly fringed filaments. Calyx 3-lobed. Corollas larger than those of

V. Auctostaphylos, pale green, with a purple tinge; sometimes it appears to be all over purple externally. (Don's Mill.) A large deciduous shrub. Caucasus, and Madeira on the loftiest parts of the island. Height 6 ft. to 10 ft. Introduced in 1811. Flowers pale green, tinged with purple; June to August. Berries black, juicy, eatable, and agreeably acid; ripe in October.

B. Leaves evergreen.

a. Flowers racemose.


Engravings. Our fig. 1183. from a specimen in the Museum of the Jardin des Plantes.


24. V. V'ITIS IDE'AE A L. The Mount Ida Whortleberry, or Cowberry.


Synonyme. Vitis idae'a rubra Cunn. Epit. 156.; the red Whortleberry.


Spec. Char., &c. Racemes terminal, drooping, with ovate concave bracteas, which are longer than the pedicles. Leaves obovate, revolute, minutely toothed, dotted beneath. Corolla bell-shaped. Root creeping, woody. Stems ascending, a span high. Young branches terete, downy. Leaves like those of box, but darker. Flowers pale pink, 4-cleft, octandrous. Anthers without spurs. Berries blood-red, acid, austere, and bitter; less palatable than either the cranberry or bilberry. (Don's Mill.) A diminutive creeping evergreen shrub. Europe, Siberia, and North America, in many
places, more especially in barren woods and heaths. Height 6 in.; in sheltered places, 1 ft. Flowers pale pink; May and June. Berries blood red; ripe from August to October.

The berries are scarcely to be eaten raw: but they are made into pies in Derbyshire; and, in Sweden, a rob, or jelly, is made from them, which is eaten with all kinds of roast meat. In Sweden, this preserve is also considered an excellent medicine in colds, sore throats, and all irritations of the mouth or fauces. In Siberia, the berries are macerated, during the autumn and part of the winter, in water; and afterwards they are eaten in a raw state, and fermented along with barley or rye, and a spirit distilled from them; or with honey, and a wine produced. Sweetmeats are also made of them with honey or sugar, which, in 1814, we found in frequent use in Moscow, at balls and masquerades. In Sweden and Norway, the plant is said to be used in gardens for edgings, as box is in Central Europe; and, in British gardens, it is sometimes so applied to American beds and borders, and in other cases where the soil is peat. From its smooth shining foliage, and the beauty of its flowers and fruit, the latter being retained on the plant for several months, it forms a more beautiful and varied edging than box, provided clipping can be dispensed with.

25. V. (V.) buxifolium Salisb. The Box-leaved Whortleberry.


Engraving. Our fig. 1187. from a specimen in the Museum of the Jardin des Plantes.

Michaux describes the berries as small, globose, crowned by the calyx, black, on short stalks. A low, creeping, evergreen shrub. Carolina.
Height 6 in. Introduced in 1812. Flowers pink; May to July. Berries
black; ripe in October.

2. 27. V. NITIDUM Andr. The glossy-leaved Whortleberry.

Engravings. Curt. Bot. Mag., t. 1556; and our fig. 1188.

Spec. Char., &c. Racemes terminal, corymbose. Bracteas
shorter than the pedicels. Leaves elliptic-obovate, acute,
crenated, smooth, and shining. Corollas cylindrical. Stems
either erect or diffuse. Leaves ½ in. to 1 in. long, paler
and veiny beneath. Pedicels, bracteas, and calyx, very
smooth, of a shining red or purple colour. Calyx of 5
broad, but rather shallow, segments. Corollas ovate,
oblance, white or pink, with 5 slightly spreading teeth, dec-
candrous. The branches are downy on two opposite sides.
(Don’s Mill.) A decumbent evergreen shrub. Carolina.
Height 1 ft. Introduced in 1794. Flowers white or pink;
May and June. Berries ?

2. 28. V. CRASSIFO’LIUM Andr. The thick-leaved Whortleberry.

Engravings. Bot. Rep., t. 105; Curt. Bot. Mag., t. 1192; and our
fig. 1189.

Spec. Char., &c. Racemes lateral and terminal, corymbose.
Bracteas shorter than the pedicels. Leaves elliptic,
crenated, smooth, paler and veiny beneath. Corolla bell-
shaped. Stem diffuse. A hairy shrub, requiring some
shelter from our variable winters and springs. Leaves
not an inch long, with a little minute pubescence on the
midrib and petioles. Flowers 5-cleft, decandrous,
pretty variegated with pink and white, drooping, on red
corymbose stalks. Stamens hairy. (Don’s Mill.) A
trailing evergreen shrub. Carolina. Height 6 in. In-
trroduced in 1787. Flowers pink and white; May and
June. Berries ?

2. 29. V. OVA’TUM Pursh. The ovate-leaved Whortleberry.

Engravings. Bot. Reg. 1834; our fig. 1190. from a living speci-
men, and fig. 1191. from Bot. Reg.

Spec. Char., &c. Racemes axillary
and terminal, bracteate, short.
Leaves on short petioles, oblong,
ovate, acute, revolute, serrated,
smooth, coriaceous. Corolla cylin-
drical, campanulate. Calyxes acute.
Shrub much branched. Branches
hairy, as well as the petioles.
(Don’s Mill.) A beautiful ever-
green shrub. Banks of the Co-
olumba River, and on the north-
west coast of America. Height
2 ft. to 3 ft. Introduced in 1826.
Flowers pink; May. Berries black,
size of a pea.

2. 30. V. CANADE’NSE Richards. The Canada Whortleberry.

Engravings. Bot. Mag., t. 3445; and our fig. 1192.
Spec. Char., &c. Leaves lanceolate, acute at both ends, quite entire, downy. Racemes terminal. Flowers in racemes of from 4 to 6 in each. Style enclosed. Corolla short, and campanulate, white, tinged with red. Stem much branched. Leaves often 1 in. long. Berries blue black, agreeable to the taste. It may be readily known from V. corymbosum by its dwarf size, leafy flowering branches, and campanulate corolla; from V. pennsylvanicum by its large quite entire leaves, and wider mouth to the corolla; and from both by its leaves being very hairy. A low, branchy, evergreen shrub. Canada. Height 6 in. to 1 ft. Introduced in 1834. Flowers white, tinged with red; May. Berries?.

b. Flowers disposed in scaly Tufts, nearly sessile.

n. 31. V. Myrsini'pes Michx. The Myrsine-like Whortleberry.


Varieties.

n. V. M. 2 lanceolatus Pursh Sept. 1. p. 290.—Leaves lanceolate, acute at both ends.

n. V. M. 3 obtiusus Pursh l. c.—Leaves roundish-obovate.

2. 32. V. humifus'sum Grah. The trailing Whortleberry.


Genus XXVIII.

Synonyme. Vaccinium sp. of Lin. and others.

Derivation. From οξυς, sharp, and κόκκος, a berry; in reference to the sharp acid taste of the berries.


Leaves simple, alternate, extispulate, sub-evergreen; small. Flowers produced at the base of the spring branchlets, in short gummaceous racemes; pedicels filiform, conspicuously bibracteate. Berries red, rarely white, acid.—Shrubs, small, prostrate, creeping, growing in sphagnous morasses. Natives of Europe and North America.

1. O. PALLISTERIS Pers. The Marsh, or common, Cranberry.


Derivation. The name of Cranberry is supposed to be given from the peduncles of the flowers being crooked at the top, and, before the expansion of the flowers, resembling the head and neck of a crane (Smith and Withering); or because they are much eaten by cranes.


The plant is readily increased by laying sandy soil on its shoots, at the distance of 5 or 6 inches from its main stem, when it will send down roots abundantly. When it is to be grown for its fruit, a bed of peat soil should be prepared in an open airy situation, where it can be kept moist; or the margin of a pond may be made choice of; and the plants planted there in peat soil, in a bed encircling the pond, 1 or 2 inches above the level of the water, and about 1 ft. distant from it. The cranberry may also be grown in beds of dry sandy peat; and it is alleged by some who have tried this method in British gardens, that the fruit produced, though smaller in quantity, is of a better flavour.

2. O. MACROCARPUS Pursh. The large-fruited, or American, Cranberry.


A trailing shrub, resembling the preceding species, but larger and more robust. Canada to Virginia, in bogs, principally on a sandy soil; and also frequently found on high mountains. Height 6 in. Introduced in 1760. Flowers pink; May to July. Berries spherical, red or purple; ripe in October, and remaining on throughout the winter.

Variety.

2. O. m. 2 foliis variegatis Hort., Vaccinium macrocarpum fœl. var. Lodd. Cat., has variegated leaves, and is a very ornamental plant for keeping in pots, or on moist rockwork.

The fruit is used like that of the common cranberry; and like that species the plant may be propagated by cuttings taken from the points of the growing roots, and planted in sand under a hand-glass; or by layers, or division. His species is more frequently cultivated in British gardens for its fruit than the European cranberry; according to some, because the fruit is larger, and according to others, because the fruit is not only larger, but better flavoured.

3. O. eréctus Pursh. The erect Cranberry.


Order XLIV. STYRA'CEÆ.

D. Char. Calyx 5-toothed. Corolla funnel-shaped, usually 5—6-cleft; aestivation valvate. Stamens 10, monadelphous at the base, adnate to the corolla. Ovarium superior, 3-celled. Stigma 2-lobed. Drupe nearly dry, containing a 1-celled 1—3-seeded nut. Albumen fleshy. The superior ovarium, and more deeply divided corolla, separate this from Halesiâceæ. (G. Don.)

Leaves simple, alternate, extispulate, deciduous; usually toothed, turning yellow when dry. Flowers axillary, either solitary or clustered, with scale-like bracts, white or cream-coloured.—Trees or shrubs, usually clothed with stellate tomentum; natives of Asia and North America.
Genus I.


Synonymes. Albodidier, Fr.; Storax, Ger.

Derivation. The word styrax, applied to this plant by Theophrastus and Dioscorides, is a mere alteration of ashtirak, the Arabic name of S. officinale.

Gen. Char., &c. Calyx permanent, campanulate, 5-toothed. Corolla monopetalous, funnel-shaped, deeply 3-7-cleft, but usually 5- or 6-cleft, valvate in aestivation. Stamens 10, exserted; filaments monadephous at the base, adnate to the tube of the corolla. Anthers linear, 2-celled, dehiscing lengthwise inwardly. Ovarium superior, 3-celled, many-ovuled, erect. Style 1. Stigma oblongely 5-lobed. Drupe nearly dry, containing a 1-celled, 1-3-seeded nut. Testa of seed double; inner cobwebbed, outer spongy. (Don's Mill.)

Leaves simple, alternate, exstipulate, deciduous; entire or serrated.

Flowers racemose, bracteate, white or cream-coloured.—Low trees or shrubs; natives of Asia or North America.

They require a soil rather light than otherwise, on account of their hair-like roots; and to be placed against a wall, in the climate of London, when it is intended that they should flower freely. In affinity, as well as in general appearance, this genus approaches near to that of Halesia; and there is such a close general resemblance among all the allied species of Styrax, that they may possibly be only varieties of one form. Seeds or layers.

TOR L. The officinal Storax.


Synonymes. Lagomélea, Modern Greek; Storax kalamités, Ancient Greek.


Spec. Char., &c. Leaves ovate, clothed with hoary hairs beneath, shining and green above. Racemes simple and axillary, 5-6-flowered, shorter than the leaves. Leaves about 2 in. long. Flowers white. Drupe ovate globoso. (Don's Mill.) A deciduous shrub or low tree. Syria and the Levant. Height 12 ft. to 15 ft. against a wall; as bushes, in the climate of London, seldom half so high. Introduced in 1597. Flowers white, resembling those of the orange, but smaller; June and July. Drupe ovate, greenish; ripe in October.

It well merits a place against a wall, on account of the beauty of its pure white flowers, and the great profusion in which they are produced. A light sandy soil, rich rather than poor, suits this species best; and it is generally propagated by seeds obtained from the South of France. It will also grow by layers, and by cuttings. Its rate of growth, for the first ten years, is not above 8 or 9 inches a year.

G 2. S. (o.) GRANDIFO'Lium Ait. The large-leaved Storax.


Spec. Char., &c. Leaves broad, obovate, acuminate, green above, but clothed with hoary tomentum beneath. Lower peduncles solitary, 1-flowered. Flowers white. (Don's Mill.) A deciduous shrub or low tree; growing it
woods, on the banks of rivers, from Virginia to Georgia. Height 8 ft. to 10 ft. Introduced in 1765. Flowers white; June to August.

Halicée diptera, the leaves of which closely resemble those of Styrax grandifolium, but differ from it in not being downy beneath, is frequently sold for it in the nurseries.

3. S. (o.) LEVIGAT'UM Ait. The smooth-leaved Storax.


**Engravings.** Bot. Cab., t. 966.; Don's Mill.; and our fig. 1202. from a plant in Messrs. Lodigés's collection.

**Spec. Char., &c.** Leaves oval-lanceolate, acute at both ends, glabrous on both surfaces, toothed. Peduncles axillary, or twin, 1-flowered. Stamens from 6 to 10. (Don's Mill.) A deciduous shrub, bearing a close resemblance to S. officinâle, but smaller in all its parts. South Carolina and Virginia, in swamps. Height 3 ft. to 4 ft. Introduced in 1765. Flowers white; July and August.

In fine seasons, the flowers are succeeded by fruit about the size of a red currant, or of the fruit of the nettle tree.

4. S. (o.) PULVERULE'NTUM Michx. The powdery Storax.


**Synonymes.** S. levigat'um Bot. Mag. t. 921.

**Engravings.** Bot. Mag., t. 921.; Don's Mill., t. 41.; and our fig. 1203.

**Spec. Char., &c.** Leaves almost sessile, oviolate or obovate, obtuse, clothed with powdery tomentum beneath. Flowers axillary, and nearly terminal by threes, on short pedicels. (Don's Mill.) A deciduous shrub, bearing a close resemblance to S. grandifolium. Virginia and Carolina, in woods. Height 4 ft. to 6 ft. Introduced in 1794. Flowers white; June to August.

---

**Order XLV. HALESIACEÆ.**

**Ord. Char.** Calyx 4-toothed. Corolla campanulate, 4-lobed. Stamens 1—16; monadelphous at the base, and adnate to the corolla. Ovarium inferior. Style and Stigma simple. Drupe dry, with 2—4 winged angles, contain-
ing a 2—4-celled nut. Cells 1-seeded. Albumen fleshy.—The inferior ovary is sufficient to distinguish this from all nearly allied orders. (G. Don.)

Leaves simple, alternate, exstipulate, deciduous; serrated or nearly entire. Flowers in fascicles, pedicellate, drooping, white.—Trees or large shrubs, deciduous; natives of North America.

Genus I.

HALE'SIA Ellis. The Halesia, or Snowdrop Tree. Lin. Syst. Dodecandria Monogynia.

Synonymy. Halea, Fr. and Ger.

Gen. Char., &c. Corolla monopetalous, ventricosely campanulate, with a 4-lobed erect border. Stamens 12 to 16; filaments combined into a tube at the base, and adnate to the corolla. Anthers oblong, erect, 2-celled, dehiscing lengthwise. Ovary inferior. Style 1. Sigma simple. Drupes dry, corticate, oblong, with 2—4 winged angles, terminated by the permanent style; containing a 2—4-celled putamen, which is acute at both ends. Cells 1-seeded. Seeds attached to the bottom of the cells.

Leaves, &c., as in the Order. Flowers in lateral fascicles, pedicellate, drooping, white.—Trees, deciduous; natives of North America; very hardy in England; thriving best in peat soil kept moist, and ripening seeds, from which, or from layers, they are readily propagated.

† 1. H. TETRAPTERA L. The four-winged-fruited Halesia, or common Snowdrop Tree.

Synonymy. The Snowdrop Tree, Silver bell Tree, Amer.

Spec. Char., &c. Leaves ovate-lanceolate, acuminate, sharply serrated. Petioles glandular. Fruit with 4 wings. Leaves acuminate, with the middle depressed. Flowers pure white, 9—10 in a fascicle, drooping, resembling those of the snowdrop. The wood is hard and veined; the bark is of a darkish colour, with many irregular fissures. (Don's Mill.) A low deciduous tree. South Carolina, along the banks of rivers. Height 15 ft. to 30 ft. Introduced in 1756. Flowers white; April and May. Fruit brown; ripe in October, and remaining on great part of the winter.

Its flowers, which resemble those of the snowdrop, are produced in great abundance. The tree is one of the hardiest, and, at the same time, one of the most ornamental of the American deciduous trees. The rate of growth, for the first five or six years, is 12 or 18 inches, or more, a year; and in ten years it will attain the height of 12 or 15 feet, if properly treated; but, as it is generally kept too dry, it is seldom seen at above half this height at that age. It ripens seeds freely in this country; from which, or from imported seeds, it is readily increased. The seeds often remain above a year in the ground.
XLV. HALESIÆE: HALE'SIA.

2. H. (t.) parviflora Michx. The small-flowered Halesia, or Snowdrop Tree.


Obviously a seminal variety of the preceding species.

3. H. dipæra L. The two-winged-fruited Halesia, or Snowdrop Tree.

Engravings. Bot. Cab., t. 1172.; and our fig. 1207.


The leaves of this species are broad, resembling those
of *Styrax* grandifolium, with which, as it does not frequently flower in a young state, it is generally confounded in nurseries.

---

**Order XLVI. SAPOTACEÆ.**

*Ord. Char.* Calyx regular, persistent. Corolla of as many lobes as there are divisions in the calyx, rarely double or triple that number, deciduous. *Stamens* epipetalous, distinct, definite; fertile ones equal in number to the segments of the calyx, alternating with the segments of the corolla; sterile ones, when present, alternating with the fertile ones. Ovarium many-celled. Cells 1-seeded. Berry many-celled, or only 1-celled by abortion. Seeds nucamentaceous. Testa bony, scraped in front. Albumen fleshy. *(G. Don.)*

Leaves simple, alternate, exstipulate, deciduous or evergreen; quite entire, coriaceous. *Flowers* axillary.—Shrubs or low trees; natives of Africa and America. The genera are two, and in British gardens they require a wall.

**ARGANIA.** Calyx 10-parted. Corolla 5-cleft. Drupe containing a 2—5-celled nut.

**BUMELIA.** Calyx and Corolla 5-parted. Stamens 10. Berry 1-seeded

**GENUS I.**


*Monogynia.*

**Identification.** Rom. et Schultes Syst., 46.; Don’s Mill., 4, p. 27.

**Synonymes.** Sideroxylon spinosum *Lin.*; l’Argan, Fr.; Eisenholz, Ger.

**Derivation.** From *organ*, the aboriginal name of the tree.


Leaves simple, alternate, exstipulate, sub-evergreen; entire. *Flowers* lateral, axillary, scattered or crowded, sessile. Corolla greenish yellow. Fruit dotted with white, size of a plum, full of white milky juice.—Tree or large shrub, sub-evergreen; native of Morocco, and somewhat tender in British gardens.


**Identification.** Rom. et Schultes Syst., 4, p. 562.; Don’s Mill., 4, p. 28.


**Engravings.** Comm. Hort., t. 83.; and our fig. 1998.

**Spec. Char., &c.** An evergreen tree of middle size, with a bushy head. Branches terminated by strong spines. Leaves lanceolate, entire, bluntish,
glabrous, paler beneath; the lower ones in fascicles. Flowers lateral, and axillary, scattered or crowded, sessile. Corolla greenish yellow. Fruit dotted with white, size of a plum, full of white milky juice. (Don's Mill.) A low sub-evergreen tree. Morocco, in woods. Height 15 ft. to 20 ft. against a wall; not half that height as a bush. Introduced in 1711. Flowers greenish yellow.

It will stand our winters as a standard, but thrives best when planted against a wall. Horticultural Society's Garden.

Genus II.


Synonyms. A'chras sp. Lin., Poir.; Sideroxylon sp. Lam. and others; Chrysophyllum sp. Aubl. and others; Hochstam., Ger.

Description. From bammelia, the Greek name for the common ash.

Gen., Char., &c. Calyx 5-parted. Corolla with a short tube, and a 5-parted limb, furnished with 2 scales at the base of each segment. Stamens 5, inserted in the tube of the corolla, and opposite its segments, having as many membranous scales, or sterile filaments, alternating with them. Ovary 5-celled. Cells 1-ovuled. Stigma simple. Drupe ovate, 1-seeded. Seed albuminous. (Don's Mill.)

Leaves simple, alternate, exstipulate, sub-evergreen; scattered, entire. Flowers in axillary and lateral peduncles, usually 1-flowered, crowded in fascicles, whitish.—Trees, in British gardens shrubs; natives of South America. Common soil; and cuttings of the young wood in sand, under a hand-glass.

1. B. LYCIODÈS Gärtn. The Box-thorn-like Bumelia.


Engravings. Du Ham., 2. p. 260. t. 68.; and our fig. 1209, and fig. 1210.


Scarceyly injured by the winter of 1837-8, in the Hort. Soc. Gard.; and from this, and also from the beauty of its foliage and flowers, deserving to be much more generally introduced.

2. B. RECIN'ATA Vent. The reclinate-branchied Bumelia.


Engravings. Vent. Choix., t. 22.; and our fig. 1211.


\[ \text{5} \] 3. B. te' nax Willd. The tough-branched Bumelia.


Engravings. Jacq. Obs., 3. t. 54.; and our fig. 1212.


Killed to the ground, by the winter of 1837-8, in the Hort. Soc. Garden.

\[ \text{4} \] 4. B. lanugino'sa Pursh. The woolly-leaved Bumelia.


Engraving. Our fig. 1213, from a specimen in Dr. Lindley's herbarium.


\[ \text{5} \] 5. B. oblongifo'lia Nutt. The oblong-leaved Bumelia.


Order XLVII. EBENA'CEÆ.

Ord. Char. Calyx 3- or 6-parted, persistent. Corolla deciduous, 3- or 6-parted; stivation imbricate. Stamens definite, epipetalous, 6 or 12, or
more. Ovarium many-celled; cells 1—2-seeded. Style usually divided. Stigmas bifid or trifid. Berry few-seeded by abortion. Albumen cartilaginous. The double stamens, pendulous ovule, and unisexual flowers, distinguish this order. (G. Don.)

Leaves simple, alternate, exstipulate, deciduous; quite entire, coriaceous. Flowers axillary, pedunules solitary.

**Genus I.**

**Diospy'ros L. The Date Plum. Lin. Syst. Polygâmia Die'cia.**


*Synonyms.* Phe'mus Comm. ; Guaiacana Tourn. 371.; Plaqueminier, Fr.; Dattelpflaume, Ger.

*Derivation.* Diospuros (dios, divine, and puros, wheat,) was a name given by the ancients to the common gromwell (iuthospermum officinale). Its application to the date plum probably arose from confounding the Greek puros, wheat, with the Latin pyrus, a pear tree, to the fruit of which the date plum may have been thought to bear some resemblance.

*Gen. Char., &c.* Flowers polygamous. Calyx deeply 4-cleft, sometimes 3- or 6-cleft. Corolla urceolate, 4-cleft; sometimes 3- or 6-cleft. Male flowers having the stamens inserted by pairs into the base of the corolla, twice the number of its segments, with double or twin filaments, and the rudiment of a pistil. Hermaphrodite flowers having fewer and sterile stamens. Ovarium 8—12-celled; cells 1-seeded. Berry globose, with a spreading calyx which is at length reflexed. (Don's Mill.)

Leaves, as in the Order. Flowers white, or pale yellow.—Trees or shrubs; natives of the South of Europe or North America. Seeds; and the American kinds in peaty soil kept moist.

† 1. D. Lo'tus L. The European Lotus, or common Date Plum.


*Synonyms.* Pseudo'lotus Math.; Guaiacana paravina Tourn.; Italian Lignum Vitae, Wood of Life, Pockwood, Bastard Menynwood, Gerard; Date of Trebisonde; Plaqueminier faux Lotier Fr.; Italianische Dattelpflaume, Ger.
An Item from Arboretum et Fruticetum Britannicum

Spec. Char., &c. Leaves oblong, acuminate, downy beneath; leaf buds hairy inside. Flowers small, reddish white. Fruit size of a cherry, yellow when ripe, sweet with astringency; it is recommended as a cure for diarrhoea. (Don's Mill.) A low tree. Caucasus, the woods of Hyrcania, and the whole coast of the Caspian Sea, and Mauritania. Height 20 ft. to 30 ft., and sometimes much higher. Introduced in 1596. Flowers reddish, or yellowish white; July. Fruit yellow; ripe in October.

The leaves are of a beautiful dark glossy green above, and, when mature, and exposed to the air, assume a purplish hue beneath: they do not change colour in autumn, but drop off simultaneously with the first attack of sharp frost. Ripening its fruit freely in the South of France and Italy, seeds have been readily procured; and the plant has never been rare in British collections; but, as it is somewhat tender, there are few large specimens of it. It grows at the rate of 12 or 18 inches a year, for the first ten years, especially if the soil in which it is planted is free and loamy, and rich rather than poor.

2. D. virginiana L. The Virginian Date Plum, or Persimon.

Synonyme. Gnanacna Catesb. Car. 2. t. 76.
Engravings. Dendr. Brit., t. 126; the plates in Arb. Brit., 1st edit.; and our fig. 1215.

Spec. Char., &c. Leaves ovate-oblong, acuminated, glabrous, shining above,
and paler beneath, reticulately veined. Petioles short and curved, and, as well as the branchlets, downy. Leaf buds glabrous. Flowers quadridif, rarely quinquefid. Flowers pale yellow. (Don's Mill.) A low tree. United States. Height 20 ft. to 30 ft. in the neighbourhood of London, but much higher in the United States. Introd. in 1629. Flowers pale yellow; July. Fruit yellow; ripe about the time the tree drops its leaves in November.

The persimmon is readily distinguished from the European date plum, by its leaves being nearly of the same shade of green on both surfaces; while those of the latter are of a dark purplish green above, and much paler, and furnished with somewhat of a pinkish down, beneath. The leaves of the persimmon vary from 4 in. to 6 in. in length; and, when they drop off in the autumn, they are often variegated with black spots. It is rather more tender than the preceding species; and, to thrive, requires a peaty or soft soil, kept somewhat moist.

3. D. (v.) pube'scens Pursh. The downy-leaved Virginian Date Plum.


*Engraving.* Our fig. 2416., from a specimen in Dr. Lindley's herbarium.


Other Kinds of hardy Diospyros.—There are several names in the catalogues of American nurserymen, and in 1836 there were plants corresponding to these names in the Hort. Soc. Garden. These we have examined, and we are perfectly satisfied that they are only slight variations of D. virginiana, and, in short, that this is the only North American species. D. lucida, D. intermédia, D. digyna, and D. stricta are included in the above remarks.

Order XLVIII. Oleaceae.

Ord. Char. Flowers hermaphrodite, sometimes dioecious. Calyx divided, permanent. Corolla 4-cleft; sometimes 4-petalled. Petals connected by pairs, rather valvate in aestivation; sometimes wanting. Stamens 2, alternating with the segments or petals. Anthers 2-celled; cells dehiscing lengthwise. Ovarium simple, guarded by no glandular disk, 2-celled; cells 2-seeded. Ovules pendulous, collateral. Style simple or wanting. Stigma bifid or undivided. Fruit drupaceous, baccate or capsular, often 1-seeded by abortion. Seeds with dense copious albumen. Embryo middle-sized, longitudinal, straight. Cotyledons foliaceous, half free. Radicle superior. Plumule inconspicuous.—Trees and shrubs, natives of both hemispheres, and for the most part deciduous. (Don's Mill.)

Leaves simple or compound, opposite, exstipulate, deciduous or evergreen; entire or serrated. Flowers racemose or panicled, terminal or axillary, with opposite unibracteate pedicels.

The Syringa supplies some of our most beautiful deciduous shrubs, and the Ligustrum and Phillyrea some useful evergreens. Some of these, as Fraxinus, are timber trees. All the species are remarkable for the production of numerous white fibrous roots, in dense masses, near the surface of the

ss 2
ground, in consequence of which they are all easily transplanted when young, and injurious to plants growing under them when full grown. The genera are arranged in 3 sections.

Sect. I. Ole'ine.

Sect. Char. Corolla short, monopetalous, campanulate or urceolate, 4-cleft. Stamens 2, with short filaments, and erect anthers. Fruit drupaceous. Shrubs with simple leaves, more or less coriaceous, and in some species evergreen.


Sect. II. Syr'i ngée.


Sect. III. Frax'inie.'


Sect. I. Ole'ine.

Genus I.


Synonyms. Tròîne, Fr.; Rainweide, Ger.

Derivation. Said to be from ligo, to tie; in reference to its flexible branches.


Leaves simple, opposite, exstipulate, evergreen or deciduous; entire, glabrous. Flowers terminal, compound, in thyrsoid racemes.—Shrubs or low trees; natives of Europe or Asia.

Readily propagated by cuttings in common soil.
XLVIII. OLEA'CEÆ: LIGU'STRUM.

1. L. vulg'âre Trag. The common Privet.


Synonyme. L. germanicum Bauh. Hist. 473.; Prim, or Prim-print; Troéne, Puine blanc, Fr.; gemeine Rainweide, Ger.; Ligustro Olivella, Ital.

Derivation. This plant was anciently called prim, or prim-print, from its being used for verdant sculptures, or topiary work, and for prinly cut hedges. Puine blanc seems to imply a "little white shrub," from the whiteness of the blossom of the privet; which is alluded to by Virgill and other poets, but which soon vanishes, and changes to brown, when exposed to the direct influence of the sun. The German name is combined of rain, green, and weide, a willow; alluding to its being supple like the willow, and nearly evergreen. Olivella seems to signify the little olive. The common English name of Privet may have been given to it from its being frequently planted in gardens to conceal privies.


Spec. Char., &c. Leaves elliptic-lanceolate, glabrous. Racemes compound, coarctate. The flowers are sweet-scented, white at first, but soon change to a reddish brown. Berries dark purple, almost black. (Don's Mill.) A sub-evergreen shrub. Britain, in hedges and woody wastes. Height 6 ft. to 10 ft. Flowers white; June and July. Berries dark purple; ripe in November, remaining on all the winter.

Varieties.

L. v. 2 leucocár'pum.—Berries white.
L. v. xan'rhocár'pum.—Berries yellow.
L. v. 4 chlorocár'pum.—Berries green.
L. v. 5 sempérvé'vrens. L. itál'icum Mill., and our fig. 1219.; the Italian, or evergreen, Privet. This is a most desirable variety for shrubbery; and it is so distinct, that it was considered by Miller as a species.
L. v. 6 var'égiâtum.—Leaves variegated with yellow.
L. v. 7 angústí'sfólium.—Leaves narrow.

The leaves, in exposed situations, and on poor soils, are deciduous; but in sheltered situations, and more especially when the plant is cultivated in gardens, they remain on throughout the winter. From its property of growing under the drip of trees, it forms a good sub-evergreen undergrowth, where the box, the holly, or the common laurel, would be too expensive, or too tedious of growth. The privet has been long used in the court-yards of dwelling-houses, for concealing naked walls, and preventing the eye from seeing objects or places which it is considered desirable to conceal from the view. It thrives well in towns where pit-coal is used; and the best hedges surrounding the squares of London are of this shrub. It is admirably adapted for topiary work, and in Italian gardens, in a British climate, it forms as good a substitute for the olive, as the common laurel does for the orange. The privet grows best in rather a strong loam, somewhat moist; and it attains the largest size in an open situation; but it will grow on any soil, and under the shade and drip of deciduous trees. In British nurseries, it is almost always raised by cuttings, which not only produce larger plants of the species in a shorter period, but continue the varieties with greater certainty. When plants are to be raised from seed, the berries
should be treated like haws, and kept a year in the rot-heap, or sown immediately after being gathered, as, if otherwise treated, they will not come up for 18 months. As shrubs, privet plants require very little pruning; but, as low trees, they must have the side shoots from the stem carefully rubbed off whenever they appear. Treated as hedges, or as verdant sculptures, they may be clipped twice a year, in June and March; and, every five or six years, the sides of the hedges ought to be severely cut in, one side at a time, so as to remove the network of shoots, which, in consequence of continual clipping, forms on the exterior surface, and which, by preventing the air from getting to the main stems, would in time seriously injure the plants.

2. L. spicatum Hamilt. The spiked-flowered Privet.


Synonymes. L. nepalensis Wall. in Rox. Fl. Ind. 1. p. 151; L. lanceolatum Herb. Lamb.


Spec. Char., &c. Leaves elliptic, acute, hairy beneath, as well as the branchlets. Flowers crowded, almost sessile, spicate, disposed in a thyrsus, having the axis very hairy. Bracteas minute. (Don's Mill.) A sub-evergreen shrub. Nepal, on mountains. Height 6 ft. to 8 ft. Introduced in 1823. Flowers white; June and July.

Variety.

2. L. s. 2 glabrum Hook. in Bot. Mag. t. 2921, and our fig. 1221.—A native of Nepal, where it is called Goom gacha. The trunk and limbs are covered with warts, but the young branches are glabrous.

Though commonly treated as a green-house plant, there can be little doubt of its being as hardy as L. incidum, the species to be next described. It should be grafted on the common privet; and, if planted in a dry soil and rather sheltered situation open to the sun, it will be the more likely to make no more wood than what it can ripen before winter.

3. L. lucidum Ait. The shining-leaved Privet, or Wax Tree.


Engravings. Bot. Mag., t. 2958; and our fig. 1222.


Variety.

3. L. l. 2 floribundum Donald's Cat., and our fig. 1223, has larger bunches of flowers than the species.

A very handsome low sub-evergreen tree; or, when it is not trained to a single stem, a large showy bush.
L. salicifolium. — A plant to which this name might be suitable was in the arboretum at Kew from 1823 to the winter of 1837-8, when it was killed; and there are also young plants of it in the Horticultural Society's Garden, of one of which fig. 1224. is a specimen.

* L. japonicum Thunb. Fl. Jap. p. 17. t. 1., and our fig. 1225.; L. latifolium Fins.; is a native of Japan, with oblong-ovate grooved leaves, and white flowers, growing to the height of 6 or 8 feet. — L. nepalense has oval-lanceolate serrated leaves, and is a very distinct species. H. S.

**Genus II.**


Synonyms. Filaria, Fr.; Steinlinde, Ger.

Derivation. From phyllor, a leaf; or from Philyre, the mother of Chiron, who was changed into a tree

Gen. Char., &c. Calyx small, tubular, 4-toothed, permanent. Corolla short, campanulate, rotate, 4-cleft, deciduous. Stamens a little exserted, with short filaments. Style simple. Stigma thickish. Drupe globose, containing a 2-celled nut; one of the cells usually abortive. Seed solitary in each cell. Albumen rather farinaceous or fleshy. (Don's Mill.)

Leaves simple, opposite, exstipulate, evergreen; mostly entire. Flowers in axillary racemes, greenish white. Drupes black, globose.

Shrubs or low trees, evergreen; natives of the South of Europe, and of some parts of Western Asia. In British gardens they have been in cultivation for nearly three centuries, they are all most desirable evergreen shrubs, on account of their shining dark green leaves, and the fragrance of their numerous white flowers. They are propagated by cuttings or layers, and will grow in any common garden soil. When raised from seeds, the berries should be prepared in a rot-heap like haws. By general observers, the phillyrea is frequently confounded with the alaternus; but the species of that genus have their leaves
placed alternately on their branches, whereas in the phillyrea they are opposite.

All the kinds in cultivation are nothing more than varieties of one species.

1. P. media L. The intermediate, or lance-leaved, Phillyrea.


*Engravings.* Kerne, t. 774; N. Du Ham., 2. t. 27.; and our fig. 1226.

*Spec. Char., &c.* Leaves lanceolate, quite entire, or a little serrated in the middle, triple-nerved, veiny. (Don's Mill.) An evergreen shrub. South of Europe. Height 10 ft. to 15 ft. Introduced in 1597. Flowers greenish white; May and June. Berries black; ripe in October.

*Varieties.*

- **P. m. 3 buxifolia** Ait. Hort. Kew. 1. p. 11. — Leaves oval-oblong, bluntish.

2. **P. (m.) angustifolia** L. The narrow-leaved Phillyrea.


*Synonyms.* P. oblonga Tenore Syll., p. 9.; P. media Tenore Fl. Xcap. 3. p. 6.

*Engravings.* Lam. Ill. S. 3.; and our fig. 1227.


*Varieties.*

- **P. a. 3 rosmarinifolia** Ait. Hort. Kewensis; and our fig. 1228. — Leaves lanceolate-subulate, elongated. Branches straight.
- **P. a. 4 brachiata** Ait. Hort. Kew. i. p. 11. — Leaves oblong-lanceolate shorter than in the other varieties. Branches divaricate.

3. **P. (m.) ligustrifolia** Ait. The Privet-leaved Phillyrea.


*Engravings.* Lob. Icon., 2. p. 131.; and our fig. 1229.


4. **P. (m.) pendula** Ait. The drooping-branchcd Phillyrea.


*Engravings.* Our fig. 6600, in p. 6600.

*Spec. Char., &c.* Leaves oblong-lanceolate, acute, oblanceolate veined at the apex, veiny. Branches drooping (Don's Mill.) An evergreen shrub South
of Europe. Height 10 ft. to 15 ft. Introd. 1597. Flowers greenish white; May and June.

5. *P. (m.) OLE'FOL'IA Ait.* The Olive-leaved Phillyrea.


Engravings. Pluk., t. 310. f. 1.; and our fig. 1230.

Spec. Char., &c. Leaves oblong-lanceolate, almost entire, obtuse, narrowed at the base, veiny. Branches erectish. (Don’s Mill.)

An evergreen shrub. South of Europe. Height 10 ft. to 15 ft. Introduced in 1597. Flowers greenish white; May and June.


Engravings. Smith Fl. Græc., t. 2.; and our fig. 1231.

Spec. Char., &c. Leaves ovate, rounded at the base, serrated, veiny. Young leaves sub-cordate at the base. (Don’s Mill.) A low sub-evergreen tree; in England a shrub. South of Europe. Height 20 ft. to 30 ft. Introduced in 1597. Flowers greenish white; May and June.

7. *P. (m.) LE'VIS Ait.* The smooth Phillyrea.


Engravings. Du Ham. Arb., t. 125.; and our fig. 1232.

Spec. Char., &c. Leaves elliptic-oblong, almost entire, veiny, bluntest; an inch or more in length, a little narrowed at the base, blunt, and with a small nucleo at the point. (Don’s Mill.) An evergreen shrub. South of Europe and North of Africa. Height 10 ft. to 20 ft. Introduced in 1597. Flowers greenish white; May and June.

The leaves are smoother than those of any other variety.

8. *P. (m.) OBI'QUA Ait.* The oblique-leaved Phillyrea.


Engraving. Our fig. 1233.

Spec. Char., &c. Leaves lanceolate-oblong, serrated, acute at both ends, veiny, bent obliquely. Leaves like those of *Myrica.* (Don’s Mill.) An evergreen shrub. South of Europe. Height 10 ft. to 12 ft. Introduced in 1579. Flowers greenish white; May and June.

9. *P. (m.) SPINO'SA Mill.* The spiny, or Holly-leaved, Phillyrea.


Spec. Char., &c. Leaves oval, acute, serrated, and more or less toothed, veiny. Branches and twigs covered with fine spines. (Don’s Mill.) An evergreen shrub. South of Europe. Height 5 ft. to 10 ft. Introduced in 1597. Flowers greenish white; May and June.

The spines are large and sharp.
<start of content>

**Genus III.**

**CHIONA'NTHUS L.** THE SNOW-FLOWER, or FRINGE TREE. Lin. Syst. Diándria Monogynía.


**Synonymes.** Chionanthé, Fr.; Schneeblume, Ger.

**Derivation.** From chión, snow, and anthes, a flower; in reference to the snow-white flowers of the species.

**Gen. Char., &c.** Calyx small, 4-parted, or 4-toothed. Corolla with a short tube and a 4-parted limb; segments of the limb long and linear. Style hardly any. Stigma 2-lobed. Anthers almost sessile. Drüpe baccate, containing a striated nut. (Don's Mill.)

Leaves simple, extipulate, deciduous; opposite, entire. Flowers in racemes, simple or compound, terminal or axillary, snow-white.—Trees or low shrubs, natives of North America.

This genus differs from Olea, principally in the figure of the segments of the corolla, and in its leaves being deciduous. The only hardy species is a shrub or low tree, a native of North America.

**♂ 1. C. VIRGINICA L.** The Virginian Snow-Flower, or Fringe Tree.


**Synonymes.** Snowdrop Tree. Amer.; Arbère de Neige, Fr.; Schneeblume, Ger.

**Engravings.** Bot. Cab., t. 1204; the portrait of a plant in the arboretum of Messrs. Loddiges, to a scale of 1 in. to 4 ft.; in Arb. Brit., 1st edit., p. 1266; and our fig. 1235.


**Varieties.**

♂ C. v. 2 latifolia Catesb., Car. t. 69.; Kern. Abbild. t. 607. C. v. montana Pursh Sept. 1. p. 8.—Has the leaves oval-lanceolate, coriaceous, glabrous; panicles dense; drupes oval. Carolina. Introduced in 1736.


♂ C. v. 4 maritima Pursh Fl. Amer. Sept. i. p. 8. C. maritima Lodd. Cat. ed. 1836.—A native of North America, in boggy woods by the sea side; having the leaves obovate-lanceolate, membranous, and pubescent; the panicles very loose; and the drupes elliptic.
It requires to be grown in moist soil, either sandy peat or sandy loam, and in a sheltered situation. It may be propagated by layers; but as seeds are easily imported from America, and as the plant does not root very readily, that mode is not often adopted. It may also be propagated by grafting on the common ash.

O'LEA.—Though most of the species of this genus are too tender to stand the open air in Britain, yet there is one variety of the common olive, obtained from Nikita in the Crimea, which has lived through the winter of 1837-8, as a standard, in the Horticultural Society’s Garden, and O. americana L. (fig. 1236.) has lived against a wall at Messrs. Loddiges. This tree is the devil-wood of the Americans, a native of the southern states, as far north as Norfolk in Virginia. It is sometimes found as high as 30 or 35 feet; but its ordinary height is 10 or 12 feet. The leaves are 4 or 5 inches long, of a shining light green; and they remain on two or three years. The flowers are very small, of a pale yellow, and strongly scented; appearing about the end of April. The fruit is round, about twice the size of the common pea; and, when ripe, of a purple colour, approaching to blue. It ripens in America in October, and remains attached to the tree during a great part of the winter, forming a fine contrast to the foliage.

Sect. II. SYRI'NGAEÆ.

Genus IV.

SYRI'NGA L. The Lilac. Lin. Syst. Diandria Monogynìa.

(Sect. 1. Gen., No. 22; Don’s Mill., 4. p. 51.

Syn. O'leaceae. Lilac Tourn. Inst. l. 372., Juss. Gen. p. 165.; Lilas, Fr.; Flodder, Ger.; Lilaco, Ital. Lin.f. Syst. Diandria Monogynìa. From sirinx, the native name in Barbary. The tubes of the finest Turkish pipes are manufactured from the wood of this shrub; and also from that of the Phïladelphia coronarius, to which the name was originally given. Hence the old English name of Pipe Tree, which was applied both to the Philadelphia and the Syringa. Lilac is from lilac, or lilag, the Persian word for a flower.

Cn. Charl., &c. Calyx small, 4-toothed. Corolla funnel-shaped, with a 4-parted limb. Stamens 2, enclosed. Stigma trident. Capsule ovate, compressed, 2-celled, 2-valved, 2-seeded; valves navicular, with a narrow dissepiment in the middle. (Don’s Mill.)

Leaves simple, alternate, exstipulate, deciduous; entire. Flowers in thyrsoid terminal panicles, oppositely branched, purple or white. — Shrubs or low trees; natives of Europe or Asia.

Highly valued in the gardens of temperate climates for the beauty and fragrance of their flowers, and the profusion in which these are produced in spring. The natural mode of propagating is by suckers, which all the species produce in abundance; and they will all grow in any common soil. All species may be grafted on the ash (See Gard. Mag., 1840, p. 37.)
1. S. vulgaris L. The common Lilac.


Synonyms. Lilac vulgaris Gurt.; Pipe Privet, or Pipe Tree; Lilas commun, Fr.; gemeiner Flieder, Ger.; Lilla, or Lilac tuenco, Ital.

Engravings. Lam. Ill., t. 7.; Schmidt Baum., t. 77.; N. Du. Ham., t. 64.

Spec. Char., &c. Leaves ovate-cordate, acuminate. (Don's Mill.) A deciduous shrub. Persia and Hungary, on chalky precipices in the Ævern valley, and Mount Domoglet, as well as on the whole group of rocks along the Danube. Height 8 ft. to 10 ft. Introduced in 1597. Flowers purple or white; May. Fruit brown; ripe in September.

Varieties.

1. S. v. 1 cerulea Clus. Hist. i. p. 56., Krause t. 26., and our fig. 1238. — Flowers blue. There is a subvariety with the leaves imperfectly variegated.

2. S. v. 2 violacea Curt. Bot. Mag. t. 183., and our fig. 1237. — Flowers purple. The Scotch Lilac, so called, because it was first recorded in Sutherland's Catalogue of the Edinburgh Botanic Garden.

3. S. v. 3 alba. — Flowers white. This variety flowers earliest.

4. S. v. 4 alba major Lodd. Cat. ed. 1836. — Flowers larger than those of the previous variety.

5. S. v. 5 alba plena. S. plena Lodd. Cat. — Flowers double.

6. S. v. 6 rubra Lodd. Cat. — Flowers red.

7. S. v. 7 rubra major Lodd. Cat. ed. 1836, the Lilas de Marly of the French gardeners, has flowers larger than the parent variety.

Other Varieties. A number of plants have been raised from seed by Mr. Williams of Pitmaston, of which there are six sorts, tolerably distinct in the Horticultural Society's Garden. The French nurserymen are also in possession of some new seedlings; but none of all that we have observed are so well deserving of culture as the common blue, the violet, the red, and the white.

The common lilac grows to the height of 20 ft. and upwards in good free soil; and, though it naturally sends up abundance of suckers in every direction, so as to form a dense mass of stems, yet, when these are cleared away as they appear, and only one stem left, it may be trained to form a very handsome small tree, beautiful when in leaf, and preeminently so when in flower. The rate of growth is considerable, varying, according to the soil and situation, from 18 in. to 3 ft. in a year, for the first three or four years. The duration is not great; probably between twenty and thirty years in rich soils, and between forty and fifty in such as are dry and comparatively poor. Plants which are never allowed to produce suckers of any size, and in which the bunches of flowers have been thinned out, ripen seeds; and these, according to Miller, produced plants which are true to their varieties. In some parts of Britain, and various parts of Germany, it is mixed with other shrubs, or planted alone, to form garden hedges; and, as a proof of its hardiness, we may mention that there are hedges of it by the roadsides, in the neighbourhood of Ulm and Augsburg, in the elevated, and consequently cold, region of Bavaria. Mixed with sweet briars, sloe thorns, scarlet thorns, Guelder rose.
trees, &c., it forms beautiful hedges to cottage gardens, where there is abundance of room.


Engravings. Bot. Mag., t. 3278; Bot. Reg., t. 1733; Botanist, t. 24; and our figs. 1229, and 1240.


3. S. Persica L. The Persian Lilac.


Synonyms. Lilac minor Monch.; Lilac persica Lam.; Lilacs de Perse, Fr.; Lilac di Persia, Ital.

Engravings. Bot. Mag., t. 486; and our fig. 1242.


Varieties.


S. p. 3 laciniiātă Lodd. Cat. ed. 1836, Bot. Cab. 1107., and our fig. 1241.

S. capitātā Gmel. Itin. iii. p. 304. t. 32. f. 1., Schmidt, Baum. ii. p. 79.; Lilas à Feuilles de Persil, Fr. — This variety has some of its leaves pinnatifidly cut, and nearly all of them cut in some manner.

S. p. 4 salvifōlā Lodd. Cat. ed. 1836 has the leaves somewhat hoary, like those of the common sage.

One of the most common, and, at the same time, one of the most ornamental, of our low deciduous shrubs. It is frequently planted in pots, and forced so as to come into flower at Christmas. In Paris, it is said, they retard the Persian lilacs, by placing them in an icehouse in December, and keeping them there till the September or October following, when they will come into bloom without the aid of artificial heat about Christmas. (See Gard. Mag., vii. p. 247.) Layers and suckers, which are produced in great abundance in any common garden soil.


638 ARBORETUM ET FRUTICETUM BRITANNICUM.


Engravings. N. Du Ham., 2. t. 63.; and our fig. 1243.

Spec. Char., &c. Leaves ovate-lanceolate. Flowers purple. (Don's Mill.) An intermediate plant between S. vulgaris and S. pérsica. A shrub, from 6 ft. to 8 ft. high; a hybrid between S. vulgaris and S. pérsica; raised at Rouen by M. Varin, the director of the Botanic Garden there. Introduced in 1795. Flowers purple; May and June.

Varieties.

1. S. r. 2 Lilas Royal Bon Jardin. 1836, has the flowers more compact than the species.

2. S. r. 3 saúgæana Hort.; Lilas saugé, Fr.; differs from the Lilas Varin in having the flowers more red and more beautiful. S. cocclnea and S. chéménis rubra Lodg. Cat. ed. 1836 appear to be identical with this variety, or very slightly different.

It is of very vigorous growth, and a most abundant flowerer; and, in favourable soils and situations, it will attain the height of 10 or 12 feet.

S. Emôdi Wall. Cat. No. 2831., Don's Mill. iv. p. 51., Roye Illust. p. 267. t. 65. f. 2., and our fig. 1244., has the leaves elliptic-oblong, glaucous beneath, attenuated at the base, and acuminate at the apex. Branches warty. Thyse terminal and panicked. Capsules almost cylindrical. The bud-scales permanent at the base of the year's shoots. A shrub, 8 ft. to 10 ft. high, native of Kamaon, towards the Himalayas, with purple flowers. This very ornamental and desirable plant has lately been raised in the H. S. Garden from seeds received from the Himalayas.

GENUS V.

FONTANE'SIA Labill. The Fontanesia. Lin. Syst. Diandria Monogyni


Leaves simple, alternate, exstipulate, sub-evergreen; lanceolate. Flowers in axillary racemes, whitish yellow. — Shrub with the habit of Phyllis média, natives of Asia, and forming a connecting link between Fraxìnae and Oleïnae. Layers, in common soil.
Sect. III.  **Fraxinieae.**

**Genus VI.**

**FRA'XINUS** **Tourn.**  **The Ash.**  **Lin. Syst. Polygàmia Dice'ia.**


*Synonyms.*  Frêne. Fr.; Esche, Ger.; Frassino, Ital.

*Derivation.*  The derivation of *Fraxinus* given in Don's Miller is, from *phrasso*, to enclose; the ash having been formerly used for making hedges. Linneus derives it from *phræxius*, a separation, because the wood splits easily. Others derive it from *frangit*er, because the young branches are easily broken; or which may have been applied ironically, in allusion to the extreme toughness of the old wood. None of these derivations, however, appears very satisfactory. The English name of *Ash* may be derived either from the Saxon word *axe*, a pike; or from the colour of the bark of the trunk and branches, which resembles that of wood ashes.

*Gen. Char., &c.*  **Flowers** polygamous.  **Calyx** none, or 4-parted, or 4-toothed.  

*Corolla* none.  **Stamens** 2, in the male flowers.  **Anthers** sessile, or on short filaments, deliscing outwardly.  **Female flowers** the same, except that they have no stamens, but have each a pistil that has a bifid stigma.  **Fruit,** or samara, 2-celled, compressed, winged at top.  **Cells** 1-seeded.  (Don's Mill.)

*Leaves* compound, opposite, exstipulate, deciduous; unequally pinnate.  **Flowers** in lateral racemes, greenish yellow.  **Fruit,** or samara, 2-celled, compressed, winged at top.—Trees; natives of Europe, part of Asia, and North America.

The species are raised from seeds; and the varieties chiefly by grafting on *Fraxinus* excélsior, but partly also from seeds.  There is a great tendency in all the species to sport into varieties; and many of what are by botanists described as species are, in our opinion, not entitled to that distinction.  All the ashes are of easy culture in good soil, and in a sheltered situation.  The European ash is one of our most valuable timber trees, as is the American ash in North America.

**A. Leaflets broad, smooth or shining on the upper surface.**  **Natives of Europe.**

1. *F. excep'tior* L.  **The taller, or common, Ash.**


*Gen. Char., &c.*  **Leaflets** almost sessile, lanceolate-oblong, acuminate, serrated, cuneate at the base.  **Flowers** naked.  *Samara* obliquely emarginate at the apex.  The leaves have generally 5 pairs of leaflets, but sometimes 6.
The flowers are produced in loose spikes, from the sides of the branches. On some there are only female flowers; on others, hermaphrodite ones; and on others, male ones; while on some trees the flowers are found in two of these states, or in all of them. (Don't's Mill.) A large deciduous tree. Europe. Height 30 ft. to 80 ft. Flowers greenish yellow; March and April, before the leaves appear. Samara brown; ripe in October. Decaying leaves brown and yellow. Naked young wood ash grey.

Varieties. These are very numerous; we shall give first those which are allowed to be varieties by botanists, and afterwards indicate those which are treated by botanists as species, and which we have accordingly kept distinct, but which we are decidedly of opinion are nothing more than varieties.


† F. c. 3 aûrea Willd. Enum. p. 1059. F. aûrea Pers. Ench. ii. 604., Lodd. Cat. ed. 1836. — Bark of the trunk and branches yellow and dotted; and the leaflets sessile, lanceolate, unequally serrate acuminated, cuneated at the base, and glabrous. It is conspicuous.
particularly in winter, not only from the yellow colour of its bark, but from the curved contorted character of its branches, which somewhat resemble the horns of an animal.

† F. e. 4 aürea péndula. — Bark yellow, and the branches as pendulous, and of as vigorous growth, as those of F. e. péndula.

† F. e. 5 críspa. F. críspa Bosc, F. atro-virens Desc. Arb. i. p. 104. — Leaves dark green, crumpled, and curled. The darkness of the green of the leaves is remarkable; and this and their crumpled appearance, combined with the rigid stunted character of the whole plant, render it a strikingly grotesque object.

† F. e. 6 jaspídea Willd., Lodd. Cat. ed. 1836. — Bark of the trunk and branches streaked with reddish white.

† F. e. 7 purpurásceus Descemét (F. purpiæa Hort.). — Bark purple. Horticultural Society's Garden.

† F. e. 8 argéteas Desf. Arb., Lodd. Cat. ed. 1836. — Leaves variegated with white.

† F. e. 9 lutea, — Leaflets edged with yellow.

† F. e. 10 erósa Pers. Ench. i. p. 604. — Leaflets erosely toothed.


† F. e. 13 verrucósa péndula, — Branches worted and pendulous. Horticultural Society's Garden.

† F. e. 14 nana Lod. Cat. ed. 1836. F. e. humilis, and F. Theophrasti Hort. — The leaves resemble those of the common ash, but the leaflets are much smaller and closer together, and the plant seldom exceeds 3 ft. in height.

† F. e. 15 fungósa Lodd. Cat. ed. 1836.—Bark fungous-like.

† F. e. 16 verticillóta Lodd. Cat. ed. 1836.—Leaves whorled.

† F. e. 17 villósa nóva Descemct.—Leaves villous.

Other Varieties. There are several in the Catalogue of Messrs. Loddiges, and in other collections, but we do not think them worth enumerating.

The common ash is one of the noblest of our forest trees, attaining a height from 80 ft. to 100 ft., and enduring several centuries. No deciduous tree
whatever, in cultivation in British plantations, is more injurious to plants growing under it, from its numerous fibrous roots, which, rising close to the surface, exhaust the soil, and prevent the vegetation of almost every other plant, except those that have also fibrous roots. It always grows best in good, somewhat calcareous soil; which, though not boggy, is generally adjoining water. The most profitable age for felling the ash appears to be from 80 to 100 years, but it will continue pushing from stools or from pollards, for above 100 years. The timber of the ash is very elastic; so much so, that a joist of this timber will bear more before it breaks than one of that of any other tree indigenous to Europe. It weighs, per cubic foot, 64 lb. 9 oz. when green, and 49 lb. 8 oz. when dry. The value of the timber is increased by the rapidity of its growth; and, as in the case of the sweet chestnut, the wood of young trees is more esteemed than that of old ones. Since the use of iron became so general in the manufacture of instruments and machines, the value of the ash is somewhat diminished, at least in Britain; it still, however, ranks next in value to that of the oak, and is held even to surpass it for some purposes. It is much in use by the coachmaker, the wheelwright, and the manufacturer of agricultural implements. It is highly valued for kitchen tables and steps of stairs, as it may be scoured better than any other wood, and is not so liable to run splinters into the scouer's fingers. Young ash is particularly valuable for hop-poles, hoops, crates, handles to baskets, rods for training plants, forming bowers, for light hurdles, and for wattling fences; and also for walkingsticks. The species is always propagated by seeds, and the varieties by grafting. The samaras, or keys, are generally ripe in October; when they should be gathered, and taken to the rotting-ground, where they should be mixed with light sandy earth, and laid in a heap of a flat form, not more than 10 in. thick, in order to prevent them from heating. Here they should be turned over several times in the course of the winter; and in February they may be removed, freed from the sand by sifting, and sown in beds in any middling soil. The richness or quality of the soil is of little consequence; but it should be well broken by the rake, and the situation should be open, to prevent the plants from being drawn up too slender. The seeds may be deposited at the distance of half an inch every way, and covered a quarter of an inch with soil. Sown in February they will come up in May or June.

† 2. F. (e.) heterophylla Vahl. The various-leaved Ash.


Spec. Char. &c. Leaves simple or trifoliolate, dentately serrated. Samara oblong-lanceolate, 1 in. long, obtuse and emarginate at the apex. Leaves usually simple, but sometimes with 3 or 5 leaflets 3—4 in. long, ovate, subcordate, or acuminate at the base and apex. Branches dotted. Buds black. (Don's Mill.) A tree, attaining nearly the same dimensions as the common ash, and without doubt only a variety of it.
XLVIII. OLEACEÆ: FRA'XINUS.

643

Variety.

F. (e.) variegata. (fig. 1248.)—Leaves variegated; discovered in 1830, at Eglantine, near Hillsborough in, the county of Down, in Ireland.

3. F. (e.) ANGSTIFOLIA Bauh. The narrow-leaved Ash.


Synonyme. F. salicifolia Hort.

Engraving. Our fig. 1250.


B. Leaflets small, smooth or shining above. Natives of the South of Europe, the North of Africa, or the West of Asia.

4. F. PARRYFO'LIA Wild. The small-leaved Ash.

Spec. Char., &c. Leaflets 5—7 pairs, sessile, roundish ovate and oblong, attenuated at the base; quite entire at the base, but sharply serrated at the apex, mucronate. Flowers naked. Branches purplish, trigonal at the top. (Don's Mill.) A deciduous tree. Levant. Height 30 ft. to 40 ft. Introduced 1822. Flowers greenish yellow; April and May. Samara smaller than those of the common ash; ripe in October. Hort. Soc. Garden, and Lod.

5. F. (p.) arge'ntea Lois. The silvery-leaved Ash.

Engraving. Our fig. 2298. in p. 1108.


This variety must not be confounded with F. e. foliis argenteis, which is merely a variegation of the common ash (F. excelsior).


Spec. Char., &c. Leaflets 2—3 pairs, almost sessile, lanceolate, acuminate, serrated, glabrous. Flowers naked. Samara lanceolate, attenuated at both ends, mucronate. Branchlets green, with white dots. Buds brown. (Don's
A deciduous tree. Caucasus. Height 30 ft. to 40 ft. Introduced in 1815. Flowers greenish yellow; May.

Of all the varieties of the small-leaved ash, this appears to us to be the most beautiful. The leaves are of a dark glossy green, and are produced in tufts at the ends of the branches.

* F. pallida Bosc. The pale-barked Ash.


**Engravings.** Our fig. 2089. in p. 1169.

**Spec. Char., &c.** Leaves with 3 pairs of glabrous, almost sessile, ovate-lanceolate, toothed leaflets. Branches yellow. (Don's Mill.) In Don's Miller this kind is stated to be a native of North America; but in the Horticultural Society's Garden, and in the arboretum of Messrs. Loddiges, the plants to which this name is affixed obviously belong to *F. excelsior*.

* F. Lentiniscifolia* Desf. The Lentiscus-leaved Ash.


**Engravings.** Pluk. Phyt., 182. f. 4.; the plate of this species in Arb. Brit., 1st edit., vol. vi.; and our fig. 1293.

**Spec. Charac., &c.**

Leaflets petiolate, oblong and lanceolate, sharply serrated, the serratures micronate; 4–5 pairs according to Vahl; 6–7 pairs according to Willd.; ½ in. long, terminal one smaller than the lateral ones.

Branches dark purple.

Buds brown. Flowers naked. Samara narrow, gradually widening to the apex, and retuse there. (Don's Mill.) A deciduous tree. Aleppo.

Height 30 ft. to 50 ft. Introduced in 1710. Flowers greenish yellow; May and June.

**Variety.**

* F. l. 2 pendula* has slender pendulous branches, and forms a very elegant tree. Introduced in 1833. Hort. Soc. Garden, and Lod.

C. Leaves and Leaflets large, glaucous, and downy beneath. Natives exclusively of North America; and, in Britain, chiefly to be considered as ornamental trees.

From carefully observing all the kinds of American ash in the Horticultural Society's Garden, and in the arboretum of Messrs. Loddiges, we are convinced they are all variations of one and the same species. The most distinct of these, as far as respects the leaves, appear to be *F. a. pubescens* and *F. a. juglandifolia*; and, as far as respects the shoots, *F. a. quadrangul-
lata. Seeds of the eight following kinds are annually imported from America by the London seedsmen, and the plants, in general, come up tolerably true. This may also be said of some of the varieties of which we have only given the names.


*Engravings.* Michx. N. Amer. Syl., 3. t. 118.; the plate of this species in Arb. Brit., 1st edit.; and our figs. 1254. and 1255.


*Variety.*

F. a. 2 *latifolia* has broader leaves than the species. Hort. Soc. Garden, in 1835.

Early in spring, the leaflets are covered with a light down, which gradually disappears, till, at the approach of summer, they are perfectly smooth, of a light green colour above, and whitish beneath. This difference in the colour of the surfaces of the leaflets is peculiar to this species; and hence it has been named *F. discolor*. It is also called the white ash from the colour of its bark, by which it is easily distinguished, in America, from the other sorts indigenous there. In Britain, all sorts of American ash are readily known from *Fraxinus excelsior*, by their lighter bark, and by the paler green of their leaves.

10. **F. (a.) purpurea** Walt. The downy Ash.


*Engravings.* Michx. N. Amer. Syl., 3. t. 119.; and our fig. 1256.

Though Michaux has described the leaflets as denticulated, yet in his figure, of which fig. 1256. is a reduced copy, they are perfectly entire, as they are for the most part in the living plants at Messrs. Loddiges.

Varieties.


* F. (a.) p. 3 latifolia Willd., Pursh Fl. Amer. Sept. i. p. 9., has the leaflets ovate, broad.


The length of the annual shoots, and the spaces between the buds, are one half those of F. americana; and the tree is of smaller size, and slower growth. The leaves are from 12 in. to 15 in. long, downy on the under surface; and, on insulated trees, this down becomes red on the approach of autumn, both on the leaves and shoots of that year; whence, probably, the name of red ash. The bark of the trunk is of a deep brown, and the heartwood of a brighter red than that of the white ash.

* F. (a.) SAMBUCEO'FIA Vahl. The Elder-leaved Ash.


Synonymes. F. nigra Meench.; F. crispa Hort.; the black Ash, Water Ash, Amer.

Engravings. Michx. N. Amer. Syl., 3. t. 192.; and our figs. 1257. and 1258.

Spec. Char., &c. Leaflets 3 pairs, 3 in. to 4 in. long, acute at both ends, sessile, ovate-lanceolate, serrated, having the axis of the veins villous beneath. Young branches green, beset with black dots. Buds brown or blue. Flowers like those of the common ash. (Don's Mill.) A deciduous tree. Canada to Carolina. Height 60 ft. to 70 ft. in America; in England 30 ft. Introduced in 1800. Flowers greenish yellow; May.

Variety.

* F. (a.) s. 2 crispa Lodd. Cat. ed. 1836 has the leaves curled. Lod.

T T 4
The buds are of a deep blue, and the young shoots are sprinkled with dots of the same colour, which disappear as the season advances. The leaves, at their unfolding, are accompanied by scales, which fall after two or three weeks: they are 12 or 15 inches long when fully developed; and the leaflets are sessile, of a deep green colour, smooth on the upper surface, and coated with red down on the main ribs beneath. When bruised, they emit an odour like that of the leaves of the elder. The samaras resemble those of the blue ash (F. quadrangulata), and are nearly as broad at the base as at the summit. The black ash is easily distinguished from the white ash by its bark, which is of a duller hue, less deeply furrowed, and has the layers of the epidermis applied in broad sheets.

**F. (A.) Quadrangulata Michx.** The quadrangular-branched Ash.


*Synonyms.* F. tetragona Cels ex Donn. Cours.; F. quadrangularis Lodd. Cat. ed. 1836; blue Ash, Amer.

*Engravings.* Michx. N. Amer. Syl., 3. t. 153; and our figs. 1259 and 1260.


*Variety.*

**F. (a.) q. 2 nervosa** Lodd. Cat. ed. 1836.—Leaves with conspicuous nerves.

The leaves are from 12 in. to 18 in. long, and are composed of 2, 3, or 4 pairs of leaflets, with an odd one. The leaflets are large, smooth, oval-acuminate, distinctly toothed, and supported by short petiolules. The young shoots to which the leaves are attached are distinguished by 4 opposite membranes, 3 or 4 lines broad, and of a greenish colour, extending through their whole length. This character disappears in the third or fourth year, leaving only the traces of its existence. The seeds are flat from one extremity to the other, and a little narrowed towards the base. Readily distinguished from all the other varieties of American ash, as far as we have been able to observe these in the neighbourhood of London, by the bark of the trunk, which cracks and separates at the edges into thin plates, much in the same way as that of the white American oak (Quercus alba).

**F. (A.) Juglandifolia Lam.** The Walnut-leaved Ash.


*Synonyms.* F. viridis Michx. N. Amer. Syl. 3. p. 65. t. 120; F. concolor Michx.; the green Ash, Michx.; western black Ash, Pursh.


Variety.


The green ash is easily recognised by the brilliant colour of its young shoots; and by its leaves being nearly of the same colour on both surfaces. From this uniformity, which is rarely observed in the foliage of trees, Dr. Muhlenburg applied the specific name concolor; and Michaux gave this tree the popular name of the green ash. The leaves vary in length from 6 in. to 15 in. with from 2 to 4 pairs of leaflets, and an odd one, according to the vigour of the tree, and to the coolness of the soil in which it grows. The leaflets are petiolated, and distinctly dentilculated. The seeds are small; and the tree does not attain a great size. There is a splendid specimen 70 ft. high on the banks of the Thames, adjoining Pope’s villa, which is that figured in our first edition.


This is a very remarkable variety, readily distinguished by the large size of its leaflets, which are nearly round, but acuminate, and seldom consist of more than two pairs, with an odd one. The samaras are unlike those of any of the preceding sorts; being flat, oval, and often almost as broad as they are long. In spring, the lower surface of the leaves, and the young shoots, are covered with down, which disappears as the summer advances. H. S., Lod.

† 15. F. (A.) epiptera Vahl. The wing-topped-seeded, or two-coloured, Ash.


Synonyms. F. caroliniana Catesh. Car. t. 80; the Carolina Ash, Amer.
Engravings. Michx. N. Amer. Syl., 3. fig. 124; and our figs. 1264 and 1265.

Spec. Char., &c. Leaflets almost sessile, very distinctly serrated, elliptic-lanceolate, 2 in. long and 1 in. broad; having the larger veins villous beneath. Samara elliptic-lanceolate, 2 in. long, acute at both ends. (Don's Mill.) A deciduous tree. Virginia and Carolina. Height 30 ft. to 50 ft. Introduced in 1724. Flowers greenish yellow; May.
Very easily known from all the other American ashes, by the leaves dying off, in the autumn, of a fine purple. Lod. and Hort. Soc.

Other alleged American Species. — F. (a.) expansa Willd., F. (a.) mixta Bosc, F. (a.) pulverulenta Bosc, F. (a.) rubicunda Bosc, F. (a.) angiolotia Bosc, F. (a.) viridis Bosc, F. (a.) cinerea Bosc, F. (a.) alba Bosc, F. (a.) Richardi Bosc, F. (a.) ovata Bosc, F. (a.) nigra Bosc, F. (a.) elliptica Bosc, F. (a.) fusa Bosc, F. (a.) rufa Bosc, F. (a.) pannosa Vent. et Bosc, F. Boschi G. Don, F. (a.) polemoniifolia Poir., F. (a.) tripetera Nutt., F. chinensis Rattr. are described in our first edition, and plants of most of them may be had at Messrs. Loddiges's, and in other London nurseries. Except the last two they are only varieties, and in our opinion not worth keeping distinct.

Genus VII.


Synonymes. Fréxiinus sp. of the older authors; le Frene à Fleurs, Fr.; die blühende Esche, Ger.; Orna, Ital.; Oren, Hebrew; Oreine melia, Greek.

Derivation. From oros, the Greek word for a mountain.

Gen. Char., &c. Flowers hermaphrodite, or of distinct sexes. Calyx 4-parted or 4-toothed. Corolla 4-parted; segments long, ligulate. Stamens with long filaments. Stigma emarginate. Samara 1-celled, 1-seeded, winged. (Don's Mill.)

Leaves compound, opposite, exstipulate, deciduous; impari-pinnate. Flowers in terminal or axillary panicles.

Trees, deciduous; natives of Europe, North America, and Asia; in British gardens, propagated by grafting on the common ash, and sometimes by seeds.

* 1. O. EUROPEÀ Pers. The European Flowering, or Manna, Ash.


Spec. Char., &c. Leaves with 3—4 pairs of lanceolate or elliptic, attenuated, serrated, stalked leaflets, which are entire at the base, villous or downy
beneath. Flowers complete or hermaphrodite, greenish white. Peduncles axillary, solitary, shorter than the leaves. Young branches purplish or livid, with yellow dots. Buds cinereous. (Don's Mill.) A deciduous tree. South of Europe. Height 20 ft. to 30 ft. Introduced in 1730. Flowers white; May and June. Samara brown; ripe in October.

A very handsome small tree, and a free flowerer. It and also the following species, and probably all those of both the genera Fraxinus and O'rnus, extrava-sate sap, which, when it becomes concrete, is mild and mucilaginous. This sap is produced in more abundance by O'rmus europea'n and O. rotundifolia than by any other species; collected from these trees, it forms an article of commerce under the name of manna, which is chiefly obtained from Calabria and Sicily, where the tree abounds.

2. O. (e.) rotundifolia Pers. The round-leafleted Flowering, or Manna, Ash.

Engravings. Wild. Baum., t. 2. f. 1.; Pluk. Alm., p. 4.; and our figs. 1267. and 1268.

Spec. Char., &c. Leaves with 3—5 pairs of roundish-ovate, bluntly serrated, almost sessile leaflets, which are narrow at the base, rather small, and glabrous. Petioles channeled. Flowers with purplish petals, polygamous. Peduncles axillary. Branches and buds brown. The flowers come out in the spring, before the leaves, like those of other species of this genus, as well as of that of Fraxinus. (Don's Mill.) A low tree. Calabria and the Levant, &c. Height 16 ft. to 20 ft.; in England 30 ft. to 40 ft. Introd. 1697. Flowers white; April.
**3 O. (e.) AMERICANNA Pursh.** The American Flowering Ash.


*Engraving.* Our fig. 1269.

**Spec. Char., &c.** Leaves with 2—5 pairs of oblong or ovate - acuminate, shining, serrated leaflets, each 3 in. to 5 in. long, and 2 in. broad, and having the larger veins rather villous, glaucous, and paler beneath, the odd one rather cordate. Flowers with petals, disposed in terminal panicles. Branches brownish grey. Buds brown. Samara narrow, obtuse, mucronate. *(Don's Mill.)* A tree. North America. Height 30 ft. to 40 ft. Introd. in 1820. Flowers white; April and May.

A more robust-growing plant than *O. europaea*.

**4 O. FLOREIBUNDA G. Don.** The abundant-flowered Flowering Ash.


**Spec. Char., &c.** Leaves with 2—3 pairs of elliptic-oblong, acuminate, serrated, glabrous, stalked leaflets, and an odd one, varying much in figure, the terminal, or odd, one the largest. Panicles terminal, compound, thyrsoid. Samara linear, or narrow - spathulate, obtuse, and entire. Bark ash-coloured, dotted. Branchlets compressed. *(Don's Mill.)* A deciduous tree. Nepal. Height 30 ft. to 40 ft. Introd. 1822. Flowers white; April.

There was a plant of this species in the Horticultural Society's Garden, against the conservative wall, which died in the spring of 1836.

*O. striata* Swt.; Fraxinus striata Bosc, Don's Mill, 4. p. 57.; is a native of North America, said to have been introduced in 1818, but we have not seen the plant nor a figure of it.
ORDER XLIX. JASMINACEÆ.

ORD. CHAR. Calyx tubular, divided or toothed. Corolla salver-shaped, 5-cleft; aestivation imbricate and twisted. Stamens epipetalous. Ovarium 2-celled. Cells 1-seeded. Style 1. Stigma 2-lobed. Fruit a didymous berry, or a biparted capsule. Albumen sparing, or wanting altogether. This differs from Oleineæ, to which it is nearly allied, by the erect ovula, structure of seeds, and aestivation of corolla. (Don’s Mill.)

Leaves simple or compound, opposite, exstipulate, deciduous or evergreen; ternate or imparipinnate, with the petals for the most part articulated. Flowers opposite, in corymbs. — Shrubs, deciduous or evergreen; natives of Europe, Asia, and America.

GENUS I.


Synonymes. Mongórium Lam.; Jessamine; Jasmin, Fr. and Ger.; Schasmin, Ger.; Gelsomine, Ital.; Jasmine, Span.

Description. Linneus derives this name from ion, a violet, and osmè, smell: but the scent of the flowers has no resemblance to that of the violet. Forskoel, in his Ægyp. Arab. p. 50., says that it is taken from the Arabian name of the plant, Ysýnum, which appears much more probable.

Gen. Char., &c. Calyx tubular, 5—8-toothed or 5—8-cleft. Corolla 5—8-cleft. Stigma 2-lobed or bifid. Berry didymous, having one of the lobes usually abortive. Seeds without albumen. (Don’s Mill.)

Leaves simple or compound, opposite, exstipulate, mostly sub-evergreen; mostly entire. Petioles articulated. Flowers white or yellow, axillary or terminal, odoriferous. — Shrubs, usually sub-evergreen, and twining or rambling; natives of Europe, Asia, or Africa. Propagated readily by cuttings in common garden soil, and usually grown against walls.

2 1. J. FRUTICANS L. The Sprig-producing, or shrubby, Jasmine.

Engravings. Bot. Mag., t. 461.; Schmidt Baum., 3. t. 14.; our fig. 1271., and fig. 1272. from a living specimen.


A very desirable sub-evergreen, either for planting in borders, or again walls; flowering freely, and ripening abundance of fruit. It sends up numerous suckers which, when it is desired that the plant should assume a garden
esque character, should all be removed, leaving the branches to proceed from a single stem, or from two, three, or any other small and limited number of stems.

\[ \text{XLIX. JASMINÆÆ : JASMINUM.} \]

\[ \text{2. J. HUMILE L.} \] The humble, or Italian yellow, Jasmine.


\[ \text{Engravings.} \] Bot. Reg., t. 390.; Schmidt Baum., t. 149.; and our fig. 1273.


\[ \text{3. J. HETEROPHYLLUM Roxb.} \] The various-leaved Jasmine.


\[ \text{Synonymes.} \] J. arboreum Hamilt. MSS.; Goojee and Javana in Nepal.

\[ \text{Engravings.} \] Wall. Fl. Asiat. Rar., 3. t. 275.; and our fig. 1274.


\[ \text{4. J. REVOLUTEUM Ker.} \] The revolute-flowered Jasmine.

\[ \text{Identification.} \] Ker Bot. Reg., t. 178.; Don's Mill., 4. p. 64.

\[ \text{Synonymes.} \] J. chrysanthemum Roxb. Fl. Ind. 1. p. 93.; the Nepal yellow Jasmine.


\[ \text{Spec. Char., &c.} \] Leaves alternate, pinnate. Leaflets 3—7, ovate-lanceolate or elliptic, glabrous, on short petiolules. Corymbs terminal, compound. Calycine teeth very short, mucronate. Branches angular, glabrous. Leaves shining, and flowers bright and yellow, and very fragrant. (Don's Mill.) A rambling sub-evergreen shrub. North of Hindostan and Nepal, on
mounds. Height 10 ft. to 15 ft. Introduced in 1812. Flowers bright yellow, very fragrant; May to October.

Readily propagated by cuttings, and a free grower and flowerer in any common soil and exposure.

5. J. (r.) juvenilis D. Don. The downy Nepal Jasmine.


So closely resembles the preceding one, that we cannot doubt its being only a variety of it.

J. &. J. officinalis L. The officinal, or common, Jasmine.


**Engravings.** Bot. Mag., t. 51.; Schmidt Baum., 3. t. 150.; and our fig. 1277.

**Spec. Char., &c.** Leaves opposite, pinnate; leaflets ovate, acuminate, terminal one longest. Young buds erectish. Plant glabrous. Branches angular. Calycine segments 5, subulate. Corolla white, 4—5-cleft, sweet-scented. (Don’s Mill.) A climbing shrub, evergreen from the colour of its shoots. Malabar to Georgia and Mount Caucasus, in woods. Stems 40 ft. to 50 ft. Introd. 1596, or long before. Flowers white, highly odoriferous; June to August. Fruit black, only produced occasionally in England.

**Varieties.**

J. &. J. o. 2 foliis argenteis Lodd. Cat. — Leaves striped with white.

J. &. J. o. 3 foliis auresis Lodd. Cat. — Leaves striped with yellow.

J. &. J. o. 4 floribundus plenius Hort. — Flowers double, very rare.

The common jasmine generally loses its leaves in the winter season, especially in exposed situations; but, as its young shoots are of a fine deep green, and the plant is generally covered with them, it has the appearance at that season of an evergreen. The shoots are frequently produced 7 or 8 feet in length, and upwards, in one season.

---

**Order L. APOCYNACEÆ.**

**Ord. Char.** Calyx 5-cleft, persistent. Corolla 5-lobed, deciduous; aestivation imbricate. Stamens 5, epipetalous. Ovarium solitary or twin, usually many-seeded. Styles 1 or 2. Stigmas, where 2, applied to each other. Fruit follicular, drupaceous, or baccate; solitary or twin; 1- or many-seeded. Albumen generally present. — Distinguished from Asclepiadaceæ in the structure of the anthers and stigmas. (G. Don.)
Leaves simple, opposite, exstipulate, evergreen; entire, shining. Flowers axillary.—Trailing, suffruti- cosose, evergreen shrubs; natives of Europe.

Genus I.


Synonyms. Pervinca Tourn. t. 45. ; la Pervenché, Fr. ; Summgtén, Ger. ; Vincia, or Flor da Morto, ItaL

Derivation. In Don's Miller, this word is said to be derived from vinca, to conquer; because the species subdue other plants by their creeping roots, or bind them by their runners; but a much better origin seems to be from vinculum, a band, on account of the suitableness of the shoots for the purpose of making bands.

Gen. Char., &c. Calyx 5-cleft. Corolla salver-shaped; tube longer than the calyx; throat bearded; segments of the limb flat, oblique, truncate at the apex. Stamens 5, inserted in the throat, enclosed. Anthers ending each in a hairy membrane at the apex, which connive over the stigma. Stigma bearded, seated on a flat orbicular disk, which is grooved round the circumference. Glands 2, alternating with the ovaries, glabrous, as well as they. Follicles 2, erect, terete, narrow, dehiscent lengthwise, few-seeded. Seeds cylindrical, naked. Albumen fleshy. (Don's Mill.)

Leaves as in the Order. Flowers axillary, solitary, alternate, pedunculate; blue, purple, or white.—Shrubs, evergreen, suffruti- cosose, creeping or trailing; natives of Europe; of the easiest culture; and readily propagated by division, layers, or cuttings: valuable in pleasure-grounds, as thriving under the dense shade of trees and shrubs.

1. V. major L. The greater Periwinkle.


Synonyms. Vinca media Delile ; Pervinca major Scop. Carn. No. 274.


Spec. Char., &c. Stamens erectish. Leaves ovate, acute, ciliated. Calycine teeth linear-subulate, ciliated, usually with a small tooth on each side at the base. Segments of corolla broad, obovate. This species is larger in all its parts than the following sort. Flowering stems erect; barren ones trailing. (Don's Mill.) A low, trailing or creeping, suffruti- cosose evergreen. Middle and South of Europe, and apparently wild in some parts of Britain. Height 2 ft., forming a dense, dark green, low, trailing bush, growing freely under the shade of other trees, and producing its fine blue flowers from March to Sept.

Variety.

2. V. m. 2 variegata Hort.—Leaves variegated with white and yellow.

2. V. minor L. The less Periwinkle.


Clematis daphnoides Dodon. Pent. 401.


Calycine segments linear-lanceolate, bluntish. Segments of corolla broadish at top. Flowering stems usually erect. Flowers void of scent. Corolla blue, with white throat, varying to purple and white; of a smaller size than that of V. major. (Don's Mill.) A trailing evergreen undershrub. Europe; in many places in Britain, in hedges and woods, in rather damp situations. Flowers blue; March till September.

**Varieties.**
* V. m. 2 fōlis argenteis Lodd. Cat.—Leaves variegated with white.
* V. m. 3 fōlis aèreis Lodd. Cat.—Leaves variegated with yellow.
* V. m. 4 fōre álbo Lodd. Cat.—Flowers white.
* V. m. 5 fōre píceno Lodd. Cat.—Flowers double.
* V. m. 6 fōre prúniceo Lodd. Cat.—Flowers red.
* V. m. 7 acutiflōra Bert.—Leaves ovate acute at both ends; margins glabrous. Segments of corolla oblique; ovate-acuminate. South of Europe. Flowers blue; March and April.

---

**Order LI. ASCLEPIADACEÆ.**

**Ord. Char.** Calyx 5-cleft, persistent. Corolla 5-lobed; aestivation usually imbricate. Stamens 5, epipetalous. Pollen masses equal in number to the cells of the anthers, which are 2 or 4, and fixed to fine processes of the stigma. Ovarium twin. Styles 2, crowned by one stigma. Fruit of 3 follicles. Seeds numerous, imbricate, furnished with a tuft of hair at the umbilicus. Albūmen thin.—The pollen being combined into a definite number of waxy masses separates this order from all other dicotyledonous orders. (G. Don.)

Leaves simple, opposite, exstipulate, deciduous; shining, entire. Flowers subumbellate. — Twining shrubs; natives of South Europe and Asia.

**Genus I.**

| [Image of Periploca] |

**PERIPLOCA L. THE PERIPLOCA.** Lin. Syst. Pentandria Digynthia.


**Synonymes.** Periploca Fr.; Schlinge, Ger.; Periploca, Ital.

**Derivation.** From periplékô, to wrap about; in allusion to the twining stems.

**Gen. Char., &c.** Corolla rotate. Throat furnished with 5 awned scales, which alternate with the segments of the corolla. Filaments distinct. Anthers cohering, bearded on the back. Pollen masses applied to the dilated to of the corpuscles of the stigma, solitary, or composed of 4 confluent one. Stigma almost mutic. Follicles cylindrical, much divaricate, smooth. Seed comose. (Don’s Mill.)

Leaves as in the Order. Flowers subcorymbose, interpetiolar. — Shrub
deciduous, twining, glabrous; natives of the South of Europe; and propagated by cuttings of the root or shoots, or by layers.

§ 1. P. greeca L. The Greek Periploca.


Synonymes. P. maculata Manch, Schmidt Baum. 1. t. 46.; Silk Tree; Apodera serpeggiante, Ital.


Spec. Char., &c. Leaves varying from ovate to lanceolate, 3 in. to 4 in. long. Corymb on long peduncles. Flowers hairy inside. Branches brown. Segments of corolla linear, rounded at the apex, greenish outside and brownish inside, and clothed with copious short hairs. (Don's Mill.) A deciduous twining shrub. South of France, Bithynia; found also about Bursa, and on Mount Athos. Stems 20 ft. to 30 ft. Introduced in 1597. Flowers rich velvety brown; July and August.

The remarkable colour and rich velvety appearance of the flowers, the elegant form of the leaves, and the facility with which the plant can be made to cover an extensive space, render it useful for arbours, &c.; but the odour of the flowers is considered unwholesome, and even dangerous to those who are long exposed to it.


Synonymes. P. rigida Vie.; P. lavigata Fahl.

Engravings. Labill. Pl. Syr., dec. 2. p. 13, t. 17; and our fig. 1283.

Spec. Char., &c. Leaves veinless, narrow-lanceolate, glabrous, persistent. Cymes trichotomous. Flowers purplish inside, pale yellow beneath and round the mouth, with a white spot in the middle. Leaves 1 in. long. (Don's Mill.) A twining shrub. Tunis, on Mount Schibel Jeskel; and of the Island of Lampedosa, at the sea side, near Laodicea. Stem 20 ft. to 30 ft. Introduced in 1800, and quite as hardy as P. graeca.

Physia'nychus albens Mart., (Bot. Reg., t. 1759.; and our 1838.), a ligneous climber from Buenos Ayres, has stood against a wall in the Horticultural Society's Garden, and in some of the London nurseries, during the winter of 1838-1839. It is a plant of very interesting and uncommon aspect, and not only flowers freely, but produces its ovate pointed fruit (fig. 1284.), which, being in clusters and large, has a very singular appearance. Introd. 1830.
ORDER LII. BIGNONIACEÆ.

ORD. CHAR. Calyx divided or entire. Corolla tubular, generally irregular 4-5-lobed. Stamens 5, but either 1 or 3 of them are sterile. Ovarium 2-celled, guarded by a glandular disk. Stigma bilamellate. Capsule 2-valved, 2-celled. Dissepiment parallel or contrary. Seeds compressed, winged. Albumen none.—The structure of the fruit and placentation of the seeds readily distinguish this order from its allies. (G. Don.)

Leaves simple or compound, opposite, extipulate, deciduous or sub-evergreen; serrated or entire. Flowers terminal and axillary.—Shrubs climbing by tendrils; natives of North America and China.

The genera which contain hardy species are thus distinguished:—

**BIGNONIA** Tourn. Calyx 5-toothed. Dissepiment of the fruit parallel.

**TE'coma** Juss. Calyx 5-toothed. Dissepiment of the fruit contrary.

**CATA'LPAPA** Juss. Calyx 2-parted. Dissepiment of the fruit parallel.

**GENUS I.**

---

**BIGNONIA** Tourn. **THE TRUMPET FLOWER.** *Lin. Syst. Didynamia Angiospermia.*

**Identification.** Tourn. Inst., 72; Don’s Mill., 4, p. 216.

**Synonymy.** Bignone, Fr.; Trumpetemboume, Ger.; Bignonia, Ital.

**Derivation.** Named from Tournefort in compliment to Abbé Bignon, librarian to Louis XIV.

**Gen. Char., &c.** Calyx campanulate, 5-toothed, rarely entire. Corolla with short tube, a campanulate throat, and a 5-lobed bilabiate limb. Stamens didynamous, that is, 2 long and 2 short; with the rudiment of a fifth. Lobes of anthers divaricate. Stigma bilamellate. Capsule siliqua-forni, 2-celled; having the dissepiment parallel with the valves. Seeds disposed in 2 rows, imbricate, transverse, with membranous wings. (Don’s Mill.)

Leaves compound, opposite, sub-evergreen; conjugate, stipulate, foliolate. Flowers axillary, usually panicled. —Shrubs, usually scandent, furnished with tendrils. The only hardy species is a deciduous climber, native of North America; and easily propagated by cuttings of the roots or shoots, in common soil.

---

1. **B. capreola’ta** L. The tendriled Bignonia, or Trumpet Flower.


**Engravings.** Bot. Mag., t. 864; and our fig. 1286.

**Spec. Char., &c.** Climbing. Leaves conjugate; leaflets cordate-oblong; lower ones simple. Tendrils small, trifid; the lobes bifurcate. Peduncles axillary, 1-flowered, crowded. Calyx entire. Corollas reddish yellow. Follicles flattened, 1 ft. long. (Don’s Mill.)

A climbing deciduous shrub. North America, in the more southern parts. Stem 15 ft. to 20 ft. Introduced in 1710. Flowers orange brown; June and July.

A very ornamental wall climber, but it requires a sheltered situation and favourable exposure, in order to flower freely. In sheltered situations, in a climate not colder than that of London, it forms a very desirable shrub for covering latticework, either forming the support of a verandah, or the sides of a roof of a bercceau or bower.
Genus II.


**Description.** Juss. Gen., p. 139; Don’s Mill., 4. p. 223.

**Synonym.** Bignonia sp. of Lin. and others.

**Varieties.** From *Tecomazochil*, the Mexican name of one of the species.

**T. Radiicans** Juss. The rooting-branched Tecoma, or Trumpet Flower.

**Description.** Juss. Gen., p. 139; Don’s Mill., 4. p. 223.

**Synonym.** Bignonia radiicans Lin. Sp. 371; Bignonia radiicans major Hort.; Gelsomium Climatis Barrel. Icon. 59; Bignonia fraxinfollia Catesb. Cor.; Jasmin de Virginia, Fr.; Wurzeln Bignonia, Ger.; Eschenblätter Bignonia, Dutch.; Gelsomino americano, Ital.

**Remarks.**

1. **T. Radiicans** Juss. The rooting-branched Tecoma, or Trumpet Flower.

- **Description.** Juss. Gen., p. 139; Don’s Mill., 4. p. 223.
- **Synonym.** Bignonia radiicans Lin. Sp. 371; Bignonia radiicans major Hort.; Gelsomium Climatis Barrel. Icon. 59; Bignonia fraxinfollia Catesb. Cor.; Jasmin de Virginia, Fr.; Wurzeln Bignonia, Ger.; Eschenblätter Bignonia, Dutch.; Gelsomino americano, Ital.

**Varieties.**

1. **T. Radiicans** major Hort. has the flowers larger and of a darker scarlet; the leaves, also, differ considerably, both in size and shape. Carolina; August. Introduced in 1724.

In British gardens it grows vigorously, producing its of leaves and fine flowers abundantly at the extremity of the branches, but is rather apt to become naked below.

2. **T. Grandiflora** Swt. The great-flowered Tecoma.


**Varieties.**

1. **T. Grandiflora** major Hort. has the flowers larger and of a darker scarlet; the leaves, also, differ considerably, both in size and shape. Carolina; August. Introduced in 1724.

In British gardens it grows vigorously, producing its of leaves and fine flowers abundantly at the extremity of the branches, but is rather apt to become naked below.

Almost as hardy as *Tecoma* radicans, which it greatly resembles, but of a slighter habit, though it has much larger flowers, and is altogether a very splendid plant.

**Genus III.**


**Synonymies.** Bignonia sp. of Lin. and others; Bignone Catalpa, Fr.; gemeine Trompetenblume, Ger.

**Derivation.** The Indian name of a species of Bignonia.


Leaves simple, opposite, or disposed 3 in a whorl, exstipulate, deciduous; entire. *Flowers* terminal, panicled, white.—A tree, deciduous; native of North America; of easy culture in common soil, and propagated by imported seeds or cuttings of the roots.


**Synonymies.** Bignonia Catalpa Lin. Sp., 868.; Catalpa bignonioléès Walt. Fl. Car. p. 64.; C.
Derivation. The French of Upper Louisiana call this tree Bois Shavanon, from its being found in abundance on the banks of the river Shavanon, now called the Cumberland. Catalpa is supposed to be a corruption of Catawba, an Indian tribe that formerly occupied a great part of Georgia and the Carolinas.


The catalpa is generally propagated by seeds, which are imported from America; but it will grow readily from cuttings of the root; and, of course, plants so raised will flower much sooner than those which are raised from seed. The tree is of rapid growth till it attains the height of 20 ft., which, in deep soil, in the neighbourhood of London, it does in 10 years.

Order LIII. SOLANA'CEÆ.

ORD. CHAR. Calyx 5-cleft, persistent. Corolla 5-cleft, usually regular; aestivation imbricate or plicate. Stamens 5, rarely 4, epipetalous. Style 1. Fruit 2—4-celled, capsular or baccate. Albumen fleshy. Regular flowers, arched or spiral embryo, plicate aestivation of corolla, and equal stamens, distinguish this order from its allies. (G. Don.)

Leaves simple, alternate, exstipulate, deciduous or sub-evergreen; oblong, and sometimes pinnately divided. Flowers solitary or numerous. — Shrubs, deciduous or sub-evergreen; natives of Europe, Asia, and South America; readily propagated by cuttings in any common soil, not over moist.

The few ligneous or suffruticose hardy plants contained in this order are included in the genera Solanum, Lycium, and Crabowskia, which are thus characterised:—

Solanum Pliny. Anthers connivent, dehiscing by pores at the anex. Berry 3-celled, rarely 4-celled.

Lycium L. Anthers usually exserted, and not connivent, opening lengthwise. Berry 2-celled.

Crabowskia Schlecht. Drupe containing two 2-celled bony carpels. Cells 1-seeded.

Genus I.


Derivation. The first use of the word Solanum occurs in the writings of Tragus, who applied it to Chenopodium hybridum. It is said to be derived from solaris, to console. The Greeks called our European solanums struchnoi, a name which Linnaeus transferred to the genus of tropical shrubs, Strychnos, to which the nux vomica belongs.


Leaves simple, alternate, exstipulate, deciduous or sub-evergreen; undivided, sinuated, lobed, imparipinnate, or deccompound. Flowers in peduncles, solitary or numerous, simple or multifid, axillary or extra-axillary.—Shrubs, u u 4
suffrutescent, scandent, deciduous or sub-evergreen; natives of Europe, Asia, or South America; or the easiest culture in common soil.

\[ \text{S. Dulcam'ara L. The Bitter-sweet, or woody, Nightshade.} \]


**Spec. Char., &c.** Shrubby, scandent, flexuous. Leaves ovate-cordate; superior ones hasteate. Corymb almost opposite the leaves. Shrub glabrous. Leaves cordate; superior ones hasteate, all quite entire. Corymbs panicked. Corolla violet-coloured, with reflexed segments, each segment furnished with 2 green spots at the base. Berries elliptic, red. (Don's Mill.) A climbing deciduous shrub. Europe, Asia, and North America, in hedges and among bushes; plentiful in Britain. Stem 6 ft. to 8 ft. Flowers violet; June and July. Berry red; ripe in September.

**Varieties.**

\[ S. D. 1 violacea Hort. Eyst. p. 385. t. 384. No. 3.—Corollas violet. \]

\[ S. D. 2 alba Lin. Fl. Suec. p. 66.—Corollas white. Lodd. \]

\[ S. D. 3 carnea Cels. Ups. 32.—Corollas flesh-coloured. \]

\[ S. D. 4 plena Tourn. Inst. 149.—Corollas double. \]

\[ S. D. 5 variegata Munt. fig. 156.—Leaves variegated. \]

\[ S. D. 6 hirsuta Don's Mill. iv. p. 409.; S. littorale Hort.—Plant hairy or downy. Flowers violet. Found on the sea coast. Lodd. \]


The stems of this species are roundish, branched, twisted, and climbing by elongation, among other shrubs, and in hedges, to the height of 6 or 8 feet, or upwards. When bruised, broken, or rubbed, they yield a strong and peculiar odour, not unlike that which proceeds from rats and mice. The roots smell like potatoes; and both roots and stalks, upon being chewed, first cause a sensation of bitterness, which is soon followed by a considerable degree of sweetness, whence the specific name. The berries are poisonous; and, as they are common in hedges, they are very frequently eaten by children, on whom they operate by exciting violent vomiting and purging. Trained to a single stem to the height of 6 or 8 feet, and supported by a strong iron rod, with a parasol top, this common hedge weed might form a very handsome gardenesque pendulous tree; or it might cover a domical bower.

\[ S. Ch. 2. S. cri'spum R. & S. The curled-leaved Solanum. \]

**Engravings.** Bot. Reg., t. 1516.; and our fig. 1291.

A hardy vigorous-growing plant, of a much more ligneous character than S. Dulcamara, sub-evergreen, and covered with flowers nearly the whole summer. As it will grow in any soil, and is readily propagated by cuttings, it promises to be of great value as an ornamental climber, for rapidly covering naked walls. If tied to a stake, and thus forced to grow erect, it will throw out a great number of lateral branchlets, at the end of every one of which is produced a bunch of flowers.

The art of hybridisation has not yet been practised with the shrubby species of Solanum, otherwise it is not improbable that some hybrids might be originated between the South American and the British species, which would be as hardy as those which have been described.

**Genus II.**

**LYCIUM L.** The Box Thorn. Lin. Syst. Pentándria Monogónía.

**Identification.** Lin. Gen., 1262; Don’s Mill, 4, p. 487.

**Synonymy.** Jasminóides Nott. in Bot. Gall. 1711; Matrimony Vine, Amer.; Lycium, Fr.; Bocksdorn, Ger.; Licha, Ital. One species, L. bábarum, is commonly called the Duke of Argyll’s tea tree, from the circumstance of a tea plant (Thea viridis) having been sent to the Duke of Argyll at the same time as this plant, and the labels having been accidentally changed.

**Derivation.** Derived from Lycia, in Asia Minor; hence the lektion of Dioscorides; a name given by him to a thorny shrub, which was supposed by Dr. Sibthorp to have been the Rhánnus infectarius, but which Dr. Royle, with greater probability, regards as identical with a species of Berberis which he has denominated Berberis Lycium.

**Gen. Char.** Calyx urceolate, regularly 5-toothed, or irregularly 3—5-cleft, permanent. Corolla funnel-shaped or tubular; limb 5- or 10-cleft, or toothed, imbricate in aestivation, sometimes plicate. Stamens 5, usually exserted; filaments bearded, and widened at the base. Anthers cordate, dehiscing lengthwise. Berry roundish, 2-celled. Seeds numerous, reniform. (Don’s Mill.)

**Leaves simple, alternate, exstipulate, deciduous; entire or nearly entire, solitary or in fascicles. Flowers in peduncles, extra-axillary or terminal, solitary, twin, or umbellate, rarely corymbose; white, yellow, rose-coloured, purple, or blue.—Shrubs, deciduous, scandent, and usually somewhat spineose; natives of Europe, Asia, and Africa; readily propagated by cuttings of the branches or of the roots.

1. L. EUROPEUM L. The European Box Thorn.

**Identification.** Lin. Syst., 228; Don’s Mill, 4, p. 458.

**Synonymy.** L. salicifólium Mill. Dict. No. 3; Jasminóides aculeátum Mich.; Spino santo, Spino di Cristo, Ital.

**Engravings.** Mich. Gen., t. 105. f. 1; Mill. Icon., t. 171. f. 2.; and our fig. 1292.

**Spec. Char., &c.** Branches erect, loose. Buds spinescent. Leaves fascicled, obovate-lanceolate, obtuse, or spathulate, bent obliquely. Flowers twin or solitary. Corolla funnel-shaped. Stamens exserted, but shorter than the limb. Calyx 5-cleft, ruptured at the side. Corollas pale violet, reticulated with red veins; tube greenish. (Don’s Mill.) A rambling shrub, with long slender shoots, and prone to throw up innumerable suckers. South of Europe. Stem 20 ft. to 30 ft. Introduced in 1730. Flowers violet; May to August. Fruit bright scarlet or yellow; ripe in September.
Valuable for covering naked walls, as it grows with extreme rapidity, and flowers and fruits freely, in almost any soil or situation. Established plants, in good soil, will make shoots 10 or 12 feet in length in one season; and the plant, when trained against a house or high wall, will reach the height of 30 or 40 feet, as may be seen in some courts in Paris. Trained to a strong iron rod, to the height of 20 or 30 feet, and then allowed to spread over an umbrella head, it would make a splendid bower. Its shoots would hang down to the ground, and form a complete screen on every side, ornamented from top to bottom with ripe fruit, which is bright scarlet or yellow, and very showy; with unripe fruit, which is of a lurid purple; or with blossoms, which are purple and white. Some idea of the quantity of ripe and unripe fruit, and of blossoms, which may be found on a shoot at one time, may be formed from fig. 1292, which is only a portion of a shoot, the upper part of which (not exhibited in the figure) contained two or three dozen of fruit, all ripe at once.

Varieties. There is a variety with yellow fruit, and another with the fruit roundish; and, in our opinion, L. barbarum, chinense, ruthenicum, Sháwii, and Trew'm7n/7, all of which we have seen in Lodgïges's arboretum, and in the Paris gardens in 1846, are nothing more than variations of the same form.

2. L. (e.) bârbârum L. The Barbary Box Thorn.


Engravings. Dend. Brit., t. 9.; and our fig. 1293.


Stem 20 ft. to 30 ft. Introduced in 1696. Flowers and other particulars as in L. europæa.

3. L. (e.) chinâñse Mill. The Chinese Box Thorn.


Engravings. Dend. Brit., t. 8.; and our fig. 1294, from the N. Du Ham., and fig. 1295, from a living specimen.

Spec. Char., &c. Branches pendulous, prostrate, striated. Buds spinescent. Leaves by threes, ovate, acute,
attenuated at the base. Peduncles much longer than the calyx, which is entire. Stamens exserted. Nearly allied to L. ruthenicum; but differs in the leaves being broad-ovate. Shoots very long, (Don’s Mill.) A climbing deciduous shrub. China, about Pekin and Canton; and of Cochin-China. Stem 8 ft. to 10 ft. Introduced ?. Flowers purple; May to August. Fruit orange-coloured; ripe in August.

Resembles L. europaeum, but is a smaller weaker plant.

§ 4. L. (e.) TREWIA'NUM G. Don. Trew’s Box Thorn.

Engraving. Our fig. 2102, in p. 1110.


Judging from the plants in the Hackney arboretum, this kind is scarcely, if at all, different from L. europaeum.

§ 5. L. (e.) RUTHÉNICUM Murr. The Russian Box Thorn.

Synonymes. L. tatáricum Pall. Fl. Ross. 1. p. 78. t. 49.; Lycien de la Russie, Fr.


Variety.

6. L. (e.) LANCEOLATUM Poir. The lanceolate-leaved Box Thorn.

Engravings. N. Du Ham., t. 31.; and our fig. 1297. and 1298.


7. L. (?e.) TURBINA'TUM Du Ham. The turbinate-fruited Box Thorn.

Fr. No. 2700.
Engravings. N. Du Ham., t. 31.; and our figs. 1299. and 1300.


8. L. Afrum L. The African Box Thorn.


Variety.

1. L. a. 2 rigidum. L. rigidum Booth. — Leaves long, linear, glaucous; shoots rigid. Possibly a distinct species. Native country unknown, but probably from China, or the North of India. Received from Messrs. Booth, in 1838.

The most ornamental species of the genus; and, though rather tender, it
well deserves a place in every collection against a wall. There are large and handsome plants, on a wall, in the Chelsea Botanic Garden, which were uninjured by the winter of 1837-8.

Other Species of Lycium. — There were in the Horticultural Society's Garden, in 1838, plants named L. ovatum and L. spatulatum, but they appear to us nothing more than varieties of L. barbarum. — L. obovatum (fig. 1303. from a specimen received from the Liverpool Botanic Garden) was raised there from a seed which Mr. Shepherd picked from a dried specimen received from Peru in 1836. The flowers are of a dark purple and very showy, and the plant has stood against a south wall through the winters of 1837, 38, and 39, without any protection.

Genus III.

CRABO'WSKIA Schlecht. The CRABOWSKA. Lin. Syst. Pentandria Monogynia.

Synonymes. Lycium sp. Lin.; Ehrétia sp. L'Hérit.
Derivation. In honour of Dr. H. Crabowski, one of the editors of Flora Silesiaca.

Gen. Char. Calyx subcampanulate, regularly 5-toothed, valvular in aestivation. Corolla with a short, funnel-shaped tube, and a 5-parted limb. Segments of the limb spreading or reflexed, four of which are convolute in aestivation, the fifth external, with the margins covering the edges of those near it. Stamens 5. Filaments free. Drupe propped by the permanent calyx. (Don's Mill.)

Leaves simple, alternate, exstipulate, deciduous; entire. Flowers subcorymbose, from the fascicles of leaves, or the tops of the branchlets; whitish yellow. — A shrub, deciduous, with axillary spines, rambling, with the habit of Lycium; native of Peru. Culture as in Lycium.

1. C. BOERHAAVLEFO'LLA Schlecht. The Boerhaavia-leaved Crabowskia.

Engravings. L'Hérit. Stirp., 1. t. 86.; and our fig. 1304.

Spec. Char., &c. Leaves coriaceous, glaucescent, with a saltish bitterish taste. Corolla white, having the throat veined with green. Stamens white. Stigma green. Nuts the form of those of Coffea arabica, convex on one side, marked by a slender furrow in the middle, obtuse at top, and perforated by two roundish holes at the base: hence it is tridentate, the first tooth from the middle of the back, the other two from the sides: sometimes, but only by abortion, 1-celled. Albumen copious, fleshy. (Don's Mill.) A rambling deciduous shrub. South of Brazil, in woods. Height 6 ft. Introduced in 1780. Flowers white: April and May

The whole plant has a mealy white appearance; by
which, and by the singular twisted form of its leaves, it may be known at first sight from any species of Lycium.

Order LIV. SCROPHULARIA'CEÆ.

Ord. Char. Calyx 4—5-parted, persistent. Corolla deciduous, irregular, or bilabiate; or regular; estivation imbricate. Stamens 2 or 4, usually di-dynamous, rarely equal. Ovary 2-celled. Style 1. Stigma 2-lobed or undivided. Fruit usually capsular, rarely baecate, 2-celled, 2—4-valved many-seeded. _Albunum_ copious. (G. Don.)

Leaves simple, opposite, exstipulate, deciduous; reticulately veined.

The hardy genera in British gardens are Buddleia and Paulownia, which are thus contradistinguished:—

Buddleia. Calyx 4-cleft. Corolla tubular, 4-cleft, regular. Stamens 4, equal. 

Genus I.


_Derivation._ Named by Dr. Houston in honour of Adam Buddle, a botanical amateur, who is often mentioned in Ray's _Synopsis_, and whose dried collection of British plants is preserved in the British Museum.


Leaves as in the Order. Flowers terminal; capitate, spicate, or panicle; orange-coloured.—Shrubs, deciduous or nearly sub-evergreen, rambling, usually with quadrangular branches, natives of South America. Readily propagated by cuttings or layers, in any light rich soil, in a dry sheltered situation, or, in the North of England, against a wall.


_Spec. Charac., &c._

Branches tetragonous, clothed with hoary tomentum,
as well as the under sides of the leaves. Leaves lanceolate, acuminated, crenated, petiolate. Heads of flowers globose, pedunculate. A large, spreading, deciduous shrub. Chili. Height 12 ft. to 15 ft. Introduced in 1774. Flowers bright yellow, in globe-like heads, fragrant; May to July.

Very ornamental, but, being somewhat tender, it requires, north of London, a warm sheltered situation, and a dry soil.

**Genus II.**


*Derivation.* Named by Dr. Siebold in honour of Her Imperial and Royal Highness, the Hereditary Princess of the Netherlands.


Leaves simple, opposite, exstipulate, deciduous; petiolate, entire. Flowers purple or lilac, in terminal panicles.—A deciduous tree, with the habit and general appearance of Catalpa syringæfolia; native of Japan.


**Spec. Char., &c.** Leaves ovate, cordate at the base, acute, undivided or 3-lobed, densely clothed with soft hairs beneath. Flowers panicked; calyx covered with rusty tomentum. (Sieb.) A magnificent deciduous tree; Japan, in the southern provinces, in exposed places. Height 30 ft. to 40 ft., with a trunk 2 ft. to 3 ft. in diameter, in Japan. Introduced in 1840. Flowers purple; April, in Japan.

The branches are few, but strong, and proceeding from the trunk at right angles. The flowers are in large bunches, which look, at a distance, like those of the horse-chestnut; while the individual flowers, in form, size, and colour, resemble those of Digitalis purpúrea. The tree was introduced into Europe in 1837, and in the Jardin des Plantes there is a specimen which has stood out three winters. In July, 1840, it was nearly 12 ft. high, and in...
all respects closely resembled a catalpa. It is readily propagated by
cuttings of the roots or shoots; flowers vigorously in any common soil,
tolerably dry, and will doubtless speedily become as common as the catalpa
throughout Europe. Horticultural Society's Garden.

ORDER LV. LABIAECEÆ.

ORD. CMAB. Calyx tubular, persistent, 5-leafed or 5—10-toothed, regular, or bi-
labiate. Corolla tubular, bilabiata; the upper lip undivided or bifid, and the
lower one trifid. Stamen 4, didynamous, 2 of which are often sterile, inserted
under the sinuses of the lower lip. Lobes of anthers usually divergently.
Ovaria 4, naked, seared on a glabrous disk, and connected with the base
of the style. Stigma bifid. Acrania 4, or fewer. Albumen wanting, or sparing.
—The opposite leaves, free 4-lobed ovary, bilabiate corolla, and
didynamous stamens distinguish this order from Boraginaceæ; and the 4-lobed
ovarium separates it from Verbenaceæ and Acanthaceæ, &c. (G. Don.)

Leaves simple, alternate, extipulate, evergreen; small, crowded. Flowers
axillary or terminal. — Low shrubs, for the most part so small as to be
treated as herbaceous plants; natives chiefly of the South of Europe.

Though there are a number of genera belonging to this order containing
species which are technically ligneous, yet there are none that can popularly
be considered as shrubs fit for an arboretum, with the exception of Philomis
fruticosæ, Rosmarinus officinalis, Lavandula Spica, and Salvia officinalis;
these plants are so well known, that we consider it unnecessary to do more
than give figures of them, with the following slight notices:

Mag., t. 1843.; and our fig. 1309.) Jerusalem Sage,
is a native of Spain, with yellow flowers, appearing
in June and July. This is a greyish evergreen
shrub, growing 4 or 5 feet high, and, in dry soils,
enduring 10 or 12 years. The flowers are pro-
duced in large whorls, and have a very conspicuous
appearance. The plant well merits
a place in collections, on account
of the remarkable appearance of
its foliage, independently altogether
of its flowers.

Rosmarinus officinalis L. (Fl
Græc., I. t. 14.; and our fig. 1310.)
is a well-known evergreen shrub,
a native of the South of Europe,
which has been an inhabitant of
our gardens since 1548. There
are plants of it in different gardens in the neighbourhood
of London, which, as bushes in the open border, in 5 or 6
years have attained the height of as many feet, and breadth
in proportion; thus forming very handsome evergreen
bushes. As the plant flowers from January to April, it
forms, when so treated, a very desirable garden ornament.
There are, also, a variety with the leaves variegated with
gold colour, and a silvery-leaved variety; but these are
often rather weaker, and more dwarf, than the species.

Lavandula Spica L. (N. Du Ham., 3. t. 42.; and our fig.
1311.), the common Lavender, is a well-known fragrant shrub,
a native of the South of Europe and North of Africa, which
like the rosemary, has been long an inhabitant of British gar-
dens. In deep, dry, calcareous soils, it will grow to the height
Order LVI. VERBENA'CEÆ.

ORD. CHAR. Calyx tubular, persistent. Corolla tubular, deciduous, irregular. Stamens 2 or 4; when 4, didynamous, rarely equal. Ovarium 2—4-celled. Style 1. Stigma bifid or undivided. Fruit drupaceous or baccate. Alburne wanting or very sparing. (G. Don.)

Leaves simple, opposite, stipulate, deciduous; digitate. Flowers terminal.
— Shrubs, deciduous; natives of the South of Europe. Propagated by seeds, cuttings, or layers, in common soil.

Genus I.


Description. From vico, to bind, as with an osier; in reference to the flexibility of the shoots.


Leaves as in the Order. Flowers in terminal racemes, panicled, bluish white. — Shrubs, deciduous, natives of the South of Europe.

31. V. A'GNUS CA'STUS L. The officinal, or true, Chaste Tree.


Description. Blackw. Herb., t. 129.; N. Du Ham., 6. t. 35.; and our fig. 1313.

Gen. Char., &c. Leaves opposite, digitate, 7—5-lobed; leaflets lanceolate, mostly quite entire, hoary beneath. Racemes terminal, panicled. Flowers verticillate. (Wild.) A low deciduous shrub. Sicily, Naples, the North of X X
Africa, and Egypt. Height 5 ft. to 6 ft. Introd. 1570. Flowers white, bluish white, or reddish white; Sept.

**Variety.**

\[ V. A. 2 latifolia Mill. (N. Du Ham., vi. p. 116.) \] has the leaflets broader and shorter than those of the species. The spikes of flowers are shorter, and the flowers are always blue. South of France and Italy.

Its flowers have an agreeable odour; but the leaves have an unpleasant smell, although aromatic. No seeds are produced in England. The plant grows freely in any soil that is tolerably dry; and it is readily propagated by cuttings, put in in autumn, and protected with a hand-glass. In the Paris nurseries it is frequently raised from seeds received from Italy, and both in France and England the plant sometimes produces suckers.

\[ 2. V. (A.) incisa Lam. \] The cut-leaved Chaste Tree.


**Synonymy.** V. Nevigrade Bot. Mag., t. 364.

**Engravings.** Bot. Mag., t. 364.; and our fig. 1314.

**Spec. Char., &c.** Leaves digitate, composed of five leaflets, subpinnatifid. (Lam.) A deciduous shrub. China. Height 4 ft. to 5 ft. Introduced in 1738. Flowers bluish, purplish, or whitish; July to September.

This supposed species, though not common in British gardens, is quite hardy in the Jardin des Plantes, where it grows with great vigour, and flowers profusely. Distinguished at a glance from the preceding and following species, by its long linear fine deep green leaflets.

\[ 3. V. arbo'rea Rox. \] The arboreous Chaste Tree.


**Engravings.** Our fig. 1315, from a living specimen in the Jardin des Plantes.

**Spec. Char., &c.** Leaves digitate; leaflets ovate, acuminate, dentate. A large shrub; in its native country a small tree. India. Height 30 ft.; in the Paris Garden 5 ft. Introduced?. Flowers purplish; July and August.

Readily known from the preceding sorts by its much broader leaves, shorter, and of a paler green. According to Royle, this species in the Himalayas yields a hard and durable timber, much used and esteemed. The plant, in the Paris Garden, grows with great vigour, and is quite hardy, but does not flower freely.

**Subdivision II. MONOCHLAMYDEÆ.**

**Perianth simple.**

**Order LVII. CHENOPODIA'CEÆ.**

**Ord. Char.** Perianth deeply divided, and persistent; aestivation imbricate. Stamens equal in number to the divisions of the perianth, or opposite then
or fewer, inserted in the bottom of the perianth. Ovarium 1-seeded, usually free. Style 2—4-cleft, rarely simple. Stigmas undivided. Pericarp membranous, valveless, seldom baccate. Embryo inarching a farinaceous albumen, or spiral or forked, without albumen. — Only distinguished from Anaranthacea in the insertion of the stamens. (G. Don.)

Leaves simple, alternate, or opposite, exstipulate, deciduous or sub-evergreen; entire or lobed. Flowers terminal. — Shrubs, natives of the South of Europe and North America. The genera are three, which are thus contradistinguished:

CHENOPODIUM L. Flowers hermaphroditic.
A' TRIPLEX L. Flowers polygamous.
DIO'TIS Schreb. Flowers monococcous.

GENUS I.


Identification. Lin. Gen., 121., but with some modification since.


Derivation. From the Greek words chén, a goose, and podo, a little foot; many of the species having large angular leaves extremely like the webbed foot of a waterfowl.


Leaves simple, alternate, stipulate, deciduous or sub-evergreen; generally lobed, bearing a triable unctuous scurf. Flowers axillary, in leafy spikes or naked panicles, numerous, small, green. — Shrubs, deciduous or sub-evergreen; natives of the South of Europe; of the easiest culture in any dry soil, and readily propagated by cuttings.

1. C. FRUTICOSUM Schrad. The shrubby Goosefoot, or Stonecrop Tree.

Identification. Schrader, according to G. Don in Hort. Brit.


Not unworthy of a place in gardens or shrubberies, being sub-evergreen and tolerably hardy, remarkable for the glaucous hue of the leaves, and very durable. The branches are very brittle, and apt to break off.


Identification. R. em et Schult., Syst. Veg., 6, p. 266.


Engravings. Pall. Ill., 3. t. 44.; and our Fig. 1318.

Spec. Char., &c. Imperfectly evergreen, frutescent, much-branched, spreading, glabrous, about 2 ft. high. Leaves taper, oblong, obtuse, glaucoscent, fleshy; x x 2
the lower half an inch long, the floral ones shorter. Flowers of the shape of those of C. maritimum, three together, attached to the petiole above its base, not bracteated. The sepals that attend the fruit are equal and convex at the back. (Bieb.) A sub-evergreen shrub, frequent in plains of Eastern Caucasus, towards the Caspian Sea, and near the salt river Gorkaja, where it is believed to be deleterious to horses. Height 3 ft. Introduced in 1825, but very seldom found in collections.

Genus II.


Synonymes. Arroche, Fr.; Melde, Ger.; Atriplice, Ital.
Derivation. From ater, black; according to some by antiphrasis, in reference to the whitish, or mealy, hue of the plants.

Gen. Char., &c. Flowers some bisexual, some female; those of both kinds upon one plant.—Bisexual flower with the calyx inferior, and 5 sepals. Stamens 5, hypogynous. Anthers with round lobes. — Female flower with the calyx inferior, deeply divided into two large, flat, equal or nearly equal, lobes. Ovary compressed. Fruit a utricle, invested by the calyx, which is now enlarged. (G. Don.)

Leaves simple, alternate or opposite, stipulate, sub-evergreen; undivided or jagged, bearing a meal-like scurf. Flowers in axillary or terminal spikes, numerous, small, greenish.—Shrubs, subevergreen, natives of Europe, with imperfectly woody branches, and succulent leaves, white or glaucous from being covered with a meally powder; of easy culture and propagation in any common garden soil.

2. 1. A. HAllIMUS L. The Halimus Orache, or Tree Purslane.

Engravings. Park. Theatr., 1318. t. 2; Ger. Emac., p. 522. f. 1:1 and our fig. 1319.


The young branches are covered with a smooth white bark, which becomes grey, and peels off lengthwise, as the tree gets old. The branches are very brittle, and have but little pith. The leaves are soft, white, and silvery. It seldom flowers in Britain.

2. 2. A. PORTULACÖIDES L. The Purslane-like, or shrubby, Orache, or Sea Purslane.

The leaves are less silvery than those of the preceding species; and the whole plant much smaller.

**Genus III.**

**DIOTIS Schreb. The Diotis. Lin. Syst. Monac’cia Tetrándria.**


*Description.* From dis, twice, and con, éós, an ear. The calyx of the female flower ends in two segments, which fancy may compare to ears, although they more resemble horns: and this second idea is doubtless that referred to in Tournefort’s generic name Ceratóides, from keras, a horn, gen. keratos, and eidos, likeness.

**Gen. Char., &c.** Flowers unisexual.—Male flower with the calyx inferior, and 4 permanent petals. *Stamens* 4, inserted at the bottom of the calyx; opposite to, and prominent beyond, the sepals.—Female flower with the calyx inferior, deeply divided, and ending in two horns, permanent. *Fruit* a utricle, villous at the base.

*Leaves* simple, alternate, exstipulate, deciduous; lanceolate, entire, bearing hoary pubescence. *Flowers* in axillary groups, in leafy spikes, yellowish.—Shrub, deciduous, native of Siberia and Tartary, of easy culture in any dry soil; propagated by layers or cuttings inserted in the soil, and covered with a hand-glass.

1. D. Ceratóî’des W. The two-horned-calyced Diotis.


*Engravings.* Jacq. le. Iar., 1. t. 189.; and our fig. 1321.


---

**Order LVIII. POLYGONACÉÆ.**

*RD. Char.* Perianth divided; æstivation imbricate. *Stamens* definite, inserted in the base of the perianth. *Ovarium* free, 1-seeded. *Styles* or stigmas numerous. *Fruit* naked or covered. *Albumen* mealy.—The erect ovulum and superior radicle separate this order from Phytolácæ and Chenopódæ. (G. Don.)
Leaves simple, alternate, with cohesive stipules, deciduous or sub-evergreen; when young, rolled backwards. Flowers occasionally unsexual, often in racemes.—Low suffruticose shrubs, natives of the South of Europe and Asia, included in three genera, which are thus contradistinguished:—


GENUS I.


Derivation. Tragos, a goat, and peros, wheat. The 3-cornered fruits of such of the Polygonaceae as have them are comparable, with some allowance, to wheat; and goats may feed upon those of the Tragopyrum, or upon the shrubs themselves; or it may be that the name has been invented as one readily distinctive from the name Fagopyrum, now the name of a genus that includes the different kinds of buck-wheat.

Gen. Char., &c. Calyx inferior, with sepals that are imbricate in aestivation, permanent; the two exterior smaller, the three interior investing the fruit, which is an achenium, that is, 3-cornered in a transverse section of it. Stamens 8. Styles 3. (G. Don.)

Leaves simple, alternate, stipulate, deciduous or sub-evergreen; spathulate. Flowers in axillary racemes.—Shrubs, small, sub-evergreen, suffrutescent; natives of the South of Europe, Asia, and America; propagated by seeds or layers in dry soil.

The species are extremely interesting and beautiful little shrubs, and it is much to be regretted that they are so very seldom seen in collections. Though they require heath soil, and some little time to be firmly established, yet when once they are so, from their compact neat habit of growth, very little care will be necessary afterwards. They never can require much pruning; are quite hardy; and, provided the soil be not allowed to get too dry in the heat of summer, they are always certain of flowering freely.


Branches twiggy. Leaf with a frosty hue, spatulate-lanceolate, nearly 1 in. long, several times longer than broad; its edge obscurely indented. The petiole short. The calyxes are whitish, variegated with rose colour, and persistent; and of the 5 sepals to each flower, the 3 that invest the ovary

1329. T. lanceolatum.
after the flowering become more entirely rosy. The pedicels, erect while bearing the flower, after the flowering become deflexed, and render the fruit pendulous. The plant forms a hemispherical bush 2 or 3 feet high; which, during great part of July and August, is covered with its beautiful white flowers, tinged with pink; and forms a truly admirable object. It thrives best in peat soil, and is worthy of a prominent place in the most select collections of shrubs.

2. T. fuxifolium Bieb. The Box-leaved Goat-Wheat.

Engravings. Bot. Mag., t. 1665.; and our fig. 1323.


The leaves are of a light green colour, rather rounded in outline, about 1 in. in diameter, and deciduous. The flowers are produced in long racemes, are nodding and white. The fruit is enclosed by the 3 inner sepals, which become, as the fruit ripens, of a rosy colour.


Engravings. Vent. Cels., t. 65.; and our fig. 1324.


T. polygamum Spr. differs from T. lanceolatum Bieb., especially in the following points: stem very much branched; leaf spatulate; sexes polygamous; sepals expanded during the flowering; and ochreas entire at the top. The polygamous condition of the sexes consists in the flowers of the same plant being some bisexual, some female. In fig. 1324. a is a stamen, b the pistil, and e the bisexual flower.

T. maritima, a species from North America, was sent to the Horticultural Society by Mr. Douglas, in 1826.

Genus II.


Synonyms. A'tripex Tourn.; Strauchmelde, Ger.
Derivation. According to some, from a privative, and trepho, to nourish; in allusion to the fruit, which, though in form like that of the buck-wheat, is unfit for food; according to others, para to atheo's ascin, from its coming up quickly from seed, viz. on the eighth day.

Gen. Char., &c. Calyx inferior, of 4 leaves, in an outer smaller pair, and an x x 4
interior pair, the latter resembling petals; or 4-parted, with the lobes equal. Stamens 6. Stigmas 2, in one species; style bifid, in the other. Fruit compressed, in one species; roundish, in the other. (G. Don.)

Leaves simple, alternate, stipulate, sub-evergreen; small, more or less ovate. Flowers terminal, white, tinged with pink. — Shrubs, spinose, low, decumbent; natives of the South of Europe. Culture as in Tragopogon.

1. A. spino'sa L. The spine-branched Atraphaxis.

2. A. undula'ta L. The waved-leaved Atraphaxis.

**Genus III.**

**CALLIGONUM L. The CALLIGONUM.** *Lin. Syst. Dodecandria Tetragy尼亚.*

**Gen. Char., &c.** Calyx inferior, persistent, turbinate in the lower part, ending upwards in a 5-parted spreading border; the two outer lobes rather smaller. Stamens about 16; the filaments slightly united at the base, and then diverging. Anthers peltate. Gynoecum 4-sided, acuminate. Styles 4 or 3. Stigmas capitate. Fruit an acheneum, that has 4 sides and 4 wings. (G. Don.)


1. C. Palla'sia L’Hér. Pallas’s Calligonum.

**Spec. Char., &c.** Fruit winged; wings membranous, curled, and toothed.
Order LIX. LAURACEAE.

**LAU'RUS L. THE LAUREL, or BAY, TREE.** Lin. Syst. Enneàndria Monogynia.

**Identification.** Lin. Gen., No. 503., in part.

**Synonymy.** Æsopfras and Benzsin; C. G. Von Esenbeck; Daphné, Greek; Laurier, Fr.; Lorbeer, Ger.

**Derivation.** From laus, praise; in reference to the ancient custom of crowning the Roman conquerors with laurel in their triumphal processions. There appears some doubt of the Laurus nobilis being the Laurus of the Romans, and the Daphné of the Greeks. (See Daphne.)

**Gen. Char., &c.** Sexes polygamous or dioecious. **Calyx** with 6 sepals. **Stamens** 9; 6 exterior, 3 interior, and each of them having a pair of gland-like bodies attached to its base. These last have been deemed imperfect stamens. **Anthers** adnate; of 2 cells in most of the species, of 4 unequal ones in the others: each cell is closed by a vertical valve that opens elastically, and often carries up the pollen in a mass. **Fruit** a carpel, pulpy externally and including one seed. **Cotyledons** eccentrically peltate. (Wild.)

**Leaves** simple, alternate, exstipulate, deciduous or evergreen; entire or lobed. **Flowers** in small conglomerate umbels or bracteate racemes. — Shrubs or low trees, deciduous or evergreen; natives of the South of Europe, North of Africa, and America. Propagated by seeds or layers.

**A. Leaves evergreen.**

*1. L. n°bilis L. The noble Laurel, or Sweet Bay.*


**Spec. Char., &c.** Evergreen. **Flowers** 4-cleft. **Sexes dioecious.** **Leaves**
lanceolate, veiny. \textit{(Willd.)} An evergreen low tree or large shrub. Italy, Greece, and North of Africa. Height 30 ft. to 60 ft. Introduced in 1562, or before. Flowers white or yellow; April and May. Berry very dark purple; ripe in October.

\textit{Varieties.}

\begin{itemize}
  \item L. \textit{n. 2 undulata} Mill.—A low shrub, seldom growing higher than 4 or 6 feet, with leaves waved on the edges, which is stated in the \textit{Nouveau Du Hamel} to be harder than the species.
  \item L. \textit{n. 3 salicifolia} Swt. L. \textit{n. angustifolia} Lodd. Cat.—A shrub, rather higher than the preceding variety, with long narrow leaves, not so thick as those of the species, and of a lighter green.
  \item L. \textit{n. 4 variegata} Swt. L. \textit{n. fol. var. Lodd. Cat.}—Leaves variegated.
  \item L. \textit{n. 5 latifolia} Mill.—Leaves much broader and smoother than those of the species. This is the broad-leaved bay of Asia, Spain, and Italy, and it is generally considered as too tender for the open air in England.
  \item L. \textit{n. 6 crispa} Lodd. Cat.—Leaves somewhat curled.
  \item L. \textit{n. 7 flore pleno} N. Du Ham.—Flowers double.
\end{itemize}

An evergreen tree, or rather enormous shrub, sometimes growing to the height of 60 ft., but always displaying a tendency to throw up suckers; and rarely assuming a tree-like character. The leaves are evergreen, and of a firm texture; they have an agreeable smell, and an aromatic, subacrid, slightly bitterish taste. The plant requires a good free soil, and it will not thrive in the open air, in a climate much colder than that of the environs of London. It is generally propagated by layers; but, as the berries are ripened in the South of England, and can be had in abundance from France, the species is very
generally increased from seeds, and the varieties only raised from layers or cuttings.

† 2. L. carolinensis Catesb. The Carolina Laurel, or Red Bay.


Engravings. Catesb. Car., t. 63 ; Michx. N. Amer. Syl. 2. t. 82 ; N. Du Ham., 2. t. 33 ; and our fig. 1330. after Michaux, and fig. 1331. after Du Hamel.


Varieties.

1. L. c. 2 glabra Pursh. — Leaves slightly glabrous.
2. L. c. 3 pubescens Pursh. — Leaves slightly pubescent.
3. L. c. 4 obtusa Pursh. — Leaves ovate-obtuse.

Only suitable for warm or sheltered situations, or for being placed against a conservative wall.

† 3. L. CateSBA'NA Michx. Catesby's Laurel, or Red Bay.


Engravings. Catesb. Car., t. 28 ; and our fig. 1332.


We are uncertain as to the hardiness of this species, not having seen living plants, except in the green-house of the Jardin des Plantes.

B Leaves deciduous.

† 4. L. Sa'SSAFRAS L. The Sassafras Laurel, or Sassafras Tree.


The sassafras tree often grows, even in England, to the same height as in America. The leaves, which vary very much in size and shape, are covered, when they first appear, with a soft woolly down; they are generally deeply lobed, on long footstalks, and of a pale green; they fall off early in autumn of

an intense red and yellow. Any free soil, rather moist than dry, will suit this species, which is generally propagated from imported seeds. These should be sown, or put in a rot-heap, as soon as received, as they remain a year, and sometimes two or three years, in the ground, before they come up. It may also be propagated by cuttings of the roots, or by suckers, which the roots of
old trees throw up in great abundance. The situation where the tree is finally planted should be sheltered; and, in the North of England and in Scotland, to insure fine foliage, it should be planted against a wall.

§ 5. L. BENOZIN I. The Benzoin Laurel, or Benjamin Tree.


Spec. Char., &c. Leaves cuneate-obovate, entire, the under side whitish and partly pubescent, deciduous. Sexes polygamous. Flowers in umbels. Buds and pedicels of the umbels glabrous. Leaves without nerves, ovate, acute at both ends. (Willd.)

A deciduous shrub. Virginia. Height 10 ft. to 12 ft. Introduced in 1688. Flowers yellowish green; March and April. Berries scarlet; seldom or never seen on the plants in England.

In British gardens, it forms a rather tender peat-earth shrub, handsome from its large leaves, but seldom thriving, except where the soil is kept moist and the situation sheltered. It is propagated from imported seeds, which require to be treated like those of Laurus Sassafras; by layers; or, with difficulty, by cuttings.

§ 6. L. (B.) DIOSPYRUS Pers. The Diospyrus-like Laurel, or Bay.


Engravings. Bot. Mag., t. 1470.; and our fig. 1335.

Spec. Char., &c. Habit low, succulose, twiggy. Leaves oblong-oval, and entire, the under side veiny and pubescent, deciduous. Flower buds and pedicels villous. Sexes dioecious. (Nutt.)


Leaves opaque, oblong-oval, attenuated towards the base, entire, the under side veiny and pubescent, deciduous. Scales of the buds purple, villous. Younger branches villous. This species so closely resembles L. Benzoin, as to leave no doubt in our mind that it is only a variety of it.

§ 7. L. GENICULA'TA Michx. The knee-flexed-branched Laurel, or Bay.


Engravings. Bot. Mag., t. 1471.; and our fig. 1336.

Spec. Char., &c. Branches divaricate and flexuous. Leaves cuneate-oblong, mostly obtuse, about ½ in. long, in many instances less than half an inch wide, entire, glabrous, except upon the under side near the base. Flowers
in terminal small umbels, that are upon conspicuous footstalks and smooth. Anthers unequally 4-celled. Sexes polygamous. (Nutt.) A deciduous shrub, with the branches flexuous, grey, smooth, and so remarkably divaricated as to give a characteristic appearance to the ponds which they border. Virginia to Florida, in sandy swamps, and on the margins of lagoons. Height 8 ft. to 12 ft. Introduced in 1759. Flowers yellow; April and May. Berries globose, scarlet; rarely seen in England.

Order LX. Thymelaceae.

Ord. Char. Perianth tubular, coloured, 4—5-cleft, often furnished with scales in the throat. Stamens usually 8, sometimes 4, rarely 2, inserted in the throat of the perianth. Ovarium superior, 1-seeded. Stigma undivided. Fruit nucamentaceous or drupaceous. Albumen thin, fleshy, or none. (G. Don.)

Leaves simple, alternate, exstipulate, deciduous or evergreen; entire, coriaceous. Flowers terminal or axillary, showy, fragrant.—Shrubs or subshrubs; natives of Europe, Asia, and America; propagated by seeds, layers, or grafting. The genera are two, which are thus contradistinguished:

**Da'phne** L. Calyx 4-parted. Stigma capitate. Fruit pulpy,

**Dir'ca** L. Calyx 4-toothed. Stigma pointed. Fruit dry.

**Genus I.**

**Da'phne** L. **The Daphne.** Lin. Syst. Octandria Monogynia.


*Derivation.* Daphne is considered by some botanists to have been the Greek name of the Ribes racemosus, or Alexandrian laurel, into which it is said that Daphne was changed. "Why the name has been applied to the shrubs now called Daphne, it is not easy to say." (Lindl. Bot. Reg., t. 117.) It is stated in Rees’s *Cyclopaedia*, under Laurus, that L. nobilis "is certainly the Daphne of Dioscorides, and consequently the classical laurel. It is still called by the same name among the modern Greeks;" this is also the popular belief. (See St. Pierre’s *Etudes de la Nature*, Lempiere’s *Class. Dict., &c. &c.*) Supposing the Daphne to have been the Laurus nobilis, or bay tree, it is easy to account for its being applied to this genus, the *D. Mezereum* being formerly called the dwarf bay in England; and nearly all the species retaining the names of laurel and laureola in France and Italy.

*Gen. Chr.* Calyx inferior, somewhat salver-shaped; in most, of some other colour than that of the leaves, and, from its shape and colour, resembling a corolla; segments of its limb 4, deep, ovate, or oblong, imbricate in aestivation. Stamens 8, in two rows; the filaments with but a short part distinct from the tube of the calyx; the anthers not prominent beyond it. Ovary solitary. Style very short. Stigma capitate. Fruit an ovate carpel, pulpy externally. Seed 1. (Wild.)

Leaves simple, in most alternate; if not alternate, opposite, exstipulate, deciduous; entire. Flowers terminal or axillary, mostly in groups, highly fragrant.—Undershubs, evergreen and deciduous; natives chiefly of Europe, but partly also of the cooler parts of Asia, including Japan and China. The odour of some of the species is very agreeable. They are all beautiful, and rather difficult to propagate, except by seeds, or grafting on *D. Laurèola*. They thrive best in heath soil.
A. Leaves deciduous.

1 D. MEZE'REUM L. The Mezereon Daphne, or common Mezereon.


Synonyms. Spurge Olive, Sourze Flux; Flowering Spurge, Parthia; Dwarf Bar, Gerard; Laureola femelle, Bois gentil, Mezeron, Bois joli, Fr.; gemeiner Seidelbast, or Kellerbalz, Ger.; Peperachtige Daphne, Dutch; Laureola femina, Blondella, Camelia, Ital.; Laureola hem-sca, Span.

Derivation. Mezereum and Mezereon are said to be derived from madzaryon, the Persian name for this shrub.


Spec. Char., &c. Leaves lanceolate, deciduous. Flowers distributed over the branches in threes mostly, and in pairs and fours, expanded before the leaves are protruded. (Willd.) A low, fastigate, deciduous shrub. North of Europe, in woods; and in the South and West of England, but rare. Height 3 ft. to 4 ft. Flowers red; February, March, or April. Berries red; ripe in August or September.

Varieties.

2. D. M. 2 flore albo. — Flowers white, and fruit yellow.

3. D. M. 3 autunnale. — Habit spreading; also with larger leaves than the species, and producing its flowers in autumn. A most desirable shrub, being commonly covered with its gay pinkish blossoms from November to March.

The whole shrub is poisonous to human beings, though the berries are favourite food for finches and other birds, more especially the robin. It is of easy culture, and generally propagated by seeds; which, if suffered to get dry before they are sown, will remain two years in the soil; but which, if sown in autumn immediately after gathering them, generally come up the following spring. The best time for transplanting this shrub is in October, as it begins to vegetate very soon after Christmas. It thrives most in a loamy soil, and in an open situation; and, when it is properly treated, and has room, it will in 8 or 10 years form a bush 5 or 6 feet high, and 7 or 8 feet in diameter. The white variety is commonly selected from seedlings, after they have come into flower; or the seeds from white-flowered plants are sown, which are generally found to come true.


Synonyms. Daphné altaïque, Laureole de Tartarie, Fr.; Siberischer Seidelbast, Ger.


Spec. Char., &c. Leaves obovate-lanceolate, glabrous. Flowers sessile, in terminal umbels, about 5 in an umbel. Bark reddish brown in colour. Leaves oblong, broader towards the upper extremity, and narrowed downwards, of a somewhat glaucous and yellowish green, the latter colour prevailing most while they are young. Lobes of the calyx revolute. (Sims.) A low deciduous shrub. Altaic Alps, in Siberia. Height 1 ft. to 3 ft. Introduced in 1796. Flowers white, scentless; April and May. Berries red; ripe in September.


*Engravings.* Bot. Cab., t. 66.; and our fig. 1329.


Quite hardy, and very suitable for rockwork; as the roots fix themselves deeply into the crevices of the rocks.


4. *D. laureola* L. The Laureola Daphne, or Spurge Laurel.


*Synonyms.* Daphnae vera, vel Laureola, Genn. fasc. 1. 7. t. 6. 9.; Laureola Bait s. a. 465., Ger. Em. 1404.; Thymela'a Lauréola Scop. Carn. 2. n. 463.; the evergreen Daphne; Laureole male, Laureoë des Anglais, Fr.; immergrüner Seidellast, Ger.; Cavalo di Lupo, Ital.


*Spec. Char., &c.* Evergreen. Leaves obovate-lanceolate, smooth. Flowers in axillary, simple, drooping clusters, that are shorter than the leaves: flowers in each about 5. Calyx obtuse. (*Smith.*) A low, bushy, evergreen shrub. Britain, and most other parts of Europe, in woods. Height 3 ft. to 4 ft. Flowers yellowish green; January to March. Berries oval, green first, changing to black; ripe in September.

Though not showy in its flowers, it is a valuable plant for a shrubbery, from its being evergreen, and from its thick, glossy, shining leaves. It thrives best in the shade, and will flourish in situations under the drip of trees, where few other plants would grow. If exposed to the sun, the leaves turn back with a kind of twist; and, instead of their natural pure deep green, they assume a brownish tinge. The berries are a favourite food of singing-birds: though, as Decandolle observes in the *Flore Française*, they are poisonous to all other animals. The spurge laurel is propagated by seeds, like the mezereon; but, as they will remain two years in the ground before they vegetate, they are generally treated like haws, and kept for some time in the rottimg-heap. It may also be propagated by cuttings; but not readily. It is much used in nurseries, as a stock on which to graft the more tender species of the genus; but as, like all the other daphnes, it has few roots, it requires to be transplanted with care.

5. *D. pontica* L. The Pontic Daphne, or twin-flowered Spurge Laurel.


*Engravings.* Bot. Mag., t. 1282.; and our fig. 1341.

*Spec. Char., &c.* Leaves obovate-lanceolate, glabrous. Flowers bracteas, glabrous, in many-flowered upright clusters, each of the long partial stalks of which bears two flowers. Lobes of the calyx lanceolate, long. (*Sprang.*) A low, spreading, branchy, evergreen shrub. Asia Minor. Height 4 ft. to 5 ft. Introduced 1759. Flowers greenish yellow; April and May. Berries?
Varities.

- D. p. 2 ribra Hort. — Flowers red. Supposed to be a hybrid, and rather more tender than the species.

- D. p. 3folis variegatis Lodd. Cat. 1836. — Leaves variegated.

The whole plant, in general appearance, strongly resembles the common spurge laurel: but the leaves are more oval, and shorter; and the flowers, which are disposed in twos instead of fives, are yellower, and of a sweeter scent. The leaves somewhat resemble those of the lemon tree, especially in colour; whence Tournefort’s trivial name. When bruised, they smell like those of the elder. It thrives best in soil similar to that usually prepared for American plants, on the shady side of a wall, or in some other sheltered situation.


Derivation. Thymelæ’a is probably derived from thymois, poison, and clada. or clora, the olive tree, in reference to the poisonous qualities of the plant, and its slight resemblance to the olive.

Engravings. Ger. Prov., t. 17. f. 2.; Pink. Alm., t. 229. f. 2.; and our fig. 1342.


The plant requires a situation warm and dry; and to be grown in sandy peat, kept in an equable degree of moisture.

7. D. TARTON-RAT’RA L. The Tarton-raira, or silver-leaved, Daphne.


Synonymes. Thymelæ’a folis candidantibus et serici instar mol- libus Bunt. Pin. 463.; Tarton-Raire Gallo-provincieà Menschel- lostum Lob. 171. t. 221.; Sanaminda argentata latifolia Barr. 1c. 221.; Passerina Tarton-raira Schrad.; the oval-leaved Daphne; Lauréole blanche, Fr.; Silberhüttriger Seidelbast, Ger.

Engravings. Fl. Greca, t. 534.; and our fig. 1343.


Remarkable for the smallness and silkiness of its leaves, and the white appearance of the whole plant; its branches are weak, irregular, and scarcely ligneous; it requires a warm dry situation, exposed to the sun, and is therefore very suitable for rockwork.


Synonymes. Thymelæ’a Ælica, Tarton-raire Gallo-provincieà similis, sed per omnà major, Micheli, cited in Tilli Cat. Hort. Pisani; behaarter Seidelbast, Ger.

1341. D. pubescens.
Spec. Char., &c. Stems pubescent, simple. Leaves linear-lanceolate, almost mucronate, alternate, nearly deciduous. Flowers axillary; 5, or fewer, in an axil; sessile, narrow, shorter than the leaf; the tube thread-shaped and downy. It seems different from D. Thymulae, and was found in Austria by Jacquin. (Willd.) Introduced in 1810.


Engravings. Our fig. 1345, from a specimen in the Lambertian herbarium.

Spec. Char., &c. Flowers sessile, axillary. Leaves oblong-obtuse, covered with tomentum on both sides. (Lam.) A low shrub, very nearly allied to D. Tárton-raíva, but larger in all its parts, and with more obtuse leaves, which are covered with tomentum, instead of a silky down. Asia Minor and the Levant. Height 2 ft. to 3 ft. Introd. 1500. Flowers white; May. Berries?

C. Erect. Leaves persistent. Flowers terminal.


Engravings. Fl. Graeca, t. 339; Bot. Cab., t. 1348; and our fig. 1347.

Spec. Char., &c. Leaves ovovate, glabrous and glossy above, and hirsutely villous beneath. Flowers in terminal groups. Calyx externally silky villous; its lobes ovate, obtuse. (Wikström.) An upright, low, evergreen shrub. On low hills, and on the banks of rivers, in the South of Italy. Height 2 ft. to 3 ft. Introduced in 1752. Flowers pinkish; January to June. Berries?

Variety.

2 neapolitana Lindl. D. neapolitana

Lodd. Bot. Cab. t. 710, and our fig. 1316. Differences from the species chiefly in the want of pubescence on the under surface of the leaves. A very pretty plant originated in a sport from the species, and in cultivation since 1822. Much admired for the fragrance of its purple and white flowers during winter.

Grafted plants, grown in a border sheltered from the north by a wall, thrive well; and form thick bushes, with nearly level heads, covered with flowers.


Spec. Char., &c. Leaves ovovate-lanceolate, terminated with a minute mucro, glabrous upon both sides. Flowers terminal, sessile, a few together, and surrounded by leaves that in some measure involucrate them. (Bot. Mag.)
A low evergreen shrub. Crete. Height 2 ft. Introd. 1818. Flowers white during the greater part of the year.

It is less showy in its flowers than \textit{D. collina}; but is deserving of cultivation from its nearly glossy and pointed leaves, and neat habit of growth.

\textbf{12. \textit{D. (c.) servicia} Vahl.} The silky-leaved Daphne.


\textbf{Synonymes.} \textit{Thymelae}a \textit{crica} \textit{olea} \textit{folio} \textit{subtus} \textit{villoso} \textit{Tourn.} \textit{Cor.}, 41.; \textit{Daphne} \textit{oleifolia} Lam. \textit{Encycl.} 3. p. 424.; \textit{Seidenartiger \textit{Seidelbast}}, Ger.

\textbf{Engravings.} Our fig. 1319. from a specimen in the Lambertian herbarium.

\textbf{Spec. Char.}, \&c. Leaves lanceolate, blunting, glabrous above, villous beneath. Flowers terminal, aggregate, villous, sessile. Lobes of the calyx obtuse. It differs from \textit{D. (c.) oleoides} in its leaves being villous beneath, in the number of its flowers, and in the lobes of the calyx being oblone. (Willd.) A low evergreen shrub. Candia and Naples. Height 1 ft. to 2 ft. Introduced in 1820; but we have not seen the plant.

\textbf{13. \textit{D. striata} Trat.} The striated-calyxed Daphne.


\textbf{Engravings.} Our fig. 1350. from a specimen in Dr. Lindley's herbarium.

\textbf{Spec. Char.}, \&c. Leaves subspathulate-linear, sessile, tipped with a small mucro, glabrous. Flowers terminal, aggregate, sessile, glabrous, striated. Lobes of the calyx acute. (Spreng.) A low evergreen shrub. Switzerland and Hungary. This plant is said to have been introduced in 1819, and to have purplish flowers; but we have never seen it.


\textbf{Engravings.} Bot. Cab., t. 160.; and our fig. 1351.


\textbf{15. \textit{D. Cneorum} L.} The Garland-flower, or trailing, Daphne.


\textbf{Spec. Char.}, \&c. Evergreen. Stems trailing. Leaves lanceolate, glabrous, mucronate. It flowers twice a year. The flowers are terminal, aggregate, sessile, red upon the upper side, and the groups of them are surrounded by leaves. (Willd.) A trailing evergreen shrub. Switzerland, Hungary, the

**Varieties.**
1. D. C. 2 foliis variegatis. — The leaves have a narrow portion of yellow at the edges.

The prettiest species of the genus, more especially when grafted 1 or 1 1/2 foot high on *D. Lauréola*. It is also valuable for rockwork, and growing in pots, on account of its dwarf habit, and the beauty and delightful fragrance of its flowers. For ordinary purposes it is propagated by layers, and it thrives best in peat soil kept rather moist.

**Genus II.**


**Synonyme.** Thymel'a Gron. Virg. 155.

**Derivation.** From dirké, a fountain; the plant growing in watery places.

**Gen. Char.** Calyx inferior, funnel-shaped, ending in 4—5 unequal teeth, pale yellow, resembling a corolla. Stamenis 5. Styles thread-shaped. Stigma a simple point. Fruit a dry carpel. (Willd.)

**Leaves** simple, alternate, exstipulate, deciduous; coriaceous. Flowers terminal, appearing before the leaves, yellowish. — A shrub of a yellow aspect, and with the habit of a miniature tree; native of Virginia. Peat soil kept moist; and it is readily propagated by imported seeds, or by layers.

**as 1. D. palustris L.** The Marsh Dirca, or Leather-wood.


**Synonyme.** Moorwood; Bois de Cuir, Bois de Plomb, Fr.; Sumpf Lederholz, Ger.


**Spec. Char., &c.** Leaves lanceolate, oblong, alternate, pale green, villous beneath, and deciduous. (Willd.) A low deciduous branchy shrub, with the habit of a miniature tree. Virginia. Height 3 ft. to 4 ft. Introduced in 1750, and common in collections of peat-earth shrubs. Flowers yellow; March.

The whole plant has a yellow aspect, and the flowers are of a brighter yellow than the leaves, without the admixture or contrast of any other colour; thus producing a monotonous appearance rare among plants. The flowers are produced while the plant is leafless, and, in England, they are seldom, if ever, followed by seeds. The bud of the shoot of the same year is enclosed in the bud of the inflorescence. The young plants are very liable to be eaten by snails Propagated by layers, which require two years to root properly, or by American seeds.
Order LXI. SANTALACEÆ.


Leaves simple, alternate, exstipulate, deciduous; entire. Flowers in corums, pedunculate.—Trees or shrubs, deciduous; natives of North America and the South of Europe; propagated by seeds. The hardy species are two, which are thus contradistinguished:

Nyssâ L. Flowers polygamous. Stamens 5.
Osiris L. Flowers dioecious. Stamens 3.

Genus I.

Nyssâ L. The Nyssâ, or Tupelo Tree. Lin. Syst. Polygâmia Dicicâ; or, according to Smith in Rees's Cyclopædia, Decandria Monogâmia.

Description. From Nyssâ, a water nymph so called; a name given to this plant by Linnaeus, because "it grows in the waters." (Hort. Cuf.) Tupelo appears to be an aboriginal name.

Gen. Char. Flowers bisexual and male, upon distinct plants, and apetalous.

Leaves simple, alternate, exstipulate, deciduous; oblong or lanceolate, entire. Flowers axillary, peduncled, greenish white. Fruit red, or blackish purple.—Trees, deciduous; natives of North America; requiring moist soil.

Several sorts have been described by botanists, preferably all referable to two, or at most three, species, viz. N. biflora, N. candicans, and N. tomentosa, the last two being very nearly allied. The trees which have flourished in England have, as far as we are aware, only produced male blossoms; but, to compensate for the want of fruit, the foliage of all the species of the genus dies off of an intensely deep scarlet. The different sorts are almost always raised from American seeds.

† I. N. Biflora Michx. The twin-flowered Nyssâ, or Tupelo Tree.


Spec. Char. &,c. Leaves ovate-oblong, entire, acute at both ends, glabrous. Female flowers two upon a peduncle. Drupe short, obovate; nut striated. (Michx.) A deciduous tree. Virginia and Carolina, in watery places. Height 40 ft. to 45 ft. Introduced in 1739. Flowers greenish; April and May. Fruit black, about the size of a pea, never seen in England.

In British gardens it does not appear that much pains have ever been taken to encourage the growth
of this or any other species of *Nyssa*; for though there are abundance of plants to be procured in the nurseries, yet there are very few of a tree-like size to be seen in pleasure-grounds. To insure the prosperity of the tree, it ought always to be planted in moist peat, or near water.

\* 2. N. (b.) **villo'sa** Michx. The hairy-leaved *Nyssa*, or Tupelo Tree.


**Synonyms.** N. sylvatica Michx. **N.** Amer. Syl. 3. p. 33.; N. multiflora *Wangen* Amer. 46. t. 16.; f. 39.; N. montana Hort.; N. peduncula multirrhic *Grown. Virg.*, 121.; Sour Gum Tree, Black Gum, Yellow Gum, *Amer.*; haariger Tulpelobaum, Ger.

**Engravings.** Michx. N. Amer. Syl., 3. t. 110.; and our figs. 1356. and 1357.

**Spec. Char., &c.** Leaves oblong, entire, acute at both ends; with the petiole, midrib, and edge villous. Female flowers about three upon a peduncle. Peduncle of female flowers long, and for the most part two-flowered. Nut small, ovate, obtuse, striated. (Michx.) A deciduous tree. Carolina to Georgia. Height 60 ft. to 70 ft.; in England 10 ft. to 15 ft. Introduced in 1824, and occasionally met with in collections. Flowers greenish; April and May. Fruit black, as in the preceding kind.

\* 3. N. (b.) **candicans** Michx. The whitish-leaved *Nyssa*, or Ogechee Lime Tree.


**Engravings.** Michx. N. Amer. Syl., 3. t. 113.; and our fig. 1338

**Spec. Char., &c.** Leaf with the petiole very short, and the disk oblong, wedge-shaped at the base, nearly entire, whitish on the under surface. Female flowers one upon a peduncle. It varies, with its leaves obovate, entire, or rarely subdentate. The male flowers are grouped into little heads. The bracteas attending the female flowers are short; the calyx of these flowers is membranous; its lobes are short. The drupe is oblong. (Michx.) A deciduous tree. Carolina, on the banks of rivers, particularly the Ogechee. Height 30 ft. Introduced in 1806. Flowers greenish yellow; April and May. Fruit dark blue; ripe in September.

\* 4. N. (b.) **grandidenta'ta** Michx. The deeply-toothed-leaved *Nyssa*, or Large Tupelo Tree.


**Engravings.** Catesb. Car. 1. t. 60.; Michx. N. Amer. Sylva, 3. t. 112.; and our fig. 1359., and fig. 1360, showing the nut.

**Spec. Char., &c.** Leaf with a long petiole and a disk that is oblong, acuminate, distantly serrate, and invariably toothed with a large pointed tooth. Female...
flowers one upon a peduncle. Bracteas rather longer than the ovary. Lobes of the calyx wedge-shaped. Drupe oblong. (Michel.) A deciduous tree. South Carolina and Georgia. Height 70 ft. to 50 ft.; in England 10 ft. to 12 ft. Introduced in 1735. Flowers greenish; April and May. Fruit dark blue; ripe in September.

**Genus II.**

**OSYRIS L. THE OSYRIS, or POET'S CASIA. Lin. Syst. Dioecia Triandria.**


**Synonyme.** Casia Caner., Lob., Alpin., Gesn.

**Derivation.** The Osyris of Pliny and Dioscorides is so named from ozos, a branch; from the length and pliability of the branches.

**Gen. Char.** Flowers apetalous, unisexual, at least in effect; those of the two sexes upon distinct plants. — Male. Flowers borne in lateral racemes, about 3—5 in a raceme, and disposed in 1—2 pairs, with a terminal odd one. Calyx spreadingly bell-shaped, 3-parted; its aestivation valvate. Nectary disk-like, 3-cornered. Stamens 3, arising from the nectary, alternate to its angles, and opposite to the lobes of the calyx. Anthers of 2 separate lobes that open inwards. — Female. Flowers solitary. Calyx urceolate; its tube connate with the ovary; its limb free, 3-cleft. Style single. Stigmas 3. Fruit globose, fleshy, exteriorly crowned by the limb of the calyx, and the remains of the style. Carpel with crustaceous brittle walls. (Wild.)

Leaves simple, alternate, exstipulate, deciduous or sub-evergreen; entire, small, linear lanceolate. Flowers white, peduncled. — Shrub, deciduous or sub-evergreen; native of South of Europe.

1. O. A'LB A L. The white-flowered Osyris, or Poet's Casia.


**Engravings.** Lam. Ill., t. 502.; and our fig. 1351.

**Spec. Char., &c.** Stem roundish, striated. Leaves alternate, linear-lanceolate, 1 in. long, entire, glabrous. Flowers upon the branchlets, peduncled. (Wild.) A low, spreading, deciduous or sub-evergreen shrub. Italy, Spain, Montpelier, and Carniola. Height 3 ft. to 4 ft. Introduced in 1793. Flowers white; July and August. Drupe red, about the size of a pea.

The long supple branches of this shrub were formerly used or brushes, and they are still used in making crates, or packing-cases, in the South of Europe. Propagated by seeds, and grown in dry soil, but somewhat difficult to preserve.

**Order LXII. ELEAGNA'CEÆ.**

**RD. Char.** Perianth tubular, entire, 2—4-lobed, persistent. Stamens 3—4 to 8, alternating with the segments. Anthers nearly sessile, introrse. Ovarium free, 1-celled, 1-seeded. Style short. Stigma simple, subulate, glandular, or tongue-shaped. Fruit enclosed in the pulpy, persistent, enlarged tube of the perianth. Albumen thin or fleshy. (G. Don.)

Leaves simple, alternate or opposite, exstipulate, deciduous; oblong or lanceolate, entire. Flowers axillary. — Shrubs or low trees, deciduous;
natives of Europe, Asia, and North America; propagated by seeds, or cuttings of the roots, in dry soil. The genera are three, which are thus contradistinguished:

**Shepherdia** Nutt. Flowers dioecious. Calyx 4-cleft. Stamens 5.

**Genus I.**


**Identification.** Tourn. Cor., 51.; N. Du Ham., 2. p. 87.

**Synonymes.** Chalef, Fr.; Wilde Oelbaum, Ger.; Eleagn, Ital.

**Derivation.** "The elaeagnus of Theophrastus was a plant with hoary leaves, growing in marshy places in Arcadia, and was probably a species of Malix, although certainly not S. babylonica, as Sprungel has stated it to be. It was named from its resemblance to the *elaios*, or olive, from which it differed in not bearing fruit. Dioscorides writes *elaeagros*, which means the wild olive; and some botanists have adopted this reading, which is most likely the true one. The plants to which the name Elaeagnus is now applied are also something like the olive. The French call the Elaeagnus, chalef, a slight alteration according to Gallus, of *khalef*, the Arabic name of the willow; but more probably of *kahaf*, the Persian name of the Elaeagnus itself." (Lindley in Bot. Reg., t. 1156.) Oleaster is a Latin word, which is interpreted a wild olive tree; and perhaps it is derived from olea, an olive tree, and instar, likeness.

**Gen. Char., &c.** Flowers some bisexual, some male only; both kinds on one plant. — **Bisexual flower.** Calyx resembling, internally, a corolla, tubular below, bell-shaped above, with a slightly spreading lobed deciduous limb. Lobes mostly 4; the tubular part includes the ovary and part of the style, and bears at its mouth a conical crown, through which the style passes. **Stamen** long. **Stigma** clavate, or coiled. **Stamens** arising from the bottom of the bell-shaped part, shorter than it, alternate with its lobes; the filaments adnate to it, except at their tip. **Ovary** oblong. **Fruit** an acheneum — **Male flower.** Calyx resembling, internally, a corolla, bell-shaped, with a limb of 4—6—8 lobes. **Stamens** of the number of the lobes, otherwise as in the bisexual flower. (G. Don.)

**Leaves** simple, alternate, exstipulate, deciduous; bearing, as does the bark of growing shoots, scales or stars of hairs. **Flowers** axillary, pedicelled. **Fruit,** in some, edible. — **Shrubs or low trees,** deciduous; natives of Europe, Asia, and North America; which grow freely in any soil tolerably dry, and are readily propagated by seeds, layers, or cuttings.

**† 1. E. Hortensis** Bieb. The Garden Elaeagnus, Oleaster, or Wild Olive Tree.


**Engavering.** N. Du Ham., t. 2; 85.; Bot. Reg., t. 1156.; the plate in Arb. Brit., 1st edit., vol. viii.; and our figs. 1592. and 1593.

**Spec. Char., &c.** Leaves lanceolate, hoary all over, as are the shoots of the current year, with stars of hairs of a hoary colour. Branches brown and smooth, more or less spiny. Leaves 2 in. to 3 in. long; upon the upper surface whitish green, and upon the under one very hoary. Flowers 2 or 3 together, axillary, upon short peduncles, fragrant: bisexual flowers 4-cleft, interior of a pale yellow; male ones 5— or more cleft, interior of a golden yellow. Both are furnished on the exterior with stars of hairs, like the under surface of the leaves. A large deciduous shrub or low tree. South of Europe, in Bohemia, France, Spain, the Levant, Tartary, and various parts of Asiatic Russia. Height 15 ft. to 20 ft. Introduced in 1633. Flowers pale yellow, fragrant; May. Fruit red brown colour, something like a date; ripe in October.
Varieties.

♀ E. h. 1 angustifolia Bibl. E. angustifolia L. (fig. 1362.) — Leaves lanceolate, shining. Fruit insipid. This is the most common sort in British gardens.

♀ E. h. 2 dactyloïformis. — Leaves lanceolate, shining. Fruit date-shaped, edible.

♀ E. h. 3 orientalis. E. orientalis L. (Pall. Fl. Ross., i. t. 5.; and our fig. 1363.) — Branches not spiny. Fruit date-shaped, edible; almost as large as that of a jujube, and used in the desert in Persia, where it is called zinzeyd. The flowers are more fragrant than those of E. h. angustifolia. Horticultural Society’s Garden.


The silvery whiteness of the foliage of this tree renders it a most conspicuous object in plantations; and hence, in any landscape where it is wished to attract the eye to a particular point, it may be usefully employed.

♀ 2. E. argentea Fl. The silvery-leaved Elaeagnus, or Wild Olive Tree.


Engraving. Our fig. 1364, from a dried specimen, which Mr. Shepherd of the Liverpool Botanic Garden received from Mr. Nuttall.

Spec. Char., &c. Not spiny. Leaves waved, oval-oblong, rather acute, glabrous on both surfaces, and covered with silvery scales. Flowers aggregate, nodding. Sexes apparently dioecious. Fruit roundish-ovate, about the size of a small cherry, cartilaginous, covered with silvery scales, having 8 grooves; the flesh dry, farinaceous, edible; the nucule subcylindric, its exterior part consisting of a tenacious woolly integument. A bushy deciduous shrub or low tree. Hudson’s Bay; and found on the argillaceous broken banks of the Missouri, near Fort Mandan. Height 8 ft. to 13 ft. Introduced in 1813. Flowers yellow; July and August.

♀ 364. E. argentea. According to Pursh, Shephérdia argentea Nutt. resembles the Elaeagnus argentea Pursh so much, without the fruit, that, in this state, one might easily be mistaken for the other.

♀ 4. E. salicifolia ? D. Don (fig. 1366.) is a species apparently very distinct, and tolerably hardy, of which we have only seen one plant about 3 ft. high, in the arboretum at Kew. It promises to be a most valuable addition to our nearly hardy shrubs.

♀ Elaeagnus conferta Hort., and our fig. 1365, from a living plant in the Horticultural So-
ciety's Garden, promises to be hardy; but the only plants which we have seen are too young to enable us to decide with certainty.

Genus II.

**Hippophae L. The Hippophae, Sea Buckthorn, or Sallowthorn.**

**Lin. Syst.** Dioecia Tetrándria.


**Synonymes.** Hippophaes Tourn. Cor. 53.; Argoussier, Fr., Hasslorn, or Sanddorn, Ger.; Hippophies, Itali.; Espino amarillo, Span.

**Derivation.** Hippophaes, or Hippophaes, was the name of a shrub mentioned by Theophrastus and Dioscorides; and which is supposed to be the same as the hippophyes of Pliny. The derivation is supposed to be from *hippos*, a horse, and *phoe*, to brighten; and, as according to the *Nouveau Dictionnaire de la Flandre* the plant was employed by the Greeks as a medicine for horses, it may have been given to them to make their coats sleek and shining, and have thus procured its name.

**Gen. Char., &c.** Flowers unisexual, dioecious. — *Male flower*. Calyxarched, seeming as if constituted of two leaves conuate at the tip. *Stamens* 4, not extended out of the calyx. — *Female flower*. Calyx tubular, cloven at the top, including the ovary, and becoming at length succulent. *Style* short. *Stigma* long. *Fruit* a polished achenium, furrowed at one side, with an acid juice. (G. Don.)

**Leaves** simple, alternate, exstipulate, deciduous; narrow, entire, scaly, and silvery, especially beneath. *Flowers* axillary, pedunculate, small. *Fruit* succulent, edible. — Shrubs or low trees; natives of Europe and Asia. Ornamental in British gardens, on account of their grey silky foliage, and of their berries. Propagated by seeds, layers, or suckers, in common soil; and valuable in scenery as attracting attention by their white aspect, and standing the sea breeze.

† 1. H. Rhamnoides L. The Buckthorn-like Hippophae, Sea Buckthorn, or Sallowthorn.


**Synonymes.** Rhamnoides fortifera siliqua folio Tourn., Cor. 53.; Rhamnoides fructifera Raff. Syg. 445.; Argoussier faux Nerpren, Fr.; Weidenblättriger Sanddorn, Ger.; in the Alps of Switzerland it is called Arve, or Saule épineux.


**Spec. Char., &c.** Branches each ending in a spine. Leaves linear-lanceolate, mostly bluntish, dark green, and minutely dotted, not scaly on the upper side; silvery as well as scaly on the under one. (Smith.) A low deciduous tree or large shrub. Europe, on sandy sea coasts; in England, in various places on the east and south-east coast; but not in Scotland. Height 15 ft. to 20 ft. Flowers yellow; May. Berries bright orange-coloured, and produced in great abundance; ripe in September, and remaining on the tree as long as the leaves, and frequently till the following spring.

**Varieties.**

† 2. H. R. 2 angustifolia Lodd. Cat. ed. 1836. (The plate of this tree in Arb. Brit., 1st ed., vol. vii.; and our fig. 1368., of the female sex.) — The leaves are obviously more narrow than those of the species; the young branches are pendulous; and the tree is highly ornamental, more especially when in fruit.
LXII. ELEAGNA CEE : HIPPO'PHAE.

Appears to differ very little, if at all, from the species.

In British nurseries, plants are commonly increased by suckers, which are produced in abundance; and a deep sandy soil is suitable for growing the plant to a large size. It may be planted in elevated and exposed situations, on the sea coast, where few other trees will grow.

2. H. SALICIFOLIA D. Don. The Willow-leaved Hippophae, Sea Buckthorn, or Sallowthorn.

Description. Our fig. 1269. from a living specimen.

Without thorns, upright, branched. Leaves lanceolate, obtuse, whitely tomentose, as are the branchlets. A large deciduous shrub or low tree. Sirinagur, in Nepal. Height 15 ft. to 20 ft. Introduced in 1822. Flowers and fruit as in H. Rhamnoides.

A much more robust species than H. Rhamnoides, though probably more liable to be injured by frost. The shoots produced in one season, from a plant down, are 5 or 6 feet in length, and leaves about twice the length of the of the common species, much less sery, and closely resembling those of S. viminalis. The aspect of this species less white than that of H. Rhamnoides.
Genus III.


Synonymes. Hippophae L., as to the species S. canadensis Nutt.

Derivation. Named by Nuttall, in honour of the late Mr. John Shepherd, curator of the Botanic Garden of Liverpool, a horticulturist to whose exertions, and the patronage of the celebrated Roscoe, that institution owes its present eminence.

Gen. Char., &c. Flowers unisexual, dioecious. Male flower. Calyx 4-cleft; Stamens 8, included within the calyx, alternate with 8 glands. — Female flower. Calyx bell-shaped; its limb 4-parted, flat, the portions equal; its tube adnate to the ovary. Style 1. Stigma oblique. (G. Don.)

Leaves simple, opposite, exstipulate, deciduous; entire, with silvery scales. Flowers axillary, aggregate; the female ones smaller than the males, and sometimes racemose at the ends of the branches. Berries diaphanous, scarlet, acid, eatable. — Shrubs or low spinose trees, deciduous, with the aspect of Elaeagnus; native of North America. Culture, in British gardens, as in Hippophae.

1. S. Argen'tea Nutt. The silver-leaved Shepherdia.

Synonymes. Hippophae argentea Pursh Sept. 1. p. 115; Missouri Silver Leaf, and Buffalo Berry Tree, Amer.; Rabbit Berry, and Beef Suet Tree, Amer. Indicus; Grasse de Buifie, or Buiffe Val, French Traders. Engravings. Our fig. 1370; and fig. 1371, from the original specimen sent by Nuttall to Mr. Shepherd of Liverpool.

Spec. Char., &c. Leaves oblong-ovate, obtuse; on both surfaces glabrous, and covered with silvery peltate scales. (Pursh.) A small tree. North America, on the banks of the Missouri, and its tributary streams. Height 12 ft. to 18 ft. Introduced in 1818. Flowers yellow; April and May. Berries scarlet, diaphanous, acid; ripe in September.

Its fruit, which is much relished in America, is about the size of the red currant, much richer to the taste, and forms one continued cluster on every branch and twig.

2. S. Canade'nsis Nutt. The Canadian Shepherdia.


Engraving. Our fig. 1372, from a living specimen.

Spec. Char., &c. Leaves ovate, or cordate-ovate, opposite; green, and nearly glabrous upon the upper surface; upon the under one stellately pilose, silvery, and scaly; the scales rusty, deciduous. Branches opposite. Flowers disposed in upright racemes between the first leaves, and of half the length of these. (Nutt.) A deciduous shrub. North America, on the borders of lakes, in the western parts of the state of New York, in Canada, and along the St. Lawrence to its source. Height 6 ft. to 8 ft. Introduced in 1759, but not frequent in collections. Flowers yellow; April and May. Berries yellow, sweetish, but scarcely eatable; ripe in August.
Order LXIII. *Aristolochiaceae*.


Leaves simple, alternate, exstipulate, deciduous; cordate, entire. Flowers axillary. — Twining deciduous shrubs; natives of North America.

**Genus I.**


**Synonymes.** Aristoloche, *Fr.*; Osterluzy, *Ger.*

**Derivation.** Aristoloche was the name of a plant mentioned by Dioscorides, and considered as of sovereign use in the disorders incident to childbirth: it is derived from ariston, best, and lochia, parturition.

**Gen. Char., &c.** Calyx of some other colour than green, and in colour and texture resembling a corolla; in its lowest part conuate with the ovary; inflated above this part, then tubular, and ending in an expanded border, which has 3 segments, and these are valvate in aestivation. Stamens 6, adhering to the style and stigmas. Style 1. Stigmas 6, radiating. Capsule with 6 cells and numerous seeds.

Leaves as in the Order, exstipulate, deciduous. Flowers yellow, brown, dark brown, and, in some, spotted on a yellow ground. — Shrubs, twining; natives of North America; of easy culture in any common soil that is dry.

\[1\] *A. siphon L'* Hérit. The Siphon-like, or Tube-flowered, Birthwort.


**Engravings.** N. Du Ham., 4. t. 10.; *Bot. Mag.*, t. 384.; and our fig. 1373.


Striking from the magnificent appearance of the leaves, and remarkable for the form of its flower, which is bent like a siphon; for the trifid border of its corolla, and for the very large bractea placed on the middle of the peduncle. The roots are woody, and have the smell of camphor. The stems, branches, and twigs are also strongly scented, as are the flowers. In British gardens, this species, to grow freely, requires a deep free soil,
dry rather than moist, and a warm situation. It is propagated by division of the root, by suckers, or by seeds, which are sometimes received from North America.

2. *A. (s.) tomentosa* Sims. The tomentose Birthwort.

**Identification.** Sims in Bot. Mag., t. 1339; Lodde, Cat., ed. 1836. 
**Engravings.** Bot. Mag., t. 1339; Bot. Cab., t. 941; and our fig. 1574.


---

**Order LXIV. Euphorbiaceae.**

**Ord. Char.** Flowers unisexual. Perianth lobed or wanting, furnished inside with hypogynous glandular or scale-formed appendages. Stamens definite or indefinite, free or monadelphous. Ovarium superior, 2—3-celled. Styles equal in number to the cells. Stigmas many, distinct or combined. Capsule of 2—3, or more, 2-valved cells or cocci. Seeds solitary or in pairs, arillate, suspended. Albusmen fleshy. (G. Don.)

Leaves simple, alternate or opposite, stipulate or exstipulate, deciduous or evergreen; quite entire. Flowers solitary, aggregate, terminal, lateral, or axillary. — Shrubs or small trees, natives of Europe and North America, which are thus contradistinguished: —


---

**Genus I.**

**Stillinia** Garden. The Stillinia. 

**Lin. Syst. Monœcia**

Monadelphia.

**Identification.** "Stillinia was sent under that name to Linæus, by the celebrated Dr. Alexander Garden." (Smith in Rees's Cyclopedia.) Lin. Mant., 19.; Schreb. Lin. Gen., 658.

**Derivation.** Named by Dr. Alexander Garden in honour of Mr. Benjamin Stillingfleet, author of a work entitled Miscellaneous Tracts relating to Natural History, &c., partly translated from the writings of Linæus.

**Gen. Char.** Flowers unisexual; males in a spike, females at the base of the same spike; dioecious. — Male. Flowers seven together. Corolla like a corolla, of one piece, funnel-shaped, its margin jagged. Stamens 2—3, prominent; the filaments slightly connected at the base. — Female. Involucre 1-flowered. Corolla superior, shaped as in the male. Style thread-shaped. Stigmas 3. Fruit a regma, surrounded at the base by the involucre a little enlarged, somewhat tubinate, 3-lobed.

Leaves simple, alternate, stipulate, deciduous; entire. Flowers in spikes, terminal or lateral. — Shrubs, deciduous, milky; natives of North America.


**Engraving.** Our fig. 1575. from a specimen in Sir W. J. Hooker's herbarium.

**Spec. Char., &c.** Shrubby. Leaf consisting of a petiole, and a disk that is
oval-lanceolate, pointed at both ends, and entire. Male flowers upon very short pedicels. Female flowers ?. Male flowers disposed in spikes, part lateral, part terminal, and having a 3-cleft, rather flat, calyx, and 3 stamens that have kidney-shaped anthers; bracteas 1—2-glanded and I-flowered. (Nutt.) A deciduous shrub. Introduced 1812. Flowers yellowish; June and July.

We are not aware that this species is now in existence, in a living state, in England.

Genus II.

**BUXUS** Tourn. The Box Tree. Lin. Syst. Monæcia Tetrándria.


eration. From pulsus, dense; in reference to the hardness and closeness of the wood; or, perhaps, to the denseness of the foliage. The Greeks called the boxes made of this wood, which were highly esteemed for their durability, pyxides; and hence, probably, arose the word pyx, which is used for the chest containing the Host in the Roman Catholic church.

Gen. Char. Flowers unisexual, monoecious.—Male. Calyx of 4 minute leaves. Stamens 4, inserted under the rudiment of a pistil.—Female. Flowers singly, at the tip of groups of male ones. Calyx as in the male. Styles 3. Stigmas 3. Fruit a regma, leathery, beaked with the styles. (G. Don.)

Leaves simple, opposite, exstipulate, evergreen; entire, smooth, stalked. Flowers axillary, aggregate, whitish. Fruit green.—Shrubs or small trees, evergreen, with rigid leaves and whitish buds; natives of Europe and Asia; of easy culture in any soil that is tolerably dry; and propagated freely by division of the plant, by cuttings, or by seeds.

† = I. B. SEMPervîreNS L. The evergreen, or common, Box Tree.


pec. Char., &c. Disk of leaf ovate, convex; footstalk slightly downy at the edges. Anthers ovate-arrow-shaped. (Smith.) A low evergreen tree. Europe; in England, on Boxhill in Surrey, Chequers in Buckinghamshire, and other places, apparently wild. Height 15 ft. to 30 ft. Flowers whitish; April and May. Fruit greenish; ripe in August.

vieties and Subvarieties.

† B. s. 1 arborëscens Mill. Dict. No. 1. Buis arborescent, Fr.; hoch-stimmige Buchsbaum, Ger.—Arborescent. Leaves ovate. This is the most common form of the species.

† B. s. a. argëntea Hort.—Arborescent. Leaves ovate, variegated with a silvery colour.

† B. s. a. aurëa Hort.—Arborescent. Leaves ovate, variegated with a golden colour.

† B. s. a. margüîlata Hort.—Arborescent. Leaf ovate, with a margin of a golden colour.

† B. s. 2 angustifolia Mill. Dict. No. 2.—Arborescent. Leaves lanceolate.

† B. s. a. variegata Hort.—Arborescent. Leaves lanceolate, variegated.
a B. s. 3 suffruticosa Mill. Dict. No. 3. B. hümilis Dod. Pempt. 782.; B. s. nana N. Du Ham. i. p. 83.; and our fig. 1376.; Buis main, Buis à Bordures, Buis d’Artois, Buis de Hollande, petit Buis, Fr.; zwerch Buchsbaum, Ger. — Dwarf. Leaves small, obovate. This is the kind usually cultivated for edgings in European gardens.

a B. s. 4 myrtifolia Lam. Encyc. — Dwarf. Leaves small, oblong, narrowish. A pretty little plant; generally quite low, but, under favourable circumstances, growing to a considerable size.

In a wild state, the box seldom exceeds the height of 12 or 15 feet in Britain; but in Turkey and Asia Minor trees of it have been found as high as 25 ft. The thickness of the trunk is very considerable in proportion to its height, and, in full-grown trees, varies from 6 in. to 8 in. in diameter. The tree will bear the knife patiently, and is therefore, and from the closeness of its habit of growth, well adapted for clipped hedges, and all kinds of verdant architecture and statuary. It grows slowly, rarely making shoots of more than 6 or 8 inches annually. But the tree is of great longevity; and so hardy, that it is almost the only evergreen, exclusive of the Coniferae, that will stand in the open air, without protection, in the gardens of Paris, Berlin, and Vienna. The wood of the box is remarkably heavy; weighing, when newly cut, 80 lb. 7 oz. per cubic foot, and, when perfectly dry, 68 lb. 12 oz. and 7 gr. It is the only European wood that will sink in water: it is yellow, very hard, and susceptible of a fine polish. The wood was formerly much used in England in cabinet-making and inlaying, as it still is in France; and, also, in both countries, for musical and mathematical instruments, combs, and various articles of turnery. The principal use of the boxwood, however, at present, is for wood-engraving; and for this purpose it is an important article of commerce. The different kinds of box tree are propagated by seeds, cuttings, and layers. When the seeds are to be sown, they should be gathered the moment the capsules appear ready to open, and sown immediately in light rich earth, well drained. Cuttings of from ¼ in. to 6 in. in length should be put in, in autumn, in a sandy soil, and a shaded situation, and in a year they will be fit to transplant into nursery lines. Layers may be made either in the spring or autumn, and either of the young or old wood. The dwarf box used for edgings is propagated by being taken up, divided, and replanted. Box edgings are best planted early in spring, because the frost in winter is apt to destroy those leaves which have been cut in trimming the plants. Box edgings and hedges may be clipped at almost any season, except midwinter. Some gardeners prefer trimming box edgings in June, just when the plants have nearly completed their year’s shoots; because they will afterwards make shoots of ¼ in. or 1 in. in length, or, at all events, protrude a few leaves, and thus, in a week or two, conceal all appearance of the use of the shears. When this practice is followed, it is necessary to go over the edgings or hedges in July, in order to cut neatly off with the knife any shoots that may have been protruded too far; taking care not to cut the leaves.

2 2. B. baleárica Wild. The Balearic Box.


Synonymes. B. s. var. gigantea N. Du Ham. 1. p. 82.; Minorca Box; Buis de Minorque, Buis d’Artois, Buis de Hollande, petit Buis, Fr.; Beleverscher Buchsbaum, Carp; ; Bossole gentile, Ital.

Engravings. N. Du Ham., pl. 29. f. 1.; and our figs. 1374. and 1379.
LXV. *ARTOCA'PÆÆ: MO'RUS.* 705


A very handsome species, with leaves three times as large as those of *H. sempervirens,* and a straight smooth trunk. The leaves, when the plant is fully exposed to the air, are of a much paler green than those of the common box; but, when they are in the shade, they are of an intensely deep green. The wood is of a brighter yellow than that of the common box, and, being of a coarser grain, it is inferior to it for engraving on. It is imported from Constantinople in large quantities. The plant is propagated by cuttings, which, if placed in sandy soil under glass, or in heat, generally strike root in about two months after being taken off. Cuttings will also succeed, if treated like those of the common box.

ORDER LXV. *ARTOCA'PÆÆ.*


Leaves simple, alternate, stipulate or exstipulate, deciduous; lobed, serrated or entire. *Flowers* axillary, obscure.—*Trees,* deciduous, chiefly of the middle size; natives of Europe, Asia, and North America. The genera in British gardens are thus contradistinguished:—


**GENUS I.**


**Synonyma.** Müll. Fr.; Maucler, Gym.; Moro, Ital.

**Derivation.** Several derivations have been given for the word *Morus*; some suppose it to be taken from the Greek word *moros,* or *moron,* signifying a mulberry or blackberry; others derive it from
706 ARBORETUM ET FRUTICETUM BRITANNICUM.

mauros, dark; and Sir J. E. Smith suggests that it may have been taken by antiphrasis from moros, foolish, the mulberry tree, from its slowness in putting out its leaves, being anciently considered the emblem of wisdom. The Morea, in the Levant, is said to be so called from the resemblance of the shape of that peninsula to the leaf of a mulberry

Gen. Char., &c. Flowers unisexual, mostly monœcious, in some dioecious or polygamous. — Male flowers in axillary spikes. Calyx of 4 equal sepals, imbricate in astivation, expanded in flowering. Stamens 4. Female flowers. Calyx of 4 leaves, in opposite pairs, the outer pair the larger, all upright and persistent, becoming pulpy and juicy. Stamens 2, long. (G. Don.)

Leaves simple, alternate, exstipulate, deciduous; large, mostly lobed and rough. Flowers greenish white. Fruit the aggregate of the ovary and the calyxes, constituting what is termed a mulberry. — Trees, deciduous; natives of Europe, Asia, and North America. Propagated by cuttings or layers, or by large truncheons, in good soil.

The leaves of all the species will serve to nourish the silkworm; but M. alba, and its varieties, are considered much the best for this purpose.

† 1. M. nigra Poir. The black-fruited, or common, Mulberry.


Spec. Char., &c. Sexes monœcious, sometimes dioecious. Leaves heart-shaped, bluntish, or slightly lobed with about 5 lobes; toothed with unequal teeth, rough. (Willd.) A deciduous tree. Persia. Height 20 ft. to 30 ft. Introduced in 1548. Flowers greenish white; June. Fruit oblong, red or black; ripe in August.

Variety.

‡ M. n. 2 laciniata Mill. Diet. No. 2. has the leaves jagged rather than cut.

In Britain, the common mulberry always assumes something of a dwarf or stunted character, spreading into very thick arms, or branches, near the ground, and forming an extremely large head. It is a tree of very great durability; the trees at Syon being said to be 300 years old, and some a
Oxford and other places being supposed to be of nearly equal antiquity. It is also wonderfully tenacious of life; the roots of a black mulberry, which had lain dormant in the ground for twenty-four years, being said, after the expiration of that time, to have sent up shoots. The wood is considered of but little value in France, except for firewood: it is less compact than even that of the white mulberry; and weighs only 40 lb. 7 oz. the cubic foot. Cattle eat the leaves, and all kinds of poultry are very fond of the fruit. Silkworms feed on the leaves in Persia, but in cold climates they are considered unsuitable for them. In England, the fruit is generally eaten at the dessert; and it is considered of a cooling aperient nature when ripe. The tree will grow in almost any soil or situation that is tolerably dry, and in any climate not much colder than that of London. North of York, it generally requires a wall. It is very easily propagated by truncheons or pieces of branches, 8 or 9 feet in length, and of any thickness, being planted half their depth in tolerably good soil; when they will bear fruit the following year. Every part of the root, trunk, boughs, and branches may be turned into plants by separation: the small shoots, or spray, and the small roots, being made into cuttings; the large shoots into stakes; the arms into truncheons; and the trunk, stool, and roots being cut into fragments, leaving a portion of the bark on each.

**2. *M. a. L.* The white-fruited Mulberry Tree.**


*Engravings.* T. Nees ab Esenbeck Gen. Pl. Fl. Germ., fasc. 3. No. 5. f. 1-6, the male; the plate in Arb. Brit., 1st edit., vol. vii.; and our fig. 1831.

*Spec. Char.* &c. Leaves with a deep scallop at the base, and either heart-shaped or ovate, undivided or lobed, serrated with unequal teeth, glossy, or at least smoothish; the projecting portions on the two sides of the basal sinus unequal. (*Wild.* A deciduous tree. China. Height 20 ft. to 30 ft. Introduced in 1596. Flowers greenish white; May. Fruit white or pale red; ripe in September.

*Varieties.*

1. *M. a. 2 multicaulis* Perrottet in Ann. de la Soc. Lin. de Paris Mai 1824 p. 129., Loddd. Cat. ed. 1836.; *M. tátárica* Desf., but not of Lin. or Pall.; *M. b Mulláta Balbis; M. cunállata Hort.; Chinese black Mulberry, Amer.; Perrottet Mulberry; many-stalked Mulberry; Múrier Perrottet, Fr.; Múrier à Tiges nombreuses, Múrier des Philippines, Ann. des Sci. i. p. 336. pl. 3.; and our fig. 1381.; Moro delle Filip- pine, Ital. — Considered, both in Italy and France, as by far the best variety for cultivation as food for the silkworm.

2. *M. a. 3 Morettíana Hort., Loddd. Cat. ed. 1836. Dandolo's Mulberry.* — Fruit black and very large. Leaves perfectly flat, deep green, shining, thin, and perfectly smooth on both surfaces. Its leaves rank next to those of *M. a. multicaulis* as food for silkworms.

3. *M. a. 4 macropôphiła Loddd. Cat. ed. 1836. M. a. latifólia Hort.; M. hispánica Hort.; Múrier d'Espagne, Feuille d'Espagne, Fr. — This variety produces strong and vigorous shoots, and large leaves, sometimes measuring 8 in. long, and 6 in. broad, resembling in form those of *M. nigra*, but smooth, glossy, and succulent.

4. *M. a. 5 romána* Loddd. Cat. ed. 1836. *M. a. ovalifólia; Múrier roman, Fr.* — Bears a close resemblance to the above sort.

M. subalba nervosa Hort. — Leaves strongly marked with thick white nerves on the under side.

* M. a. 7 italica Hort. M. italica Lodd. Cat. ed. 1836. — Leaves lobed. The plant bearing this name in the Jardin des Plantes has the soft wood, or cambium, of the current year’s shoots of a deep red, when the bark is removed.

* M. a. 8 rosea Hort., Lodd. Cat. ed. 1836. The small white Mulberry; Mûrier rose, Feuille rose, Fr. — One of the kinds called in France a wild variety.

* M. a. 9 columbassa Lodd. Cat. ed. 1836. Columba, Fr. — Small delicate leaves, and flexible branches.

* M. a. 10 membranacea Lodd. Cat. ed. 1836. Mûrier à Feuille de Par-chemin, Fr. — Large, thin, dry leaves.

* M. a. 11 sinensis Hort. M. sinensis Hort.; M. chinensis Lodd. Cat. ed. 1836; the Chinese white Mulberry, Amer. — A large-leaved variety.


**Other Varieties.** All the above sorts are in the arboretum of Messrs. Loddiges; but in the catalogues of foreign nurserymen there are several other names, most of which will be found enumerated and described in our 1st edition, including M. constantinopolitana Poir. (M. byzantina Sieb.), which we believe to be nothing more than a rather distinct variety of M. alba.

---

The white mulberry is readily distinguished from the black, even in winter, by its more numerous, slender, upright-growing, and white-barked shoots, is a tree of much more rapid growth than M. nigra, and its leaves are only less rough and more succulent, but they contain more of the glutinous milky substance resembling caoutchouc, which gives tenacity to the silk produced by the worms fed on them. The rate of growth of young plants much more rapid than that of M. nigra; plants cut down producing shoots 4 or 5 feet long in one season; the tree attaining the height of 20 ft. in five or six years; and, when full grown, reaching to 30 or 40 feet. Its duration is not so great as that of M. nigra. The white mulberry is more tender th
Morus nigra, and requires more care in choosing a situation for it. Calcereous soil is said to produce the best silk; and humid situations, or where the roots of the tree can have access to water, the worst. A gravelly or sandy loam is very suitable; and trees grown on hilly surfaces, and poor soils, always produce superior silk to those grown in valleys, and in rich soils. The tree is propagated by seeds (sown as soon as they are gathered), cuttings, layers, and grafting.

3. M. (a.) tatarica Pall. The Tartarian Mulberry Tree.

Engravings. Pall. Fl. Ross., 2, t. 52.; and our fig. 1383.; both sprigs taken from one tree.

Spec. Char., &c. Leaves with a shallow scallop at the base, and either heart-shaped, ovate, or lobed; serrated with equal teeth, smooth; the projecting portions beside the sinus equal. (Willd.) A tree resembling M. alba L., and perhaps only a geographical variety of that species. On the banks of the rivers Wolga and Tanais, or Don. Height 20 ft. Introduced in 1784. Flowers greenish-white; June. Fruit reddish or pale, of no good flavour, though it is eaten raw in Tartary, as well as dried, or made into a sweetmeat; ripe in September.

4. M. rubra L. The red-fruited Mulberry Tree.

ARBORETUM ET FRUTICETUM BRITANNICUM.


Spec. Char., &c. Sexes polygamous or dioecious. Spikes of female flowers cylindrical. Catkins of male flowers of the length of those of Bétula alba L. Leaves heart-shaped, ovate, acuminate, 3-lobed or palmate; serrated with equal teeth, rough, somewhat villous; under surface very tomentose, and, in consequence, soft. (Willd.) A deciduous tree. Canada to Florida. Height 40 ft. to 70 ft. Introduced in 1629. Flowers greenish yellow; July. Fruit long, red, and pleasantly tasted; ripe in September.

Varieties.


Very distinct from any of the preceding species, in the spreading umbeliferous appearance of the branches, and the flat, heart-shaped, very rough-surfaced leaves, which are almost always entire, but which, nevertheless, are occasionally found as much lobed and cut as those of any other of the genus. As a tree ornamental from its very singular form, it deserves a place in every pleasure-ground; and it is particularly adapted for giving interest to the scenery of a suburban garden.

Genus II.

BRouSSONE’TIA Vent. THE BRouSSONETIA. Lin. Syst. Dicoti Tetrándria.


Derivation. Named in honour of P. X. L. Broussonet, a French naturalist, who wrote numerous works on natural history.

Gen. Char. Flowers unisexual, dioecious.—Male flowers in pendulous cylindrical catkins; each flower in the axil of a bracte. Calyx shortly tubular, 4-5 parted. Stamens 4, elastic. — Female flowers in peduncled, axillary, upright, globular heads. Calyx tubular, its % with 3—4 teeth. Style lateral. Stigma taper. Fruit club-shaped, consisting of the integument in which the ovary was enclosed, and now become very juicy; and of a 1-seeded oval utricle, with a crustaceous integument, and enclosed within the juicy integument. (G. Don.)

Leaves simple, alternate, exstipulate, deciduous; lobed variously or entire, hairy, large. Flowers greenish, axillary. — Tree, deciduous; native of Japan and the Pacific Isles; culture as in the mulberry.

@ 1. B. PAPYRI’FERA Vent. The Paper-bearing Broussonetia, or Paper Mulberry.


The Species. Both the male and female plants are in the Horticultural Society’s Garden, and in the arboretem of Messrs. Loddiges.


Varieties.

@ B. p. 2 cucullata. B. cucullata Bon Jard. 1833 p. 919.; B. spatulata Hort. Brit.; B. naviculáris Lodd. Cat. ed. 1836. — A sport, found on
a male plant in the Jardin des Plantes, which has its leaves curved upwards, like the hood of a Capuchin, or the sides of a boat.

* B. p. 3 fructu albo. — Fruit white.

A very singular tree, from the great variation in the form of its leaves, and also from its flowers and fruit. In general aspect it has the appearance of a mulberry, but it is less hardy than the species of that genus.

**Genus III.**


**Synonyme.** Tuxylon Rafinesque in 1817, Gard. Mag. vol. viii, p. 247.

**Description.** Named by Nuttall, in honour of William Maclure, Esq., of the United States; an eminent natural philosopher.

**Gen. Char.** Flowers unisexual, dioecious.—Male flowers in a racemose panicle. 

*Calyx* 4-parted. *Stamens* 4, or 3. — Female flowers closely aggregate upon an axis, and forming a globular head that is borne upon a short axillary peduncle. *Calyx* oblong, urceolar, apparently with 4 lobes at the tip. *Style* thread-shaped, downy, protruded nearly an inch beyond the calyx. *Fruit* an acheneum about \( \frac{3}{4} \) in. long, compressed, with the tip blunt. (G. Don.)

**Leaves** simple, alternate, exstipulate, deciduous; ovate, entire. *Flowers* small, yellow. — Tree, deciduous; native of North America; with a fruit as large as an orange, and when ripe of the same colour; propagated by layers, cuttings of the roots, or grafting on the common mulberry.

*2 1. M. AURANTI'ACA Nutt.* The Orange-like-fruited Maclura, or Osage Orange.


**Synonyme.** Bow-wood, Yellow Wood, N. Amer.

**Dec Char.** Both male and female plants are in the Horticultural Society’s Garden, and in the Hackney arboretum.

**Aggregate.** Appendix to Lambert’s Monog. on the Genus Pinus, 2, p. 32; and our fig. 1836, in which a is the female flower, and 6 the male; the fruit is figured of the nat. size in our 1st edit.

**pec. Char.** See Gen. Char. A deciduous widely spreading tree, with spiny branches. In the Arkansas, and on the banks of the Red River, on deep

*Z Z 4*
fertile soils. Height 30 ft. to 60 ft. Introduced in 1818. Flowers yellowish green; June. Fruit resembling a large Seville orange; ripe in October. Neither flowers nor fruit have yet been produced in England.

The leaves are ovate acuminate, of a bright shining green, broad, with a cuspidate point, 3 or 3½ inches long, and about 2 in. broad. The petiole is often 1 in. long. The spines are simple, rather strong, about 1 in. in length, and produced in the axis of the leaves. The fruit, when ripe, is of a golden colour, and on the tree has a splendid appearance; but, though eatable, it does not appear to be any where used for human food. The wood is of a bright yellow, very fine-grained, elastic, and on that account used by the southern tribes of the American Indians for bows.

**Genus IV.**

**Ficus** Tourn. The Fig Tree. Lin. Syst. Polygàmia Diccìa.


_Synonymes._ Figuier, Fr.; Felenbaum, Ger.; Fico, Ital.

_Derivation._ Some derive _Ficus_ from _ficus_us, on account of its abundant bearing; and others from _sukos_ (Greek), or _jag_ (Hebrew), the names for the fig tree in those languages. The fig tree has nearly the same name in all the European languages.

_Gen. Char._ Flowers monoecious, inserted upon the interior surface of a hollow globular or pear-shaped fleshy receptacle, in whose tip is an orifice closed with small scales; those in the upper part male, the rest female. — _Male flowers._ Calyx 3-parted. Stamens 3. — _Female flowers._ Calyx 5-cleft. Stigmas 2. Fruit a utricle. (G. Don.)

_Leaves_ simple, alternate, stipulate, deciduous; lobed. _Stipules_ large convolute. _Flowers_ within the fruit. — _Træ_, deciduous; native of the South of Europe and Asia; sap milky; cuttings in good soil.

*1. F. Ca'rica L._ The common Fig Tree.


_Engravings._ N. Du Ham., t. 53.; the plate of this tree in Arb. Brit., 1st edit., vol. vii.; and our fig. 1387.

_Spec. Char., Sc._ Leaves palmate and subtrilobate; rough above, pubescent beneath. (Willd.) A low deciduous tree. Asia, on the sea coast. Height 15 ft. to 30 ft. Cultivated in Britain from time immemorial; and ripening its fruit against walls, in the climate of London, in the month of September.

_Varieties._ Botanically, the common fig may be considered as existing in three different states: — 1. Wild, in which the leaves are comparatively small and not much cut; and the fruit small, and sometimes blue and sometimes white. 2. Cultivated, with very large leaves, very deeply cut, such as the Blue Ischia and the Brunswick fig, and other sorts; the fruit of some of which is white, and of others dark. 3. Cultivated, with very large leaves, not much cut, as the White Marseilles fig, and others with fruit of different colours. Those who are disposed to go farther may form three subvarieties under each of these heads, according as the fruit is blue or black, red or purple, yellow, white, or green. The garden varieties are very numerous.
for which, and their treatment, see the *Encyc. of Gard.*, and the *Suburban Horticulturist*.

**Genus V.**

**BORYA W. The Borya.** *Lin. Syst. Diœcia Di-Triandria.*


**Synonymes.** Adelia Michx. Fl. Bor. Amer. 2. p. 223. ; Bigelovia Smith in Rees’s Cyclop. Addenda.

**Derivation.** Named in honour of Bory de St. Vincent, who visited the Mauritius and the Isle of Bourbon, to examine their botany. Smith, in Rees’s *Cyclopedia*, objects to the name of *Borya* being applied to this genus, because La Billardière had previously given the same name to another genus; and he suggests the substitution of the name of Bigelovia, in commemoration of Dr. Bigelow of Boston, author of the *Florula Bostoniensis*, and of the American Medical Botany.


Leaves simple, opposite, or nearly so, exstipulate, deciduous; entire. Flowers axillary, fascicled, bracteated, minute. — Shrubs, deciduous, natives of North America, with the aspect of the common privet. Propagated by cuttings, and quite hardy.

**& 1. B. LIGUSTRINA Willd. The Privet-like Borya.**


The Sexes. The plants bearing this name in Loddiges’s arboretum have not yet flowered.

**Engraving.** Our fig. 1888. from a living specimen.

Apparently a fit associate for Ligustrum, Fontanesia, and Prinos.


The Saces. Uncertain which is in England.
Engravings. Michx. Fl. Bor. Amer., 2. t. 28.; and our fig. 1359.

Spec. Char., &c. Leaves membranous, lancolate in almost a rhombic manner; but most tapered to the outward end; 1½ in. long, serrulate. Male flowers several together in small sessile tufts, encompassed with several ovate bracteas. Female flowers stalked, very small. Fruit pendulous, elliptic-oblong, nearly 1 in. long before it is ripe, tapered to the tip in a beak-like manner. It appears that the taper lateral branches form something like thorns. (Michx.) Carolina and Georgia. An erect shrub, on the banks of rivers. Height 5 ft. to 10 ft. Introduced 1812. Flowers greenish.

The only difference which we can observe between B. acuminata and B. figustrina is, that the former has the leaves of a paler green, and much larger. The plant bears a general resemblance to a privet, or a large Persian lilac.


The Saces. Uncertain which is in England.
Engravings. Our fig. 1350. from a specimen in the British Museum, and fig. 1351. from a specimen in Sir W. J. Hooker's herbarium.

Spec. Char., &c. Leaves coriaceous, sessile, lancolate, ovate, but with a blunt point, entire; the lateral edges revolute; under surface rather rusty, and punctured with little holes. (Michx.) A shrub, like the preceding kinds. Georgia and Florida. Introduced in 1806.

The plants in the collection of Messrs. Lodigges differ from B. figustrina chiefly in the leaves being shorter.

Order LXVI. ULMA'CEAE.


Leaves simple, alternate, stipulate, deciduous; serrated or entire. Flowers axillary, on short peduncles, small. — Trees, deciduous, chiefly of large size; natives of Europe, Asia, and America; included in three genera, which are thus contradistinguished:
ULMUS L. Flowers polygamous. Fruit a samara.

PLA'NERA Gmelin. Flowers polygamous. Fruit dry.

CE'LTIS Tourn. Flowers polygamous. Fruit a drupe.

GENUS I.


Synonymes. Orme, Fr.; Ulm, or Rüster, Ger.; Olmo, Ital.

Derivation. Ulmus is supposed to be derived from the Saxon word elm, or elm; a name which is applied, with very slight alterations, to this tree, in all the dialects of the Celtic tongue. Ulm is still one of the German names for the elm; and the city of Ulm is said to derive its name from the great number of elm trees that are growing near it. There are above forty places in England mentioned in the Dooms-day-Book, which take their names from that of the elm; such as Barn Elms, Nine Elms, &c.

Gen. Char., &c. Flowers in lateral groups, proceeding from peculiar buds, and protruded before the leaves; bisexual; monoecious. Calyx reddish, distinct from the ovary, top-shaped or bell-shaped, of one piece, but having 5 or 4 to 8 segments, which imbricate in activation; remaining until the fruit falls. Stamens as many as the segments. Style short or wanting. Stigmas 2, acuminate. Fruit a samara, with a membranous wing. (G. Don.)

Leaves simple, alternate, stipulate, deciduous; serrate, feather-nerved, harsh to the touch, generally unequal at the base. Flowers small, whitish or reddish. Decaying leaves rich yellow. — Trees, deciduous; natives of Europe, Asia, and North America. The species are propagated by seeds, and the varieties by grafting.

The elm is remarkable for the aptitude of the different species to vary from seed; so much so that it is extremely difficult to say, in this genus, which are species and which are varieties; or even to what species the varieties belong. To us it appears, that there are only two British sorts which are truly distinct; viz. U. campestris and U. montana. U. americana, and, perhaps, some other of the American species may also be distinct. Great attention has been paid to this genus by Mr. Masters of Canterbury, who has raised many sorts, both from American and European seeds, and whose collection will be found described in the 1st edition of this work, and in the Gard. Mag. vol. xiii. p. 28. U. glabra and U. major seem intermediate between U. campestris and U. montana. U. effusa appears very distinct; but is probably only a variety of U. campéstris. Of all the numerous varieties which may be procured in British nurseries, the best kinds for cultivation for their timber appear to be, the Huntingdon elm (U. m. glábra végéta), and the Wyche elm (U. montána); and for ornament the weeping elm (U. montána pëndula), the sub-evergreen elm (U. campéstris virens), and the twiggy elm (U. campéstris viminalis). The sucker-bearing elms are chiefly the varieties of U. campéstris, and these seldom produce seeds; but U. montana, and U. m. glábra, and their varieties, which never throw up suckers, produce seeds in the greatest abundance every year. U. campéstris does indeed produce seeds occasionally, though rarely, in England; and the U. c. viminalis is a British seedling, raised by Mr. Masters. In France, U. campéstris ripens seeds much more freely, and these have given rise, in that country, to innumerable varieties. The whole genus, it will readily be conceived, is in a state of great confusion. See Arb. Brit., 1st edit., p. 1409.

† 1. U. CAMPESTRIS L. THE ENGLISH, FIELD, OR COMMON SMALL-LEAVED, ELM.


Spec. Char., &c. Leaves doubly serrated, rough. Flowers nearly sessile, 4-cleft. Samara oblong, deeply cloven, glabrous. (Smith.) A large deciduous tree. England, France, and the warmer parts of Europe. Height 60 ft. to 80 ft. Flowers brownish; March and April. Samara yellow; ripe in May.

Varieties.

A. Timber Trees.

† U. c. 1 vulgāris. U. campestris Hort. Dur.—Very twiggy; pale smooth bark; of irregular growth in some plants, with almost horizontal branches, where no others are near to force the shoots upwards. In some soils, it is very subject to decay at the joints. The bark is leaden-coloured while young, splitting into long thin strips with age. A bad variety to cultivate for timber.

† U. c. 2 latifolia Hort.—Leaves broader than in the species, and expanding very early in spring.

† U. c. 3 ālba Masters.—Of upright growth. The old bark cracks in irregular long pieces, and becomes very pale with age. Shoots with the bark tinged with red, and the footstalks of the leaves quite red. Leaves shining, and doubly and deeply serrated, bearing a very near resemblance to those of U. effusa. A valuable timber tree.

† U. c. 4 acutifolia Masters.—Growth, during its early stages, very like the last, but stronger. The leaves, in old specimens, more tapering, and the branches more pendulous. Bark like the last. This appears very common in some parts of Essex, Suffolk, and Norfolk. Also a good timber tree.

† U. c. 5 stricta Hort. Dur. Red English Elm.—One of the most valuable timber trees of the small-leaved kinds. Growth very rigid. The timber is excellent; and the tree forms poles of equal diameter throughout.

† U. c. 6 virēns Hort. Dur. Kidbrook Elm.—Almost evergreen in a mild winter; and, as such, is the most ornamental tree of the genus. It must not, however, be depended upon as a timber tree, because, in some autumns, the frost kills the shoots. The bark is red, and the tree of spreading habit. This, like the last-mentioned kind, grows well upon chalk.

† U. c. 7 cornubīensis Hort. U. stricta Lindl. Synop. p. 227., Lodd. Cat. ed. 1836; the Cornish Elm.—An upright-branched tree; the trunk and branches, when young, having a somewhat flexuose appearance, which disappears as it grows old. The leaves are small, strongly veined, and coriaceous. Branches bright brown, smooth when young, and very compact. This variety, in the climate of London, is a week or fortnight later in coming into leaf than the common elm, from which, and from all the other varieties, it is readily distinguished by the bark of old trees, which never scales off, but tears as under, exhibiting its fibrous construction, in the manner of the bark of the sweet chestnut. There are many fine trees of this variety in Kensington Gardens.

† U. c. 8 sarmānēsīs. U. sarmānēsīs Lodd. Cat. 1836; the Jersey Elm.—A free-growing variety, differing very little from the species.

† U. c. 9 tortūsā. U. tortuōsa Lodd. Cat. 1836; ? Orme tortillard, Fr.; the twisted Elm.—The wood of the tortuous parts of the trunk is valuable for the naves of wheels, and is much used for that purpose in France. It is the only elm which grows freely by cuttings, and is generally so propagated in the French nurseries. See Arb. Brit., 1st edit., p. 1379.

B. Ornamental or curious Trees.

† U. c. 10 fōliis variegātīs Lodd. Cat. ed. 1836.—This variety, which
may be called the silver-leaved elm, has the leaves striped with white, and, in spring, is very ornamental.

† U. c. 11 betulæfolia. U. betulæfolia Lodd. Cat. ed. 1836. — Leaves somewhat resembling those of the common birch.


† U. c. 18 foliis aurecæ Hort.—Leaves variegated with yellow.

‡ U. c. 19 nína Hort.—A very distinct variety, said not to grow above 2 ft. high in ten or twelve years. Hort. Society's Garden.

Other Varieties. In Messrs. Loddergæ's Catalogue, ed. 1836, U. c. foliis maculæis, U. dibìa, U. viscòsa, and some others, are enumerated, and in our first edition twelve French varieties are described, to which might be added, the Orme pedunculé of the French, which appears to be our Ulmus effusa, though we have doubts on this subject.

The common English elm is, perhaps, more frequently to be found in the parks and pleasure-grounds of the English nobility and gentry, than any other tree, except the oak. It is of a tall upright habit of growth, with a straight trunk, 4 or 5 feet in diameter when fully grown, and attaining the height of 60 or 70 feet or upwards. The wood loses a great deal in drying; weighing, when green, nearly 70 lb. the cubic foot; and, when dry, not more than 48½ lb. It is of a brownish colour, and is hard and fine-grained. It possesses greater lateral adhesion, and less longitudinal toughness, than that of U. montana, and, consequently, does not crack so much as that sort in drying. In ship-building it is valuable for forming the blocks and dead eyes, and other wooden furniture of rigging, being particularly suitable for these purposes, from its hard and adhesive nature, and indisposition to crack or split when
exposed to sun or weather. The great use of the English elm, however, in ship-building, is for keels. In light land, especially if it be rich, the growth of the tree is very rapid; but its wood is light, porous, and of little value compared with that grown upon strong land, which is of a closer stronger texture, and at the heart will have the colour, and almost the hardness and heaviness, of iron. The common elm produces abundance of suckers from the roots, both near and at a great distance from the stem; and throughout Europe these afford the most ready mode of propagation, and that which appears to have been most generally adopted till the establishment of regular commercial nurseries; the suckers being procured from the roots of grown up trees, in hedgerows, parks, or plantations. In Britain, the present mode of propagation is by layers from stools, or by grafting on the \( U. \) montana. The layers are made in autumn, or in the course of the winter, and are rooted, or fit to be taken off, in a year. Grafting is generally performed in the whip or splice manner, close to the root, in the spring; and the plants make shoots of 3 or 4 feet in length the same year. Budding is sometimes performed, but less frequently. The great advantage of grafting is, that the plants never throw up suckers, unless indeed the girt is buried in the soil. The tree bears the knife better than most others, and is not very injurious to grass growing under it. The leaves are eaten by most kinds of cattle.

\[2. U. (c.) suberósa \] _Méanch_. The Cork-barked Elm.


**Spec. Char., &c.** Leaves pointed, rough, doubly and sharply serrated. Flowers stalked, 4—5-cleft. Samara almost orbicular, deeply cloven, glabrous. Branches spreading; their bark cory. (Smith.) A deciduous tree, taller and more spreading than the common English elm. England. Height 60 ft. to 80 ft., and sometimes 100 ft. Flowers and samara as in the preceding kind.

**Varieties.**

\[2. U. (c.) \] s. 1 vulgaris. \( U. \) suberósa Hort. _Dur._; the Dutch cork-barked Elm.—This, except the American elm and the Canterbury seedling (\( U. \) montana major glabra), is the quickest-growing of any that Mr. Masters cultivates. It is, moreover, valuable, on account of its growing well upon the Kentish chalks; and it keeps its leaf till late in the autumn. It is a tree of large growth. Many of the elms at Windsor are of this kind.

\[2. U. (c.) \] s. 2 fóliis variegátis Lodd. Cat. ed. 1836. \( U. \) suberósa variegáta Hort. _Dur._—Precisely like the last, except in its variegation.

\[7. U. (c.) \] s. 3 álba. \( U. \) suberósa álba Masters.—A low tree, of more
compact growth than the two preceding varieties; and often growing into an oval, or, rather, cone-shaped head. Young shoots pubescent. Foliage thickly set. Bark much wrinkled, and becoming white with age.

* U. (c.) s. 4 cripta Lodd. Cat. ed. 1836. — Has a tall narrow head, resembling that of the Cornish elm; but differs from that tree in having much broader leaves, and a curly bark.

* U. (c.) s. 5 var. The broad-leaved Hertfordshire Elm, Wood, nurseryman at Huntingdon. — The shoots show some tendency to become corky, which, in our opinion, determines this variety to belong to U. (c.) suberosa, rather than to U. montana or U. (n.) glabra.

* U. (c.) s. 6 var. The narrow-leaved Hertfordshire Elm, Wood. — Leaves and shoots differing very little from those of U. campestris.

† 3. U. (c.) MAJOR Smith. The greater, or Dutch Cork-barked, Elm.


Flowers and samara as in the preceding kinds. The branches spread widely, in a drooping manner, and their bark is rugged, and much more corky than even the foregoing. Leaves on short thick stalks, larger and more bluntly serrated than the last; rough on both sides, especially beneath; but the hairy tufts at the origin of each transverse rib are very small. Segments of the calyx short and rounded. Stamens 4. Samara obovate, with a very small rounded sinus, not reaching half so far as the seed. This appears to be the kind brought over by William III. from Holland; which, from its quick growth, was, at first, much used for hedges and formal rows of clipped trees; but, when the Dutch taste in gardening declined, the tree was no longer cultivated; as its wood was found very inferior to that of most other kinds of elm.


Engravings. Hayne, t. 29; and the plate of this tree in Arb. Brit., 1st edit., vol. vii.; and our fig. 1397.

Spec. Char., &c. Leaves mostly resembling those of the U. montana, but quite smooth on the upper side; unequal at the base, doubly serrated. Flowers on drooping stalks. Stamens in a flower 6—8. Samara elliptic, deeply cloven, strongly fringed with coarse dense hairs. (Smith.) A deciduous tree with ascending shoots, which spread at the extremities. Europe, chiefly in the South of France, and in the Caucasus. Height 50 ft. to 60 ft. Introd. 1800. Flowers and samara as in the preceding kinds.

This species is very distinct, even when the tree is bare of leaves, as will be seen by comparing the winter tree of it in Arb. Brit., 1st edit., vol. vii.
with that of *U. montana* major depicted at the same season. In spring and summer, it is equally marked by the long drooping peduncles of its flowers, and its hairy samaras. Its leaves are large, and of a beautiful light shining green tinged with red, and with red veins. The buds are long, sharply pointed, and greenish; while in the *U. campestris* they are short, obtuse, and covered with greyish hairs. As a tree of ornament, it is well worth cultivating for the beauty of its leaves, for the distinct character of its spray in winter, and, indeed, for its general appearance at all seasons. Propagated by grafting on *U. montana*. The largest tree of this species in England is at White Knights, in front of the mansion.


*Spec. Char., &c.* Leaves pointed, rough, broad, and doubly serrated. Flowers on longish peduncles loosely tufted, 5—6-cleft. Samara somewhat orbicular, slightly cloven, naked. Branches drooping at their extremities; their bark smooth and even. (Smith.) A spreading deciduous tree, with smooth bark. Britain, and various parts of Europe. Height 50 ft. to 60 ft. Flowers reddish; April and May. Samara brown; ripe in June.

*Varieties.* The varieties of the Scotch elm are extremely distinct, and very handsome trees, some well worth cultivating in a useful, and others in an ornamental, point of view.

A. Timber Trees.

*U. m. 1 vulgaris.* — Tree spreading; seldom exceeding 40 or 50 feet in height, except when drawn up by other trees.

*U. m. 2 rugosa* Masters. *U. rugosa* LODD. CAT. ed. 1836. — Bark reddish brown, cracking into short regular pieces, very like that of *Acer* campestrum. Tree of spreading growth, and moderate size.

*U. m. 3 major* Masters. (Plate in Arb. Brit. 1st edit. vol. vii.) — The tree is of upright and rapid growth, with few branches; and, in some stages, approaching the habit of the common Scotch elm, but of a more tapering form. The leaves fall almost a month sooner than those of the following sort.

*U. m. 4 minor* Masters. — Compared with *U. m. major*, is of a more branching and spreading habit, of lower growth, with more twiggy shoots; and these are more densely clothed with leaves, which are retained long in the autumn.

*U. m. 5 cebennensis* Hort. The Cevennes Elm. — Habit spreading, like that of *U. m. vulgaris*; but it appears of much less vigorous growth. Horticultural Society’s Garden.

*U. m. 6 nigra* Lodd. Cat.; the black Irish Elm. — A spreading tree, with the habit of *U. montana vulgaris*, but with much smaller leaves. It is by some considered as a variety of *U. campestris*; but, as it ripens seeds in Ireland, we are inclined to think it belongs to what may be called the seed-bearing section of the genus, and, consequently, to *U. montana*.

*U. m. 7 australis* Hort. — Leaves rather smaller, and habit of growth more pendulous than the species.
B. Ornamental or curious Varieties.

1. U. m. 8 pendula. U. pendula Lodd. Cat. ed. 1836; U. glabra decumbens Hort. Dur.; U. horizontalis Hort.; U. rubra in the Horticultural Society's Garden, in 1835. (Plate of this tree in Arb. Brit., 1st edit., vol. vii.; and our fig. 1398.)—This is a beautiful and highly characteristic tree, generally growing to one side, spreading its branches in a fan-like manner, and stretching them out sometimes horizontally, and at other times almost perpendicularly downwards, so that the head of the tree exhibits great variety of shape.

2. U. m. 9 fastigiata Hort. U. glabra replicata Hort. Dur.; U. Fordii Hort.; U. exoniensis Hort.; the Exeter Elm, Ford's Elm. (Plate in Arb. Brit., 1st edit., vol. vii.)—A very remarkable variety, with peculiarly twisted leaves, and a very fastigiate habit of growth. The leaves, which are very harsh, feather-nerved, and retain their deep green till they fall off, enfold one side of the shoots.


Other Varieties. Several might be taken from catalogues, both timber trees and curious plants; but the former, such as U. montana végéta Lindl., we think may be best classed under U. m. glabra, and the latter are of so little merit, that we hardly think them worth recording in this work. A variety or variation was discovered in a wood near Verrières, in which the soft wood, or cambium, of the current year's shoots appears of a deep red when the bark is removed. It retains this peculiarity when propagated by extension; and there are plants of it in the Jardin des Plantes at Paris. A similar variation occurs in Morus itálica. (See p. 708.)

The Scotch elm has not so upright a trunk as the English elm; and it soon divides into long, widely spreading, somewhat drooping branches, forming a large spreading tree. In Scotland, where the tree abounds, both naturally and in artificial plantations, the wood weighs less than that of the English elm, and is more coarse-grained. Nevertheless, Sang observes, it is always prized next to the wood of the oak. It is used, he adds, by the ship-builder, the
boat-builder, the block and pump maker, the cartwright, the cabinet-maker and the coach-maker. The timber, Matthews observes, has much sap-wood, and great longitudinal toughness; but, from the great quantity of sap-wood, and want of lateral adhesion, it splits considerably when dry. The tree has a peculiar fan-like spread of the branches, often tending to one side, and most perceptible in young trees. Hence, when grown up, there is generally a slight bending in the stem, which renders it very fitting for floor-timbers of vessels; the only part of a ship, except the bottom plank, to which it is applicable, as it soon decays above water. Its great toughness and strength, however, render it fit for floors. The soil in which this elm most luxuriates is a deep rich loam; but that in which it becomes most valuable, is a sandy loam lying on rubble stone, or on dry rock. In wet tilly clays, it soon sickens. It does not produce suckers like the English elm; but, according to Boucher, it roots more readily from layers than that species. The most ready mode of propagating it, however, is by seeds, which are produced in great abundance, and are ripe about the middle of June. They ought to be gathered with the hand before they drop, as, from their lightness and winged appendages, they are very apt to be blown away by the wind. The seeds may either be sown as soon as gathered, in which case, many plants will come up the same season; or they may be thinly spread out to dry in the shade, and afterwards put up into bags or boxes, and kept in a dry place till the following March or April.

2. 6. U. (m.) *GLabra* Mill. The smooth-leaved, or Wych, Elm.


*Engravings.* Engl. Bot., t. 2248.; and our fig. 1400.

*Spec. Char., &c.* Leaves elliptic-oblong, doubly serrated, smooth. Flowers nearly sessile, 5-cleft. Samara obovate, naked, deeply cloven. (Smith.) Branches spreading, rather drooping, smooth, blackish, scarcely downy in their earliest stage of growth. Leaves smaller than any of the preceding (except *U. campéstris*), as well as more oblong; strongly serrated, very unequal at the base, not elongated at the extremity; their substance firm, or rather rigid; the surface of both sides very smooth to the touch, and without any hairs beneath, except the axillary pubescence of the ribs, which often forms a narrow downy line along the midrib. Flowers nearly sessile, with 5 short, bluntish, fringed segments, and as many longish stamens, the anthers of which are roundish heart-shaped. Samara smaller than most other species, obovate, cloven down to the seed, smooth, often reddish. A tall, elegant, deciduous tree. Britain, chiefly in England, in woods and hedges; and forming the most common elm in some parts of Essex. Height 60 ft. to 80 ft. Flowers and samara as in the preceding sort.

It bears seeds in nearly as great abundance as *U. montana*, and it does not
row up suckers; which convinces us that it is only a variety of that species. The propagation, culture, &c., of *U. glabra* and its varieties are the same as in the preceding sort; but, to preserve the latter distinct, they ought to be grated. 

**Ventricles.** In consequence of *U. glabra* ripening seeds in different parts of England, many varieties have been raised from it, most of which are distinguished by great rapidity of growth. It is difficult to determine, in every case, whether the varieties of *U. (m.) glabra* are not nearer to *U. montana*, than to that sub-species; and, in some instances, they appear to partake of the character of *U. campéstris* and *U. (c.) suberósa*. T. A. Knight, Esq., informs us that from seeds of one variety of *U. (m.) glabra*, viz. the Downton elm, which were ripened in the cold climate of that part of Shropshire, he “raised plants which are so perfectly similar to the *U. suberósa*, and which approximate so nearly to the character of the *U. glabra*, that” he does “not doubt but that the *U. campéstris, U. suberósa, U. glabra*, and three or four other varieties which” he has “seen in different parts of England, are all varieties only of the same species.”

**A. Timber Trees.**

*U. (m.) g. 1 vulgáris. The common smooth-leaved Elm.*

*U. (m.) g. 2 végeta. U. montana végeta in the Horticultural Society’s Garden; U. americána Masters; the Huntingdon Elm, the Clarechester Elm, the American Elm in some places, and perhaps the Scampston Elm. — This is by far the most vigorous-growing kind of elm propagated in British nurseries, often making shoots from 6 ft. to 10 ft. in length in one season; and the tree attaining the height of upwards of 30 ft. in ten years from the graft. Raised at Huntingdon about 1746, from seed collected in that neighbourhood, by Mr. Wood, nurseryman there.*

*U. (m.) g. 3 var. The Scampston Elm. — Variety of *U. glabra*, and very little different from the preceding kind.*

*U. (m.) g. 4 major. U. glabra major Hort. Dur.; the Canterbury Seedling. — Of more vigorous growth than the species, and, indeed, a rival to the Huntingdon elm in quickness of growth. Judging from the specimens of this variety sent to us by Mr. Masters, we should say that it belongs fully as much to *U. montana* as to *U. (m.) glabra.*

*U. (m.) g. 5 glandulósa Lindll. — Leaves very glandular beneath.*

*U. (m.) g. 6 latifólia Lindll. — Leaves oblong, acute, very broad.*

*U. (m.) g. 7 microphylla Hort. U. g. parvifólia. — Leaves small. Horticultural Society’s Garden.*

**B. Ornamental or curious Trees.**

*U. (m.) g. 8 pendula. U. campéstris pendula Hort. Dur.; the Downton Elm. — Raised in Smith’s Nursery, at Worcester, in 1810, from seeds obtained from a tree in Nottinghamshire. Mr. Knight of Downton Castle purchased some of these trees, and one them turned out to be that weeping variety which has since obtained the name of the Downton elm.*

*U. (m.) g. 9 variegáta Hort.—Leaves variegated. Hort. Soc. Garden.*

*U. (m.) g. 10 ramulósa Booth.—Branches more twiggy than the species.*

*7. U. Álba Kil. The whitish-leaved Elm.*


**Engraving.** Our fig. 0006. in p. 0000.

**Spec. Char., &c.** Bark grey brown; smooth, not chinky. Leaves with downy petioles; and disks oblong, acuminate, 2½ in. long, unequal at the base, doubly and very argutely serrate; above, deep green; beneath, downy, and becoming obviously whitish. (Willld.) A large deciduous tree. Hungary; said to have been introduced in 1834, but we are not aware that the plant is in British gardens.

3 A 2

Synonyms. The white Elm, Amer.; the Canadian Elm, the American white Elm.


Spec. Char., &c. Leaf with the petiole 1 in. to 1½ in. long, and hairy with short hairs; and the disk unequal at the base, 4 in. to 5 in. long, inclusive of a long acuminate point, 2 in. to 2½ in. broad, serrate, and mostly doubly so; the axils of the veins underneath joined by a membrane. Flowers peduncled, effuse, purple; peduncles short, glabrous. Stamens 5 and 8. Samara fringed at the edge with hairs, ovate, acute. This species is readily distinguishable from others by the membrane which appears at the axils of the veins. (Wild.) Young branches brown, with short very fine hairs. Leaves deeply green above, almost glossy, rough; beneath, pale, downy. Flowers like those of U. effusa. A large tree. New England to Carolina. Height 80 ft. to 100 ft. Introduced in 1752; but rarely flowering, and not ripening seeds in England.

Varieties.

♀ U. a. 4 inessi Hort. (Plate in Arb. Brit., 1st edit., vol. vii.) — This variety differs from the other varieties, in having the leaves somewhat more deeply serrated, and rather smaller, approaching nearer to those of U. effusa. Horticultural Society’s Garden.

The white elm delights in low humid situations. The wood is used for the same purposes as that of the European elm, but it is decidedly inferior in strength and hardness; it has also less compactness, and splits more readily. Propagated by grafting on U. montana, but not common in collections.


Synonyms. U. fulva Michx. Arb. 3. p. 278.; Orme gras, French of Canada and Upper Louisiana; red Elm, red-wooded Elm, Moose Elm.


Spec. Char. &c. Resembles the Dutch elm. Branches rough, whitish. Leaves ovate-oblong, acuminate, nearly equal at the base, more or less cordate there; serrate with unequal teeth, rugose, very rough, hairy of both surfaces: they are larger, thicker, and rougher than those of U. americana. Leaf buds tomentose, with a tawny dense tomentum: they are larger and rounder than those of U. americana. Scales of the buds that include the flowers downy. Peduncles of flowers short. Samara not fringed, very like that of U. campestris; orbicular, or obovate. (Michx.) Leaves variable in shape and serratures, but more downy than the other North American elms. Stamens 5—7. Stigmas purplish. Samara, when young, downy on both sides. A tree bearing a strong resemblance to the Dutch elm. Canada to Carolina. Height 50 ft. to 60 ft. Introduced 1815. Flowers and samara as in preceding species.
Distinguished from the white American elm by its buds, which are larger and rounder; and which, a fortnight before their development, are covered with a russet down. It is less abundant than the white American elm; and the two species are rarely found together, as the red elm requires a substantial soil, free from moisture, and even delights in elevated and open situations. Its heart-wood is coarser-grained and less compact than that of U. americana, and is of a dull red tinge; whence the name of red elm. There are small plants bearing the name of U. fulva, in Loddiges's arboretum; but they are scarcely, if at all, distinguishable from U. americana.

**E. 10. U. alata** Michx. The Wahoo, or Cork-winged, Elm.


The most remarkable part of this species is, a fungous appenage, two or three lines wide, attached to the branches throughout their whole length; from which the name of ala (winged) has been given. The wood is fine-grained, more compact, heavier, and stronger than that of U. americana. The heart-wood is of a dull chocolate colour, and always bears a great proportion to the sap-wood. There are small plants in Messrs. Loddiges's collection, which, from the leaves, might be taken for those of U. (c.) suberosa; and the engraving in Michaux, from which fig. 13, is reduced to our usual scale, closely resembles the yob shoots and leaves of that tree of U. (c.) suberossa in the Horticultural Society's Garden, of which a plate is given in Arb. Brit., 1st edit., vol. vii.

**Genus II.**

**Platnara** Gmel. The Planara. Lin. Syst. Polygámia Monoc'cia; or Tetr-Pent-ándria Digynia.


Be Char. Flowers polygamous or monoeious. — Female and bisexual flowers. Calyx bell-shaped, distinct from the ovary, membranous, green, one piece, but having 5-ciliate lobes. Stamina in the bisexual flower 5, less developed than those in the male flower. Ovary top-shaped, lobous. Stigma 2, sessile. Fruit roundish, pointed, dry.— Male flower, Calyx as in the female and bisexual flowers. Stamina 4—5. (G. Don.) Leaves simple, alternate, stipulate or exstipulate, deciduous; toothed, simple or entire. Flowers small, greenish. Fruit small, whitish when ripe. Dehiscing leaves yellowish green.— Trees, deciduous, natives of Asia and North America, with the aspect of the hornbeam, and readily uniting by grafting to that tree or the elm. Bark scaling off like that of the Platanus. Pro-}

**3 A 5**


Spec. Char., &c. Flowers solitary in the axes of leaves; and both flowers and leaves borne upon a shoot that is developed in the same year with themselves. Petiole of leaf not obvious; disk of leaf elliptical, unequal at the base, dentate. (N. Du Ham.) A large deciduous tree. West of Asia, and upon the shores of the Caspian Sea; and to Imretta and Georgia, on the south of Mount Caucasus. Height 50 ft. to 70 ft. Introduced in 1760.

Flowers greenish white; April and May. Fruit white; ripe in October.

The base of the trunk does not swell out, like that of most other trees, its thickness being very little greater at the surface of the ground than it is at the point of ramification. Like that of the hornbeam, it is marked with longitudinal furrows, like open gutters. The head is large, tufted, and very much branched; but the branches, though widely extended, are more slender, and more vertical in their direction, than is generally the case with forest trees. The bark of the trunk is not grey and cracked, like that of the elm or the oak, but resembles rather that of the hornbeam or beech. In British gardens, the rate of growth of this tree is similar to that of the beech or common hornbeam; it attaining the height of 20 ft. in 10 years. The wood, when cut obliquely, resembles that of the robinia, and presents, like it, numerous interlacements of fibres. It is very heavy, and, when dry, becomes so extremely hard, that it is difficult to drive nails into it with a hammer. In the countries where it is abundant, it is employed for the same purposes as oak; and it is found to be even superior to that wood for furniture. Its colour is agreeable; it is finely veined; and its texture is so compact, and its grain so fine, as to render it susceptible of the highest polish.


Spec. Char., &c. Flowers in heads, opening before the leaves are protruded, and borne on branches or branchlets, developed in some previous year. Leaf with an obvious petiole, and a disk ovate-acuminate, equal at the base, and serrate. A deciduous shrub or low tree. Kentucky, Tennessee, and the banks of the Mississippi. Height 20 ft. to 30 ft.
Introduced in 1816; but rare. Flowers small, greenish brown; June. Fruit brown; ripe in September.

The leaf is much smaller than that of P. Richardi, and resembles that of Ulmus campesiris, except in being serrated with equal teeth; it is of a lively green on the upper surface, and grey on the under one. Only very small plants are in British gardens.

**Genus III.**

**CELTIS Town.** The **Celtis**, or **Nettle Tree.** Lin. Syst. Polygâmia Moncè'cia, or Pentándria Digýnia.

**Identification.** Tourn. quoted by T. Nees ab Esenbeck, in his Gen. Pl. Fl. Germ., fasc. 3. t. 4.

**Synonymes.** Lotus of Lobel and other authors; Micocoulier, Fr.; Züngelbaum, Ger.; Celte, Ital. Derivation. The name of Celtis is said to refer to the tree having been known to the ancient Celts; and the appellation of Nettle Tree relates to the similarity of the leaves to those of some kind of nettle (Urtica).

**Gen. Char.** Flowers bisexual, monœcious. Calyx bell-shaped, distinct from the ovary, 5—6-parted, the segments imbricate in aestivation. Stamens 5—6, inserted into the base of the calyx. Filaments incurved. Anthers cordate, acuminate. Stigmas 2, sessile. Fruit a drupe, subglobose. (G. Don.)

**Leaves** simple, alternate, stipulate, deciduous; serrate, unequal at the base, in two ranks, and rough on the upper surface; with the primary veins forming an acute angle with the midrib, and extending through a considerable part of the disk of the leaf. Flowers small, greenish. Pulp of the fruit edible.—Trees, deciduous; natives of Europe, Asia, and North America.

Varying in size and foliage, but all bearing fruit, which is edible, and, though small, is remarkably sweet, and said to be very wholesome. Some of the species, according to Descemet, are very ornamental; particularly C. cassifolia, the branches of which assume the character of a fan; and C. occidentalis, the branches of which droop like a parasol. The wood of C. australis is valuable; but that of most of the other species is too weak to be of any use in the arts. The leaves of all the species, like those of all the species of Diospyros, drop off almost simultaneously, and thus occasion very little trouble to the gardener in sweeping them up. Propagated by layers or seeds.

**1. C. australis L.** The southern Celtis, or European Nettle Tree.


**Synonymes.** Lotus árbor Lob. t. 2. p. 185.; Lóbus sive Celtic Cam. Epit. 155.; Lote tree; Micocoulier austral, Micocoulier de Provence, Fabrecoulier, Fabreguier des Provençaux (see N. Du Ham.); Arcidiaolo, Ital.

**Engravings.** Du Ham. Arb., 2. t. 8.; Dend. Brit., t. 105.; and our Fig. 1406.

**Spec. Char.**, &c. Leaves ovate-lanceolate, oblong-lanceolate, or acuminate, argutely serrated, unequal at the base, rough on the upper surface; soft, from down, on the under one. Flowers solitary. (Willd.) A deciduous tree. South of Europe, North of Africa, and Asia. Height 20ft. to 40ft. Introd. 1796. Flowers greenish; May. Fruit black ripe in October.

1406. C. australis
Variety. Brotero, in his *Flora Lusitanica*, mentions a variety with variegated leaves, that was found wild in Portugal.

The tree grows rapidly, more especially when once established, and afterwards cut down; sometimes producing shoots, in the climate of London, 6 or 8 feet in length. It bears pruning remarkably well, at every age. Its leaves are very seldom touched by insects, either on the Continent or in England; and the Cossus Lignipérdæ and Scolytus destructor, which are so injurious to the timber of many other trees, never touch either that of Celtis, that of Plánera Richárdí, or that of *Pyrus Nörbus*.

**2. C. (a.) caucásica Willd.** The Caucasian Celtis, or *Nettle Tree.*


*Engraving.* Our fig. 1407. from a specimen in Sir W. J. Hooker's herbarium.

*Spec. Char., &c.* Leaves oblong, acuminate, serrate with large teeth, a little narrowed at the base and almost equal there; above, deep green; beneath, pale yellowish; and the veins, when seen under a lens, a little hairy. (*Willd.*)


This is very closely akin to *C. australis*; but it differs in its leaves being more ovate, having the acuminate part shorter, and being glabrous.

**3. C. Tournefortii Lam.** Tournefort's Celtis, or *Nettle Tree.*


*Synonymes.* *C. orientalis minor, foliis minoribus et crassioribus, fructu flavo, Tourn. Cor.* 42.; *C. orientalis Mill. Dict.* No. 3., but, according to the *Nouveau Du Hamel*, not of Lin., which is considered a half-hardy plant in Britain; *Micocoulier du Levant*, *Micocoulier d'Orient*, Fr.; *Morgenlandlscher Züngelbaum*, Ger.

*Engravings.* Tourn. *Itin.*, t. 41.; the plate of this tree in *Arb. Brit.*, 1st edit., vol. vii.; and our fig. 1408.
Spec. Char., &c. Leaves, when adult, ovate, acute, unequal at the base, crenately serrate, roughish on the upper surface; when young, subcordate at the base. Fruit yellow, becoming brown. A low tree, or large shrub. Armenia. Height 10 ft. to 12 ft. Introduced in 1739. Leaves bluntish, rough on both surfaces, glossy. Flowering and fruiting at the same time as C. australis.

This species is readily known from all others, in winter, by its forming a compact upright-branched bush, or low tree; and, in summer, by the deep green and dense mass of its rigid-looking foliage. It is rather more tender than C. australis and C. occidentalis. When propagated by seeds, they should be sown in autumn, as soon as they are ripe; as, if not sown till spring, they generally remain a year or more in the ground. They prefer a moist soil, and a sheltered situation.


Engraving. Our fig. 1409. from a specimen in Sir W. J. Hooker's herbarium.


The plant of this kind, in the Horticultural Society's Garden, seems to differ very little, if at all, from C. Tournéfortii.

\* 5. C. Willdenovi\'a Schultes. Willdenow's Celtis, or Nettle Tree.


Engraving. Our fig. 1410. from a specimen in Sir W. J. Hooker's herbarium.

Spec. Char., &c. Leaves ovate, oblong, acuminate, narrowed to the base, serrate from the middle to the tip; above, glabrous; beneath, roughish. (Schultes.) A deciduous tree. China. Height 10 ft. to 15 ft. Introduced ?.

\* 6. C. occidenta\'lis L. The western Celtis, or North American Nettle Tree.


Synonymes. C. fructu obscurro purpureascenæ Turrn. Inst. 613.; C. oblina Quenč; Nettle Tree, Sugar Berry. Amer.; Bois Inconnu, Illinois; Miscoelleri de Virginie, Fr.

Engravings. N. Du Ham, 2. t. 9; Dendr. Brit., t. 147; the plates of this species in Arb. Brit., 1st edit., vol. vii.; and our fig. 1111.

Spec. Char., &c. Leaves ovate-acuminate, unequal at the base, serrate, rough on the upper surface, hairy on the under one. Flowers solitary. Leaves serrate, with equal teeth. Flowers, in the lower part of the branch, 3 in an axil; in the upper part, 1 only in an axil. Fruit obscurly purplish. (Röm. et Schult.) A deciduous tree, very closely akin to C. australis. Canada to Carolina, in woods and near rivers. Height 30 ft. to 50 ft. Introduced in 1636. Flowers small, greenish; May. Fruit purplish; ripe in October.

Varieties.

\* C. o. 2 corda\'ta Willd., Willd. Baumz. p. 82.—Leaves subcordate at the base, very acuminate; above, less rough; beneath, more veiny; disk 3 in. to 4 in. long.

acuminate; roughish above, in some instances glabrous; disk of leaf 1½ in. to 2 in. long. Louisiana.

Very hardy and ornamental; and it possesses the property of keeping on all its leaves very late, and then, like the other species, dropping them all at once, so that they may be swept away at one time for litter. C. occidentalis is readily known from C. australis by its leaves being larger, and of a lighter and more shining green, and its wood being of a lighter colour in winter. The leaves also die off sooner, and of a brighter yellow, than those of the European species. It is more hardy, and is readily propagated by layers or by seeds in any common soil.

7. C. crassifolia Lam. The thick-leaved Celtis, or Hackberry.

Engravings. Meix. North Amer. Sylva, 3, t. 113; N. Du Ham., 2, t. 9; and our fig. 1412.

Spec. Char., &c. Leaves with disks ovate-acuminate, 6 in. long, 3 in. to 4 in. broad; heart-shaped, auricled and unequal at the base; serrated with unequal teeth, rather leathery, rough on both surfaces. Flowers 1—2 upon the peduncle. Young branches downy. Bark red brown. Leaves 5 in. long, or more. Petioles slightly hairy, 3—6 lines long. Flowers much like those of C. australis, upon slender peduncles; the peduncles of the fruit longer than the petioles. Fruit of the size of the bird-cherry. (Lamarck.) A deciduous tree, nearly allied to C. occidentalis. Virginia, Kentucky, and Tennessee, on the banks of rivers, and in valleys in fertile soil. Height 20 ft. to 30 ft. Introduced in 1812. Flowers greenish; May. Fruit black; ripe in October.

8. C. levigata Willd. The glabrous-leaved Celtis, or Nettle Tree.

**Order LXVII. JUGLANDA'CEÆ.**

Ord. Char. Flowers unisexual.—Male flowers disposed in aments, each with a scale-like oblique, or 2- or 6-lobed, perianth. Stamens hypogynous, indefinite. Anthers innate.—Female flowers having a double or single perianth, which adheres to the ovarium; the outer one 4-cleft, and the inner of 4 separate parts, when present. Ovarium 1-celled, ovule erect. Styles 1—2, or wanting. Drupes fleshy, containing a 1-celled, 2—4-valved, ragged nut. Embryo with cerebriform convolutions, more or less 4-lobed, covered by a membranous testa. (G. Don.)

Leaves compound, alternate, extispulate, deciduous; with many leaflets. Flowers axillary, the males in catkins, and the females sessile, or on short stalks. — Trees, deciduous; natives of Asia and North America; propagated by seeds. The genera are three, which are thus contradistinguished: —

**Juglans L.** Flowers monoecious. Stamens numerous. Covering of the nut in 1 piece.


GENUS I.


Derivation. Juglans is contracted from Xenus, love's, and gladis, a mast, or acorn; and was applied by the Roman writers to this tree, on account of the excellence of its fruit as food, compared with other mastis or acorns; the only species that was known to the Romans having been the Juglans régia, or common walnut tree.

Gen. Char., &c. Flowers unisexual, monoecious.—Male flowers in cylindrical, drooping, solitary catkins. Calyx of 5—6 scales. Stamens 18—36. Female flowers solitary or a few in a group, terminal upon a shoot developed in the same year. Calyx ovate, including and adhering to the ovary. Petals 4. Stigmas 2—3, fleshy. Fruit a drupe. Covering of the nut a fleshy husk of 1 piece that bursts irregularly. Nut woody, of 2 valves. (G. Don.)

Leaves compound, alternate, exstipulate, deciduous; imparipinnate, of 5—19 leaflets, all but the terminal one in opposite or nearly opposite pairs; all serrate, and all spreading in one plane. Flowers greenish. Decaying leaves brown.—Trees deciduous, natives of Asia and North America, with coarse-grained wood; and fruit, in one species at least, much esteemed at the dessert, and valuable for the oil which it contains.

The trees belonging to this order bear, with only two or three exceptions, so close a resemblance to one another in their young state (in which state alone most of them are to be seen in Britain), that we have been unable to satisfy ourselves as to what are species, and what are only varieties. Michaux has arranged the species in the two following sections:—

§ i. Simple Aments. Growth rapid.—1. Juglans régia L. 2. J. nigrá L. 3. J. cathartica Michx., syn. J. cinérea L. The order of the flowering of these species in England is, first J. régia, then J. cinérea, in a few days after which the catkins of J. nigrá expand. The order of fruiting is different; for, while the fruit of the common walnut begins to drop in the first or second week in September, that of the black walnut does not fall till the end of the same month, and that of the grey walnut not till the beginning of October. To this section may be added J. ffraxinifolía L., recently separated from Juglans as the genus Pterocarya.


§ 1. J. régia L. The royal, or common, Walnut Tree.


to 69 ft. In cultivation in England since 1562, and probably long before. Flowers greenish; April and May. Fruit with a green husk, enclosing a brown nut; ripe in September. Decaying leaves brown.

Varieties.

† J. r. 2 máxima. Núx Juglans fructu máximo Bauh. Pin. 417.; Noix de Jange Bon Jard. ed. 1836 p. 473.; Clawnut in Kent, Bannut in Warwickshire. — This variety has the fruit double the size of that of the species, being sometimes nearly as large as a turkey's egg; but, in drying, the kernel shrinks to one half its size; and, hence, the fruit of this variety is not good for keeping, but ought to be eaten directly after being gathered. The leaves are large, and the tree has a magnificient appearance; but its timber is not nearly so durable as that of the common walnut.

‡ J. r. 3 tenuera. Núx Juglans fructu ténere et frágile putámine Bauh. Pin. 417.; Noyer à Coque tendre, Noyer Mésange Bon Jardinier, l. c., Noyer de Mars in Dauphiné; the thin-shelled, or Titimouse, Walnut. (See Hort. Trans., vol. iv. p. 517.; and E. of Gard., ed. 1834, p. 942.) — The last name is given to this kind of walnut, because its shell is so tender, that the birds of the titmouse family (mésange, Fr.) (Párus major L.; P. ceruleus L.; and also P. ater and P. palustris L.) pierce it with their bills, and eat the kernel, leaving the remaining part of the fruit on the tree. This variety has the most delicate fruit of all the walnuts: it keeps longer, and produces more oil; but it is not so good a bearer as the other sorts.

‡ J. r. 4 serótina Desf. Núx Juglans fructu serótino Bauh. Pin. 417.; Noyer tardif, Noyer de la Saint-Jean Bon Jard. ed. 1836 p. 472., Noyer de Mai in Dauphiné. — This is a most valuable variety for those districts where the frosts continue late in spring.


Other Varieties. The above are the most remarkable and valuable of the varieties of the common walnut; the first three, on account of their fruit; and the last, as a curiosity, on account of its leaves. But in the Bon Jardíniér five others are enumerated; and in the Horticultural Society's Fruit Catalogue for 1832 nine are given, of which the most valuable for cultivation for its fruit is the Highflier; a variety which was originated at Thetford, in Norfolk, and which is held in much esteem in that county and in Suffolk. (Hort. Trans., iv. p. 517.; and E. of Gard., ed. 1835, p. 942.) There is also the Yorkshire walnut, which is much planted in that county. The varieties recommended by Mr. Thompson, as having proved the most prolific in the Horticultural Society's Garden, are : the Round early oval; the Double large French, No. 1. above; the Tender-shelled, No. 2.; and the Thick-shelled. In the gardens of the Trianon, near Paris, there is a hybrid between Júglans régia and J. nigra, which partakes in an equal degree of the properties of both species, and has ripened fruit from which young plants have been raised possessing similar properties. (See Gard. Mag., vol. xvi.)

The wood of the walnut weighs 58 lb. 8 oz. in a green state; and when dried, 46 lb. 8 oz. It is white in young trees, and in that state is subject to be wormeaten; but, as the tree grows old, the wood becomes solid, compact, easy to work, and acquires a brown colour, veined, and agreeably shaded with light brown and black. The most valuable part of the walnut is its fruit, which is much in demand throughout Europe and other parts of the world, for the table, and for various other purposes. In a young and green state, it is pickled and preserved; and, when mature, it is used as food for the poorer classes in the countries where it abounds, and at the dessert of the richer classes. An oil is expressed from the kernel in some parts of France, Switzerland, and Italy.
The species is propagated by the nut; which, when the tree is to be grown chiefly for its timber, is best sown where it is finally to remain, on account of the taproot, which will thus have its full influence on the vigour and prosperity of the tree. Where the tree is to be grown for fruit on dry soils, or in rocky situations, it ought also to be sown where it is finally to remain, for the same reasons. In soils on moist or otherwise unfavourable subsoils, if sown where it is finally to remain, a tile, slate, or flat stone, should be placed under the nut at the depth of 3 or 4 inches, in order to give the taproot a horizontal direction; or, if this precaution has been neglected, after the plants have come up, the taproot may be cut through with a spade 6 or 8 inches below the nut, as is sometimes practised in nurseries with young plants of the horsechestnut, sweet chestnut, walnut, and oak. On the other hand, when the walnut is planted in soil which has a dry or rocky subsoil, or among rocks, no precaution of this sort is necessary: on the contrary, it would be injurious, by preventing the taproot from descending, and deriving that nourishment from the subsoil which, from the nature of the surface soil, it could not there obtain. The varieties may be propagated by bud- ing, grafting, inarching, or layering, in common soil. The walnut tree attains the largest size in a deep loamy soil, dry rather than moist; but the fruit has the best flavour, and produces most oil, when the tree is grown in calcareous soils, or among calcareous rocks: in a wet-bottomed soil, whatever may be the character of the surface, it will not thrive.

2. J. nigra L. The black-wooded Walnut Tree.


**Synonyms.** The black Walnut, the black Hickory Nut, N. Amer.; Noyer noir, Fr.; Noce nera, Ital.

**Engravings.** Michx. Arb., t. 1; Michx., North Amer. Sylva, t. 30; Dendr. Brit., t. 158; the plate of this tree in Arb. Brit., 1st edit., vol. vii.; and our fig. 1417.

**Spec. Char.** Leaflets, in a leaf, 13—17; cordate-acuminate, unequal at the base, serrated, and somewhat downy; lateral ones upon short petiolules. Fruit globose, roughish with minute prominent points, situated upon a short inflexible peduncle. Nut globose, somewhat compressed at the sides, ridged and furrowed. (Michx.) A large deciduous tree.
New England to Florida, in fertile soil in woods. Height 60 ft. to 100 ft. Introduced in 1656. Flowers greenish; April and May. Fruit with a green husk, enclosing a brown nut.

**Varieties.** None are in cultivation; but a hybrid between this species and *J. nigra* has been noticed in p. 733.

The growth of the tree is remarkably quick, more so than that of the European walnut. At 8 or 10 years of age it begins to bear, and age increases its fertility. No tree will grow under its shade, and even grass is injured by it. In 40 years, in good soil, it will attain the height of from 50 ft. to 60 ft. The heart-wood, which is black, remains sound for a long period, when exposed to heat and moisture; but the sap-wood speedily decays. When properly seasoned, the wood is strong, tough, and not liable to warp or split. It is never attacked by worms, and has a grain sufficiently fine and compact to admit of a beautiful polish. The tree is universally raised from the nut, which, after being imported, ought to be sown immediately, as it seldom retains its vital power more than six months after it has ripened.

**3. *J. cineerea* L.** The grey-branched Walnut Tree, or Butter-nut.


**Engravings.** Michx. Arb., 1, t. 2.; Michx. North Amer. Sylva, t. 31.; and our fig. 1418.

**Spec. Char., &c.** Petiole villous. Leaflets, in a leaf, 15—17; lanceolate, rounded at the base, serrate with shallow teeth; tomentose beneath; lateral ones sessile. Fruit oblong-ovate, with a tapered tip, downy, covered with viscid matter in small transparent glanded hairs, pendulous on a flexible peduncle. Nut oval, with an acuminate tip, very rough with prominent irregular ridges. (Michx.) A large deciduous tree. Canada to Virginia, and on the Alleghany Mountains. Height 30 ft. to 60 ft. Introduced in 1656. Flowers greenish; April and May. Fruit a green husk, enclosing a brown nut; ripe in October.

This species grows with equal rapidity, when young, as the *J. nigra*; but the trunk ramifies at a less height; and the branches extending more horizontally than those of most other trees, and spreading widely, a large and flat tufted head is formed, which gives the tree, in America, more especially in exposed situations, a most remarkable appearance.

**Genus II.**


Derivation. "Karya (Carya), the walnut tree: the name which the Greeks applied to Jüglans régia." (Nuttall) The name of Carya was applied to the common walnut by the Greeks, in honour of Carya, daughter of Dion, king of Macedonia, who was changed by Bacchus into that tree. Diana had the surname of Carya from the town of Carya, in Macedonia, where her rites were always celebrated in the open air, under the shade of a walnut tree. Plutarch says the name of Carya was applied to the walnut tree from the effect of the smell of its leaves on the head.

Gen. Clar. Flowers unisexual, monœcious. Male, female, and leaves all upon a shoot developed from one bud in the year of the flowering. The male flowers borne at the base of the shoot, below the leaves, or in the axils of the lower leaves; the female flowers, a few together about the tip of the shoot.—Male flowers in slender pendulous catkins, that are disposed 3 upon a peduncle. Calyx a 3-parted minute leaf. Stamens 4—6. Female flowers. Calyx including and adhering to the ovary; its tip free, and 4-cleft. Stigma sessile upon the ovary, partly discoid, 2—4-lobed. Fruit a drupe. Husk fleshy, separating into 4 equal valves. Nut with 4 or more bluntest angles in its transverse outline; the surface pretty even. (G. Don.)

Leaves compound, alternate, exstipulate, deciduous; imparipinnate, of 5—15 leaflets, serrate; all, except the terminal one, in opposite, or nearly opposite, pairs; and all spreading in one plane. Flowers greenish. Decaying leaves brown. —Trees, deciduous; natives of North America; the rate of growth slower than a Jüglans, and the bark appearing reticulated.

When propagated, the nuts should, if possible, be planted where the trees are intended to remain, as most of the species have very long taproots, which are nearly destitute of fibres. This remark, however, does not apply to C. amara, which, like Jüglans nigra, has abundance of fibrous roots. The pig-nut (C. porinna) and the moeker-nut (C. tomentosa) are considered to afford the best timber; and the pacane-nut (C. olivæformis) decidedly the best fruit, though the nut in this species is small.

§ 1. C. olivæformis Nutt. The olive-shaped Carya, or Pacane-nut Hickory.


Engravings. Michx. Arb., 1. t. 3; North Amer. Sylva, 1. t. 32; and our fig. 1419.

Spec. Clar., &c. Leaflets, in a leaf, 12—15; ovate-lanceolate, serrate; lateral ones nearly sessile, and somewhat falcate. Fruit oblong, widest above the middle. Fruit and nut each with four angles in its transverse outline. Nut in form and size compared with the fruit of the olive, narrowly elliptical. (Michx.) A large deciduous tree, Banks of the Ohio, Mississippi, and other rivers in Upper Louisiana. Height 60 ft. to 70 ft. Introduced in 1766. Flowers greenish; April and May. Fruit with a green husk, enclosing a yellowish nut.

The shell is smooth and thin, but too hard to be broken by the fingers. The
kernel is full, and, not being divided by ligneous partitions, is easily extracted, and of an agreeable taste. The wood is coarse-grained, and, like that of the other hickories, is heavy and compact, possessing great strength and durability. The nuts are exported to the West Indies, and to the ports of the United States; and Michaux considers them as more delicately flavoured than any of the nuts of Europe.

2. C. amara Nutt. The bitter-nut Carya, or Hickory.

Engravings. Michx. North Amer. Sylva, 1. t. 33; and our fig. 1420.

Spec. Char., &c. Leaflets, in a leaf, 7–9; ovate-oblong, acuminate, serrate with deep teeth, glabrous; lateral ones sessile. Sets of catkins in pairs. Fruit roundish-ovate, bearing, in its upper half, 4 wing-like ridges; husk thin and fleshy, ovate, softening and decaying, and never becoming ligneous, as in the other species. Nut subglobose, broader than long, tipped with a mucro. Seed bitter. (Michx.) A large deciduous tree. New England to Maryland, in dry woods in fertile soil, on the mountains. Introduced in 1800. Flowers greenish; April. Fruit with a greenish husk, enclosing a white nut; ripe in October.

The fruit is very small, and produced in great abundance. The husk, which is thin, fleshy, and surmounted on its upper half by 4 appendages in the form of wings, never becomes ligneous, like those of the other hickories, but softens and decays. The shell is smooth, white, and thin enough to be broken with the fingers; the kernel is remarkable for the deep inequalities produced on every side by its foldings. It is so harsh and bitter, that squirrels and other animals will not feed upon it while any other nut is to be found.

3. C. aquatica Nutt. The aquatic Carya, or Water Bitter-nut Hickory.

Engravings. Michx. North Amer. Sylva, t. 84; and our figs. 1421. and 1422.

Spec. Char., &c. Leaflets, in a leaf, 9–11; narrowly lanceolate, serrate. Very similar to the leaves of Persica vulgaris Mill.; the lateral ones sessile. Fruit peduncled, ovate, with 4 rather prominent ridges at the seams of the husk. Nut broadly oval, angular, a little depressed at the sides, roughish, reddish. (Michx.) A middle-sized deciduous tree. South Carolina to Georgia, in swamps and rice fields. Height 40 ft. to 50 ft. Introduced in 1800. Flowers greenish; April. Fruit, with a green husk, enclosing a reddish nut; ripe in October.

The water bitter-nut hickory is a tree with rather slender branches. Its leaves are 8 or 9 inches long, and of a beautiful green; they are composed of 4 or 5 pairs of sessile leaflets, surmounted by a petiolated odd one. The leaflets
are serrated, long in proportion to their breadth, and very similar to the leaves of a peach tree. The husk is thin; and the nuts are small, somewhat rough, of a reddish colour, and very tender. The kernel is in folds, and too bitter to be eatable. This species appears to require a great deal of warmth and moisture. The wood is light, weak, and very far inferior to every other kind of hickory.

& 4. *C. tomentosa* Nutt. The tomentose Carya, or Mocker-nut Hickory.


Engravings. Michx. Arb., 1, t. 6.; North Amer. Sylva, 1, t. 35.; and our fig. 1423.

**Spec. Char., &c.** Petiole downy beneath. Leaflets, in a leaf, 7—9; obovate-lanceolate, serrate with shallow teeth; downy and rough beneath; lateral ones sessile. Catkin very tomentose. Fruit, on some trees, globose, with depressions in the husk at the sutures; on other trees, oblong, with angles at the sutures. Nut with 4—6 angles in its transverse outline, having a short and capitate beak at the tip. Shell somewhat channelled. *Michx.* A large deciduous tree. New England to Virginia, and on the Alleghany Mountains, in forests where the soil is fertile. Height 50 ft. to 60 ft. Introduced in ? 1766. Flowers pale rose-coloured; May. Fruit with a grehuks, enclosing a brownish nut; ripe in November.
Variety.

C. t. 2 maxima Nutt. — Leaflets 7 in a leaf, ovate-lanceolate, acuminate, serrulate; beneath, softly pubescent, and of a paler colour; terminal leaflet subpetiolate. Fruit partly globose, of nearly twice the size ordinary in the species; as large as an apple. Husk exceedingly thick. Nut quadrangular, very large; having a thick shell, and a macro that is prominent, quadrangular, and truncate at the tip. (Nutt.)

The leaves grow so rapidly, that Michaux has seen them gain 20 in. in 18 days. With the first frosts, they change to a beautiful yellow, and fall off soon after. The fruit is ripe in November, and varies very much in size and shape. The shell is very thick, and extremely hard; and the kernel, which is sweet, though small, is so difficult to extract, because of the strong partitions which divide it, as to have given rise to the name of mocker-nut. There are numerous specimens of this tree in the Bois de Boulogne, which were sown there by Michaux fils in 1822; and in 1840, when we saw them, were from 20 ft. to 30 ft. high.

C. a‘lba Nutt. The white-nutted Carya, or Shell-bark Hickory.


Spec. Char., &c. Leaflets, in a leaf, 5—7; oblong-acuminate, argutely serrate; villous beneath; the pair nearest to the base of the petiole rather remote from it; terminal leaflet nearly sessile, Catkin glabrous. Fruit depressedly globose, with 4 longitudinal furrows, in the line of which the husk divides into 4 valves that become wholly separate. Nut compressed, oblique, 4-angled in its transverse outline, white. Bark exfoliating in long narrow strips. (Michx.) A large deciduous tree. New England to Carolina, and throughout the Alleghany Mountains, in forests where the soil is fertile. Height 80 ft. to 90 ft. Introduced in 1629. Flowers greenish; May. Fruit with a greenish husk, enclosing a white nut; ripe in November.

The growth of the leaves is so rapid, that in a month they attain their full length, which, in vigorous trees, is sometimes above 20 in. The fruit is round, with four depressed seams, and averages, in general, 5½ in. in circumference. The husk separates entirely from the nut; and its thickness is so dispropor- tioned to the size of the nut, as to form a character peculiar to this species and C. sulcata. The nuts are white (whence the name of C. a‘lba), compressed at the sides, and marked by four distinct angles, which correspond to the divisions of the husk. The kernel is fuller and sweeter than that of any other American walnut or hickory, except that of C. oliviformis; but it is inferior to the fruit of the European walnut.

C. sulcata Nutt. The furrowed-fruited Carya, or Hickory.


Spec. Char., &c. Leaflets, in a leaf, 7—9; obovate-acuminate, argutely serrate; downy beneath. Fruit round, having 4 longitudinal ridges that extend from the tip to the middle, and 4 intervening depressions, or furrows. Husk dividing from one extremity to the other, in the line of the furrows, into 4 equal valves. Nut subglobose, slightly compressed, having a long mucro at the tip, and a shorter stouter one at the base; yellowish. Bark exfoliating in long narrow strips. (Michx,) A large deciduous tree. Alleghany Mountains, in fertile valleys. Height 60 ft. to 80 ft. Introduced in 1804. Flowers greenish; May. Fruit with a greenish husk, enclosing a yellowish nut; ripe in November.

The leaves vary in length from 18 in. to 20 in., and are composed of from 7 to 9 leaflets; whereas in C. alba, the shell-bark hickory, the leaflets are invariably 5. The barren catkins are long, glabrous, filiform, and pendulous; 3 being united on a common petiole, attached to the bases of the young shoots. The fertile flowers appear, not very conspicuously, at the extremity of the shoots of the same spring. They are succeeded by a large oval fruit, more than 2 in. long, and 4 or 5 inches in circumference. It has four depressed seams, which, at complete maturity, open throughout their whole length for the escape of the nut. The shell is thick, and of a yellowish hue; while that of the C. alba is white.

7. C. porcina Nutt. The Pig-nut Carya, or Hickory.


Spec. Char., &c. Leaflets 5—7 in a leaf, obovate-acute, serrate, glabrous, dotted beneath with dots of resinous matter; terminal leaflet sessile. Nut obcordate. Fruit round, somewhat rough. (Michx.) See our fig. 1426. a, and fig. 1428. a. A lofty tree. North America, in the middle, western, and southern states, on the bor-
ders of swamps. Height 70 ft. to 80 ft. Introd. 1756. Flowers greenish; May. Fruit with a greenish husk, enclosing a brownish nut; ripe November.

Variety.


The leaves generally consist of three pairs of leaflets, and an odd one. The leaflets are 4 or 5 inches long, acuminate, serrate, nearly sessile, and glabrous on both sides. On vigorous trees which grow in shady exposures the petiole is of a violet colour. The husk of the fruit is thin, of a beautiful green; and, when ripe, it opens through half its length for the passage of the nut, which is small, smooth, and very hard, on account of the thickness of the shell. The kernel is sweet, but meagre, and difficult to extract, from the firmness of the partition. These nuts, in America, are never carried to market, but serve for food for swine, raccoons, and numerous squirrels which people the forests. The wood is stronger and better than that of any other kind of hickory. There were numerous specimens in the Bois de Boulogne in 1840, which were sown by Michaux fils in 1822.


Engravings. Mich. Arb., t. t. 16; North Amer. Sylva, t. 39; and our fig. 1429.

Spec. Char., &c. Leaflets, in a leaf, 9; ovate-acuminate, serrate, glabrous; the terminal one nearly sessile. Fruit ovate, roughish. Nut oval, with a small point at each end, even, brown with longitudinal lines of white; in which it resembles a nutmeg, which is the seed of Myristica moschata; and hence the epithet myristicaefórmis. (Michx.) A large deciduous tree. South Carolina.

Very little is known of this tree, which Michaux described from a branch and a handful of nuts, which were given to him by a gardener at Charleston.

♀ 9. C. microcarpa Nutt. The small-fruited Carya, or Hickory.


Spec. Char., &c. Leaflets, in a leaf, about 5; oblong-lanceolate, conspicuously acuminate, argutely serrulate, glabrous; glandular beneath; terminal one subpetiolate. Fruit subglobose. Husk thin. Nut partly quadrangular, small; its shell rather thin, its macro obsolete and truncate. Fruit much like that of C. tomentosa, and eatable; but very small, the nut not exceeding the size of a nutmeg. Catkins trifid, very long, glabrous, without involucre; scales 3-parted, their lateral segments ovate, the central one linear. Anthers pilose, mostly 4, sometimes 3, sometimes 5. Female flowers 2 or 3 together; common peduncle bracteolate. Segments of the calyx very long, and somewhat leafy. Stigma sessile, discoid, 4-lobed, somewhat rhomboidal. (Nuttall) A large deciduous tree. Philadelphia, on the banks of the Schuylkill.

Other Species of Carya. — C. ambigua (Juglans ambigua Michx.) is described in books, but not yet introduced; C. pubescens Link is supposed to have been introduced; and C. rigida (J. rigida Lodd. Cat.) is in the Hackney Arboretum, but appears to be only a variety of C. alba. C. integrifolius Spreng. (Hickóris integrifolius Rafinesque) is probably an imaginary species. From the circumstance of the species of Juglans and Carya crossing so freely with one another, and the seeds of the produce coming true to the cross-breeds thus produced, it is not unlikely that some of the species, even of the native woods of America, may have been so originated. The fact stated in p. 733, respecting a hybrid between Juglans regia and J. nigra would seem to justify these remarks.
Genus III.


Derivation. Pteron, a wing; karya, the common walnut. The fruit has wings; and, except in these, resembles that of the walnut.

Gen. Char., &c. Flowers unisexual, monoeccious.—Male flowers in spikes. Stamens in a flower many.—Female flowers in long pendulous spikes, and distant, sessile, and without bracteas. Calyx connate with the ovary. Ovary and part of the calyx flagon-shaped, bearing two wings above the base; their direction transverse and oblique; cell 1; ovule 1, erect. Style 1, very short. Stigmas 2, large, spreading, revolute. Fruit sub-drupaceous, angled; having two wings, as the ovary; much tapered to the tip, not opening; containing a bony nut, which has 4 cells in its lower part, whose partitions do not extend to the top. (G. Don.)

Leaves compound, alternate, exstipulate, deciduous; leaflets about 17, sessile, unequal at the base, not dotted, serrate. Fruit small. Decaying leaves brown.—A tree, deciduous; native of the eastern part of Caucasus; propagated by layers, but the plant is somewhat tender.

† 1. P. CAUCASICA Kunth. The Caucasian Pterocarya.


Engravings. Our fig. 1431. from a seedling plant; the plate of this tree in Arb. Brit., 1st edit., vol. vii.; and fig. 1432. from a plant in the Horticultural Society’s Garden.

Spec. Char., &c. Leaflets, in a leaf, about 19; ovate-oblong, acuminate, argutely serrate, glabrous; each with the lower or hinder side of its base attached to the petiole. (Lamarch.) A low deciduous tree. Mount Caucasus, in moist woods. Height 20 ft. to 40 ft. Introduced in ? 1800. Flowers greenish; May.
For small gardens and diminutive arborets, this tree may serve very well to exemplify the Juglandaceæ. Care should be taken to train it to a single stem, and not to plant it in soil so rich and moist as to prevent it from ripening its wood. Perhaps, also, something might be gained in point of hardiness by grafting it upon the common walnut; either on the collar of the stock, in order to form dwarf trees or bushes; or standard high, in order to form trees that would from the first have clear straight stems, and as they would ripen their wood better, in consequence of growing slower than the low trees or bushes, so they would perhaps show blossoms and ripen fruit.

Order LXVIII. Salicaceæ.

Ord. Char. Flowers unisexual, disposed in axils, one in the axil of each scale.—Male flowers disposed in cylindrical catkins, with a small gland-like perianth, and from 2—30 stamens, which are sub-adjacent to the gland, generally distinct, rarely monadelphous.—Female flowers disposed in dense ovate or cylindrical catkins, each with a free simple perianth. Ovarium superior. Style 1. Stigmas 2, often bifid. Capsule 1-celled, 2-valved, many-seeded. Seeds small, pendulous, downy. Albumen none. (G. Don.)

Leaves simple, alternate, stipulate, deciduous; serrated or entire. Flowers in catkins. Decaying leaves yellow or black.—Trees deciduous; natives of Europe, Asia, and North America. The genera are two, which are thus characterised:

**Salix L.** Bracteas entire. Stamens 1—3.

**Populus L.** Bracteas jagged. Stamens 8.

Genus I.


*Derivation.* From sal, near, and lus, water, Celtic; in reference to its general habitat. According to others, from salitare, to leap; on account of the extraordinary rapidity of its growth.

Gen. Char., &c. Bractea to the flower of each sex entire.—Male flower consisting of 1—5 stamens, more in a few species, and of one or more glands inserted contiguously to the stamens.—Female flower consisting of a pistil that is stalked or sessile, or nearly sessile, and one or more glands inserted contiguously to it. (G. Don.)

Leaves simple, alternate, stipulate, deciduous; more or less lanceolate and serrated. Flowers yellow. Decaying leaves mostly yellow.—Trees or shrubs, deciduous; natives of Europe, Asia, Africa, and North America readily propagated by cuttings in any moist soil.
The species vary from 2 or 3 inches to 50 or 60 feet, and even to 80 or 90 feet, in height. The branches are round and flexible; the leaves in all cases deciduous, and the sexes, with scarcely any exceptions, on different plants. The appearance of the male plant and the female plant, of the same species, is generally more or less different; and hence one of the great difficulties in the study of this genus, the species of which may be described as in a state of inextricable confusion. The growth of the dwarfest species, such as S. herbacea, is slow, and, in its native habitat, not above 1 in. a year, and often not so much; that of the larger shrubs, in their native habitats, varies from 5 or 6 inches to as many feet, especially when the plants are young or newly cut down. The growth of some of the kinds cultivated for basket-making or hoops, in good soil, when cut down every year or every two years, is often from 8 ft. to 12 ft. in a single season. The growth of the tree kinds, more especially of S. alba and S. Russelliana, is equally rapid when young; so that in ten years, in the climate of London, in suitable soil, and within reach of water, these kinds will attain the height of 50 or 60 feet. The branches of most of the tree kinds have an upward direction, and have a flame-like motion in the wind, as in S. alba; but in others they are spreading, as in S. caprea; and, in one instance, drooping in a very decided manner, as in S. babylonica.

Almost all the willows are found naturally either in a cold soil and moist climate, or, if in a sandy soil, within reach of water. The low-growing kinds are sometimes, however, found in dry arid soils; but in such soils they are never in a thriving state. Willows are very seldom found growing on moist peat bogs; the only species observed in such situations by Steele being the S. caprea and the S. pentandra, and these only sparingly in peat bog that was dry. All the willows are propagated by cuttings; though some of the more rare alpine kinds root with difficulty. Some species propagate very readily from seeds; and there can be little doubt that grafting, marching, and other similar modes of propagation, would be as successful in this genus as in most others.

The best kinds of willow for growing as timber trees are:—S. alba, which will attain the height of from 60 ft. to 80 ft. in 20 years. S. Russelliana and S. frigilis, which are frequently confounded; and, indeed, in external appearance, differ very slightly from each other except in size: S. Russelliana growing as rapidly, and to as great a height, as S. alba; but S. frigilis, though it grows with equal rapidity, not attaining so great a height. S. caprea, and some of its allied kinds, which grow as rapidly as S. frigilis for three or four years; and will attain nearly the same height as that species in the same time; that is, on good soil, from 30 ft. to 40 ft. in twenty years: according to Bose, S. caprea is the most valuable of all the tree willows grown in France. Other willows which attain a timber-like size, or about 30 or 40 feet in twenty years, are, S. triandra, S. rotundata, S. lucida, S. Meyeriana, S. praecox, S. Pontederiana, S. acuminata, S. pentandra, S. vitellina, and S. amygdalina. Many of the other species, in good soil, if allowed sufficient room, and trained to a single stem, would attain the size and character of trees; but with a view to timber, the four species first mentioned, viz. S. alba, S. Russelliana, S. frigilis, and S. caprea, are alone worth cultivating. The best sorts for coppice-wood are S. caprea and its allied kinds.

Almost all the species of willows may be grown for basket rods, but some are greatly preferable to others. The most vigorous-growing basket willow is, unquestionably, S. viminallis; and it is also the sort most generally cultivated for that purpose. It has no disadvantage that we are aware of, except that in cold wet seasons, and in a moist soil, it does not always ripen the points of its shoots. S. rubra, S. Forbyana, S. decipiens, and S. stipularis are excellent species, of less vigorous growth than S. viminallis, which ripen the points of their shoots perfectly in most seasons: the best of these is, perhaps, S. Forbyana. S. triandra is nearly as vigorous as S. viminallis. S. helix, S. vitellina, and S. purpurea are very desirable species where small
tough rods are required. Various other sorts might be mentioned; but these we consider as by far the most valuable.

As gardensque objects, all the shrubby species of willow, as well as the trees, will have most effect when trained to a single stem, if only to the height of 2 or 3 feet. This alone gives them the character of art. All the trailing sorts, such as S. herbacea, S. reticulata, &c., to be truly gardensque, ought to be grafted standard high for the same reason. For picturesque decoration in artificial scenery, all the upright shrubby and tree willows may be scattered or grouped along the margin of water; and all the creeping or trailing kinds placed on rock-work, and left to take their natural shapes. Such species of willow as S. pentandra, S. lucida, and one or two others, from having little of the aspect common to the willow family, and, consequently, their forms not being associated with the idea of moist soil or water, may be placed near a house, or in a shrubbery or flower-garden, on account of their fragrance and early blossoms; but this cannot be recommended with respect to willows in general, which, whether as shrubs or trees, always convey the idea of the vicinity of water or of marshy ground.

The great master in the genus Salix, considered in a botanical point of view, is Professor Koch; but, in the present state of our knowledge of this genus in Britain, we have deemed it best to follow Mr. Borrer, whose groups have been adopted by Sir W. J. Hooker, and almost all other British botanists. Those who wish to study Koch's arrangement will find it given at length in the Arch. Brit., 1st edit., p. 1486. and 1633., in which is also given the arrangement of Hooker. Our descriptions in this abridgment are necessarily exceedingly brief, and we must, therefore, refer the reader who wishes to enter into the subject at length to our 1st edition, in which p. 1453. to p. 1636. are occupied with the genus Salix. In the present edition, through the kindness of Mr. Borrer, we have indicated the principal species which represent each group, immediately after the characteristic feature of that group.

Group i. Purpureæe Koch, Borrer.

Monandria is the name adopted for this group in Hook. Br. Fl., ed. 3.; but Mr. Borrer considers Purpureæe preferable, because it is taken, like the name of each of the other groups in this arrangement, from the name of a species included in that group. Purpureææ, too, is the name given by Koch to the same group.

Other Willows, with one Stamen in a Flower. The principal species, according to Mr. Borrer, are 1. 4. and 6.

Filament 1, bearing an anther of 4 lobes and 4 cells; or, in S. ribra, forked, and each branch bearing an anther of 2 lobes and 2 cells. Germen sessile. Catkins very compact.—Trees of low stature, or shrubs with twiggy branches, and leaves that are more or less lanceolate, and serrated, and often broader upwards. Interior part of the bark, in most, yellow, and very bitter (Hook. Br. Fl.) The leaves of nearly all of the kinds of this group turn black in drying. The inner bark of most of the kinds included in this group is extremely bitter, which renders the plants suitable for banks of rivers, and other places which are infested by rats, as the bitterness prevents these animals from eating it.

1. S. purpureææ L. The purple Willow.

The Sexes. Both sexes are figured in Eng. Bot., and are in cultivation in some English collections.
Synonyme. S. purpureææ Koch Comm., p. 25.
Spec. Char., &c. Branches trailing, decumbent. Leaves partly opposite, obovate-lanceolate, serrated, very smooth, narrow at the base. Stamen 1. Stigmas very short, ovate, nearly sessile. (Smith.) A shrub. Britain. Height 3 ft. to 4 ft. in a wild state; 5 ft. in cultivation. Flowers yellow; March and April; earlier than the foliage.

Varieties. Koch, in his De Saliciis Europaeis Commentatio, has described six; but he includes the S. helix and Lambertiana (to be described as species below) as two of them. See Arb. Brit., 1st edit.

Branches of a rich and shining purple, with a somewhat glaucous hue, and much esteemed for the finer sorts of basketwork.

**2. S. helix L.** The Helix, or Rose, Willow.


The Sexes. Both sexes are figured in Sal. Web., and also in Eng. Bot.; but Mr. Borrer believes that the catkins of female flowers represented in the latter are those of S. fortuina; if those of helix, they are much too thick. Mr. Borrer having only seen the male of S. helix, and the female of S. Lambertiana, is inclined to regard them as the two sexes of one species.

**Engravings.** Eng. Bot., t. 1343., the male plant; Hayne Abbild., t. 170.; and fig. 2. in p. 791.

Spec. Char., &c., Branches erect. Leaves partly opposite, oblong-lanceolate, pointed, slightly serrated, very smooth; linear towards the base. Stamen 1. Style nearly as long as the linear divided stigmas. (Smith.) A low, upright, deciduous tree. Britain. Height 10 ft. to 12 ft. Flowers yellow; March and April.

Branches smooth, polished, of a pale yellowish or purplish ash colour, tough, and pliable; less slender and elongated than those of S. purpurea, though useful for the coarser sorts of basketwork. The branches, which are yellow, and the mode of growth, which is erect, render this species easily distinguishable from the preceding. The name rose-willow relates to rose-like expansions at the ends of the branches, which are caused by the deposition of the egg of a cynips in the summits of the twigs, in consequence of which they shoot out into numerous leaves, totally different in shape from the other leaves of the tree, and arranged not much unlike those composing the flower of a rose, adhering to the stem even after the others fall off: on this account this is a very desirable species.

**3. S. Lambertiana Smith.** Lambert's, or the Boyton, Willow.


**Synonymes.** S. purpurea var. Koch Comm. p. 25.

The Sexes. Both are figured in Eng. Bot. and Sal. Web. Mr. Borrer has only seen the female of this, and the male of S. helix, and thinks they are the two sexes of one species.

**Engravings.** Eng. Bot., t. 1339.; Sal. Web., No. 3.; and fig. 3. in p. 791.

Spec. Char., &c., Branches erect. Leaves partly opposite, obovate-lanceolate, pointed, serrated, smooth; rounded at the base. Stipules none. Stamen 1. Stigmas ovate, obtuse, notched, very short, nearly sessile. (Smith.) A low tree, of the size and habit of S. helix, but very distinct from it at first sight, particularly in the tender summits of the young growing branches, which, with their purplish glaucous hue, and some degree of downiness, resemble those of a honeysuckle.

**4. S. Woollgarlina Borr.** Woollgar's Willow.


Spec. Char., &c., Erect. Leaves cuneate-lanceolate, serrated, glabrous. Sta-
men. Ovary ovate, very pubescent, sessile, downy. Stigmas nearly sessile, ovate, scarcely emarginate. (Hook.) An erect bush. Height 6 ft. to 8 ft. England, about Lewes, Sussex, in hosier holts, but scarcely wild; at Kingston upon Thames, apparently wild. Flowers yellow; May.

A very beautiful species.

5. S. Forby&A Smith. Forby's Willow, or the fine Basket Osier.


Synonymes. S. fissa Lin. Soc. Trans., not of Hoff. (Smith); S. rubra Koch Comm. p. 27.

The Scers. The female is described in Eng. Fl., and figured in Eng. Bot. The male is not known.


The shoots are slender, smooth, very flexible, and tough; of a greyish yellow, not purple, hue; and very valuable for the finer sorts of wickerwork, for basket-making, and for bands for tying faggots and packets.

6. S. Ru&bra Huds. The red, or green-leaved, Willow, or Osier.


Synonymes. The name rubra seems to be originally given to S. vitellina, a reddish [twiggled] variety of which was confounded with S. rubra Huds., S. linearis Walker's Essays p. 467., on the authority of Borrer.


Spec. Char., ùc. Stamens combined below in a manner which affords a character in which it differs from all other British kinds of willow, except S. Croweina, and from nearly all the foreign kinds. Mr. Borrer, however, has observed the same thing occasionally in S. fissa, and in several of the Ci-nereae. "Leaves linear-lanceolate, elongate, acute, smooth, with shallow serratures; green on both sides. Stigmas ovate, undivided." (Smith.) A large shrub or low tree. England, in low meadows and osier holts, as at Maidenhead, &c., but rare; in Scotland, frequent in hedges and osier grounds. Height 10 ft. to 20 ft. Flowers yellow; May and April.

One of the most valuable osiers in cultivation, for bands, crates, basketwork or wickerwork, and even small hoops.

Group ii. Acutifolice Borrer. (Syn. Pruinose Koch.)

Willows with dark Bark, covered with a fine Bloom. Principal species, 7, 8.

Stamens 2, distinct. — Tall shrubs, or becoming trees. Bark of the branches and shoots of a dark colour; that of the branches suffused with a whitish matter, which is the character implied by Koch's term Pruinose. This matter is easily rubbed off. The bark is internally rubbed off. The bark is internally rubbed off. The bark is internally rubbed off. The bark is internally rubbed off. The bark is internally rubbed off. The bark is internally rubbed off. The bark is internally rubbed off. The bark is internally rubbed off. The bark is internally rubbed off. The bark is internally rubbed off. The bark is internally rubbed off. The bark is internally rubbed off. The bark is internally rubbed off.
previously to 1810. Flowers yellow; March and April, before the expansion of the leaves.

Branches dark violet-coloured, slender, upright, and covered all over with a whitish powder, like the bloom of a plum. A very beautiful species.

**S. daphnoiides Villars.** The Daphne-like Willow.


The leaves narrowly lanceolate, and loosely serrulate, smooth, glaucous beneath. Catkins appearing before the flowers. Ovary sessile, ovate, smooth. Style elongated. (Hook.) A rapid-growing tree, with dark greyish branches, slightly covered with a powder, or bloom, similar to that of *S. acutifolia*; the branches ascending obliquely. Switzerland and the South of France. Height 25 ft. to 30 ft. Introduced in 1820. Flowers yellow, from large crimson buds in February.

A very ornamental species, as appears by the engraving in the following page.

**S. pomera'nia Willd.** The Pomeranian Willow.


The sexes are figured in *Sal. Web.*, and in *Host Sal. Aust.*


The branches are long, smooth, round, shining, and copiously covered with very small yellow dots: the preceding year's shoots are covered with a violet-coloured powder, similar to that on the shoots of *S. acutifolia*.

**Group iii. Triandrae Borrer.** (Syn. Amygdalinæ Koch.)

*Osier Willows, with three Stamen in a Flower.* Prin. sp. 14, 15.

![Stamens 3 Leaves lanceolate, approaching to ovate, serrated, glabrous, having large, rounded, toothed, more or less deciduous, stipules. Flowers loosely disposed in the catkin. Pistil stalked. Ovary mostly glabrous. — Most of the kinds constitute excellent osiers, and become trees if left to themselves. (Hook.) The kinds may be distinguished, generally, the osiers with 3 stamens in a flower. Most, or all, when in the state of larger shrubs and trees, have their older bark exfoliated in broad patches, as in *Platanus occidentalis* L. and *P. orientalis* L. Most, or all, are ornamental as shrubs, for their lanceolate, glossy, serrated leaves, and their flowers.

**S. undulata Koch, Hooker.** The wavy-leaved Willow.


*Synonymes.* Koch has cited as identical with, or included in, *S. undulata*, the following kinds: — *S. undulata* Ehrh.; *S. lanceolata* Smith.

*The engraving.* The female is figured in *Eng. Bot.*, l. 1436; and is described in *Eng. Fl.*

*Spec. Char., &c.* Leaves lanceolate, acuminate through much of their length, serrulate at the tip, and minutely crenulate at the base; at first
1454. S. daphnoides.
pubescent, but becoming glabrous; wavy at the edge, or not. Stipules half-heart-shaped. Catkin peduncled upon a leafy twiglet. Bracteae bearded at the tip. Stamens 3. Capsule ovate-conical, more or less pubescent or glabrous, stalked; the stalk twice the length of the gland. Style elongated. Stigmas bifid. (Koch.) A bushy tree. Germany and England, on the banks of streams. Height 12 ft. to 15 ft. Flowers yellow; April and May.

Varieties.

3. S. u. having the catkins androgynous.—S. undulata occurs in this case. (Koch Comm. p. 20.)

11. S. hippophaeofolia Thui ller. The Sea-Buckthorn-leaved Willow, or Osier, described in our 1st edit., does not appear to be introduced.

12. S. triandra L. The 3-stamened-flowered Willow, or Osier.
Engravings. Eng. Bot., t. 1433; Sal. Web., No. 19; our fig. 1436; and fig. 15 in p. 798.


Leaves always perfectly glabrous. Extensively cultivated for the long tough rods which it produces when cut down, which are in frequent use for wickerwork, hoops, &c.

Varieties.
1 S. t. 2 gallica. The French Willow. — So called, and cultivated, in Sussex, and the eastern parts of England.
2 S. t. 3 Hoppeana. S. androgyina Hoppe. — Characterised by having some catkins composed partly of male and partly of female flowers.
3 S. t. 4. S. triandra undulata Mertens, 1636. — Approaches to S. amygdalina.


Spec. Char., &c. Leaves ovate, serrated, glabrous, rounded, and unequal at the base. Stamens 3. Ovary ovate, compressed, smooth; its stalks almost as long as the bractea. Stigmas nearly sessile. Young branches furrowed. Down of the seeds shorter, and less abundant, than in S. triandra. A tree. Britain; on the banks of rivers and ditches. Height 20 ft. to 30 ft. Flowers yellow; April and May, and, for the second time, in August.

15. S. Villarsiana Flügge et Wild. Villars's Willow, or Osier.


Introduced in 1818. Height 5 ft. to 14 ft. Flowers yellow; April.

Ornamental from its abundant blossoms in early spring, and from its remarkably neat serrated leaves. (See fig. 17. in p. 794.)
LXVIII. SALICA'CEÆ: SA'LIX.

Trees having Flowers with 3—5 Stamens. Prin. sp. 16, 17, and 18.

Stamens in a flower more than 3, in most instances 5. Ovary glabrous. — The plants trees of moderate size. Leaves large, glossy, fragrant, serrated, and having glands in the serratures, from which a resin exudes. Stamens in each catkin so numerous and long, as to render the flowers, which, too, are in perfection at the same time as the foliage, quite handsome, and the trees, in this condition, more ornamental than those of any other group. (Hook.)

† 16. *S. pentandra* L. The five-stamened-flowered Willow.


Synonymes. *S. pentandra* part. of, Koch Comm., p. 13.; the sweet Willow, or Bay-leaved Willow.


Engravings. Eng. Bot., t. 1805.; Host Austr., 1. t. 1. f. 2.; *our* fig. 1438.; and fig. 31. in p. 798.

Spec. Char., &c. Leaves ovate, pointed, crenate, glandular, glabrous. Foot-stalks glandular at the summit. Stamens 5 or more, hairy at the base. Ovary ovate, tapering, smooth, nearly sessile. (*Soll. Wob.*) An upright tree. Britain, on the banks of rivers and in watery places. Height 18 ft. to 20 ft. Flowers yellow; June.

The flowers are remarkably fragrant, as are the leaves, especially when bruised: the fragrance, which is similar to that of the sweet bay (*Lauros nobilis*), but less powerful, is exuded from the resinous crenatures of the leaves, and from the barren catkins. It is one of the most desirable species of the genus for planting in pleasure-grounds, on account of the fine display made by the blossoms, their profusion, their abundant fragrance, the smooth, shining, rich deep green of the leaves, and the comparatively slow growth and compact habit of the tree.

Variety.


Synonymes. *S. cuspidata* Schultz; *S. stictoria* Smith; *S. pentandra* B. Linn.; *S. hexandra* Ehrh.; *S. Ehrhartiana* Smith; *S. tetandra* Willd.

The Sexes. The male is figured in Hayne’s Abbild. The female is mentioned in Koch Comm., and Hooker’s Br. Fl., ed. 3., p. 421.

Engravings. Hayne Abbild., t. 162.; *our* fig. 1439.; and fig. 33. in p. 798.

Spec. Char., &c. Leaves ovate-elliptic, pointed, glabrous; green and shining above, rather pale beneath but not glaucous; serrated; the serratures of the young leaves glandular. Stipules soon falling off. Stamens 3—4. Bractea obtuse, yellow. (*Wild.*) A handsome tree, with brownish smooth branches, and large broad shining leaves. Pomerania and Sweden, in meadows, and woody and marshy places. Height 20 ft. to 30 ft.Introduced in 1822. Flowers yellow; April.

Mr. Borrer states that the insertion of this kind in *Hook. Br. Fl.*, ed. 3., as a native of Britain, arose from a mistake of his. (See Borrer in Comp. to Bot. Mag., p. 223.)


The Sexes. The male is figured in Sal. Wob., and noticed in our specific character.


Spec. Char., &c. Leaves ovate, acuminate, serrated, glabrous; shining above, pale beneath; the serratures resinous. Footstalks glandular. Stipules large, half-heart-shaped, serrated, and furnished with glands. Catkins of the male 1½ in. long, or more. Stamens 3—5, bearded at the base. (Sal.
Wob.) A handsome low-growing tree, with the branches of the preceding year of a greyish green colour and smooth, and the young twigs of a yellowish green, somewhat striated or angular at the points. Switzerland, and, perhaps, North America. Introduced in 1812. Height 20 ft. to 30 ft. Flowers yellow; April and May.

Group v. Frágiles Borrer.

Trees, with their Twigs mostly brittle at the Joints. Prin. sp. 19. 22. and 24.

Stamens 2 to a flower. Ovary glabrous, elongated, seated upon a more or less obvious stalk. Flowers very loosely disposed in the catkin. Leaves lanceolate, serrated, glabrous, stipuled. The plants, trees of considerable size. (Hook. Br. Fl., ed. 2., adapted.)

♀ 19. S. babylo‘nica. The Babylonian, or weeping, Willow.


Engravings. Rauw. It., 183.; our fig. 22. in p. 795; the plates of this tree in Arb. Brit., 1st edit., vol. vii.; and our fig. 1441.

Spec. Char., &c. Leaves lanceolate, acuminate, finely serrated, glabrous, glaucous beneath. Catkins protruded at the same time as the leaves. Ovary ovate, sessile, glabrous. (Wild.) A pendulous-branched tree. Asia, on the banks of the Euphrates, near Babylon, whence its name; and also

3 c 3
of China, and other parts of Asia; and of Egypt, and other parts of the North of Africa. Height 39 ft. to 50 ft. Introduced in 1730, or, perhaps, 1692. Flowers greenish yellow; May.

Varieties. There is one very decided variety, commonly treated as a species under the name of S. annularis; and Mr. Castles of the Twickenham Botanic Garden is of opinion that, exclusive of this variety, there are two forms of the species in the country, one of which he thinks may possibly be the male plant. This form, as it appears to be the same as the plant sent from St. Helena, we shall, till something further has been decided respecting it, call S. b. Napoléona. The varieties will, therefore, stand as under:

\[\text{S. b. 1 vulgaris fem. Hort. — Young shoots pale green, slender, with an angular twist above the axil of each leaf, and large stipules. It is the most common weeping willow in the neighbourhood of London, and flowers in June.}\]

\[\text{S. b. 2 Napoléona Hort. — Shoots round, generally reddish, and the leaves without stipules. Sex female. Probably nothing more than the common variety. Introduced from St. Helena in 1823.}\]

\[\text{S. b. 3 crispa Hort. S. annularis Forbes in Sal. Wob. No. 21, with a fig. of the female; the Ring-leaved Willow. Our fig. 21, in p. 794; and the plate of this tree in Arb. Brit., 1st edit., vol. vii.; and our fig. 1442. — Leaves lanceolate, acuminate, serrated, curled or twisted, glabrous, and glaucous beneath.}\]

A well-known ornamental tree in universal cultivation.

\[\text{S. decipiens Hoffm. The deceptive, White Welsh, or varnished, Willow.}\]


The Sexes. Both sexes are described in Eng. Fl.; the male is figured in Eng. Bot, and Sal. Wob.

Engravings. Hoffm. Sal., 2, t. 31; Eng. Bot., t. 1837; our fig. 1443; and fig. 29, p. 757.

Spec. Char., &c. Leaves lanceolate, pointed, serrated, very smooth; floral
ones partly obovate and recurved. Footstalks somewhat glandular. Ovary tapering, stalked, smooth. Style longer than the cloven stigmas. Branches smooth, highly polished. (Heuff.) An upright, but not lofty tree, distinguished by the smooth clay-coloured bark of the last year's branches, which shine like porcelain, as if varnished; the shoots of the present year being stained of a fine red or crimson. Britain. Height 30 ft. to 40 ft. Flowers yellow; May. Frequently cultivated for basketwork; but it well deserves a place in ornamental plantations, from the remarkable appearance of its bark during winter.

21. S. montana Forbes, the Mountain Willow (fig. 19. in p. 794.), is described in our first edition, p. 1515.

22. S. fragilis L. The brittle-twigged, or Crack, Willow.


The Sexes. Both sexes are figured in Eng. Fl., and Sal., Web.


Spec., Char., &c. Leaves ovate-lanceolate, pointed, serrated throughout, very glabrous. Footstalks glandular. Ovary ovate, abrupt, nearly sessile, glabrous. Bracteas oblong, about equal to the stamens and pistils. Stigmas cloven, longer than the style. (Smith.) A tall bushy-headed tree, with the branches set on obliquely, somewhat crossing each other, not continued in a straight line outwards from the trunk; by which character, Sir J. E. Smith observes, it may readily be distinguished even in winter. Britain; common in hedges. Height 80 ft. to 90 ft. Flowers yellow; April and May.
The branches are round, very smooth, "and so brittle at the base, in spring, that with the slightest blow they start from the trunk;" whence the name of crack willow: though, according to Sir J. E. Smith, this is more or less the case with S. decipiens, and several other species of willows, both native and exotic.

23. S. monspeliensis Forbes (fig. 30. in p. 797.), the Montpelier Willow, is described in our 1st ed., p. 1517.


Synonyms. ? S. fragilis Woodv.; the Dishley, or Leicestershire, Willow; in some counties, the Huntingdon Willow. S. pendula Ser.; S. viridis Fries; S. rubens Schrank.

The sexes. The female is figured in Eng. Bot. and Sal. Web. Smith, in the Eng. Fl., states that he had not seen the flowers of the male. Dr. Johnston, in his Flora of Berwick upon Tweed, states that a male tree, which he has deemed of this species, is in "New-water-haugh Plantation."


Spec. Char., &c. Leaves lanceolate, tapering at each end, serrated throughout, very glabrous. Footstalks glandular or leafy. Ovary tapering, stalked, longer than the bracteas. Style as long as the stigmas. (Smith.) A large handsome tree. Britain, in marshy woods. Height 80 ft. to 90 ft. Flowers yellowish; April and May.
The branches are long, straight, and slender, not angular in their insertion, &c those of S. fragilis; and the trees of both species, when stripped of their leaves, may be distinguished respectively by these marks. The celebrated willow at Lichfield, called Johnson’s Willow, of which two portraits are given in our first edition, together with the history of the tree, was of this species.

† 25. S. Purshiana Borrer, Pursh’s Willow, is described in our first edition, p. 1522.

Group vi. *Albae* Borrer.

*Trees of the largest Size, with the Foliage whitish.* Prin. sp. 26. and 27.

Stamens 2 to a flower. Ovary glabrous. Flowers loosely disposed in the catkin. Leaves lanceolate, serrated with glanded serratures; hairy, especially while young, with appressed silky hairs, which give to the foliage a light or whitish hue. — Plants trees of considerable height. (Hook.)

† 26. *S. Alba* L. *The whitish-leaved, or common white, Willow.*


*Synonymes.* S. alba, part of, Koch Comm, p. 16.; the Huntingdon, or Swallow-tailed, Willow.

*The Species.* Both are described in Eng. Fl., and both figured in *Eng. Bot.*


*Spec. Char., &c.* Leaves elliptic-lanceolate, pointed, serrated, silky on both sides; the lowest serratures glandular. Stamens hairy. Germen smooth, almost sessile. Stigmas deeply cloven. Scales notched. (Smith.) A large tree. Norway and Sweden, to the Mediterranean Sea; North-East and West of Asia; and introduced into the United States. Frequent in Britain, and also in Ireland. Height 50 ft. to 80 ft. Flowers yellow; May.

*Varieties.*


† S. a. 3 *crispa* Hort.—Leaves narrow, contorted and silky.

† S. a. 4 *rosa* Lodd. Cat. ed. 1836.—Aspect reddish.

In the North of Europe, the bark of this tree is used for tanning leather, and for dyeing yarn of a cinnamon colour; and the leaves and young shoots are given to cattle in a green state, or dried like the twigs of the birch, and laid up for winter fodder. The inner bark, like that of Scotch pine, being kiln-dried, and ground into a fine flour, is mixed with oatmeal, and made into bread, in seasons of great scarcity, by the inhabitants of Norway and Kamtschatka. The branches of the tree are used as stakes, poles, handles to rakes, hoes, and other implements, and as faggot-wood for fuel. The timber of the trunk is used for various purposes. It weighs, in a green state, 70 lb. 9 oz. per cubic foot; half-dry, 51 lb. 14 oz.; and quite dry, 32 lb. 12 oz.; so as to lose more than half of its weight by drying, during which it loses a sixteenth part of its bulk. It is found an excellent lining for stone-carts, harrows, &c. It is used in turnery, millwork, coopers, weatherboarding, &c.; and the stronger shoots and poles serve for making hoops, handles to hay-rakes, clothes-props (see fig. 169. *Encyc. of Cott. Arch.*), and various other instruments and implements; and the twigs are employed in wickerwork. The bark, which is thick and full of cracks, is in nearly as great repute.
for tanning as that of the oak; and it is also used in medicine, in the cure of agues, as a substitute for cinchona; though it is inferior for both purposes to that of *S. Russelliana*. As fuel, the wood of this tree is to that of the beech as 808 is to 1540; but the old bark makes a very useful fuel; and both it and the wood will burn when green, in which state the wood is said to give out most heat. The charcoal is excellent for use in the manufacture of gunpowder, and for crayons. The ashes are very rich in alkali, containing more than a tenth part of their weight of that salt. In France, a fine blood-red colour is obtained from the bark; and that of the young tree is used in the preparation of leather for making gloves.

It is justly remarked by Mr. Gorrie, that it adds much to the value of the *Salix alba*, that its propagation and culture are of the most simple description, and that it will grow luxuriantly in most soils where other trees make but slow progress. According to Sang, it will thrive well in high and dry
grounds; and, if planted in the grove manner, in tolerably good soil, perhaps no other plantation, except larches, would give so quick a return for the trouble and expense of planting.

27. **S. vitellina** L. The yolk-of-egg-coloured, or yellow, Willow, or Golden Osier.


**Synonymy.** S. alba Koch Comm. p. 16.


**Spec. Char.**, &c. Leaves lanceolate, acute, with cartilaginous serratures; glabrous above; glaucous and somewhat silky beneath. Stipules minute, lanceolate, deciduous, smooth. Ovary sessile, ovate-lanceolate, smooth. Bracteas lanceolate, yellow, fringed at the base, longer than the pistil. (Smith.) A large tree. Britain, in hedges, and cultivated in osier grounds in many places; and readily distinguished from all the other sorts, by the bright yellow colour of its branches. Height 30 ft. to 50 ft. Flowers yellow; May.

As an ornamental tree, *Salix vitellina* is very striking in the winter season, especially among evergreens. As a shrub, it is not less so, both among evergreen shrubs and deciduous kinds, having the bark of conspicuous colours. In the English garden at Munich, extensive masses of this willow are placed in contrast with masses of the white-barked honeysuckle (*Lonicer'a Xylósteum*), the red-barked dogwood (*Córmus álba*), and the brown-barked spiraea (*Spíra'e opúlifólia*).

**Group vii.** **Nigra.**

**Extra-European Kinds allied to the Kinds of one or all of the three preceding Groups.** Prin. sp. 28.

Of the willows of Europe Koch has associated the kinds of Mr. Borrer’s groups Pentándrae, Frágiles, and Albae into one group, which he has named Frágiles; and he has pointed out and described, as extra-European kinds belonging to it, *S. occidentális* Bosc, *S. nigra Mühl.*, *S. babylónica L.*, *S. octándra Sieber*, and *S. Humboldtiana Wildl.* Mr. Borrer has included *S. babylónica* L. in his group Frágiles. The rest are here collected in a group by themselves, to which is added *S. figústrina Michx. jun.*, from the notice by Mr. Forbes, and also by Michaux, that it is similar to *S. nigra*.

28. **S. Nîgra Mühlencb.** The black, or dark-branched American, Willow.


**The Species.** Both sexes are noticed in the specific character. Willdenow had seen the male alive, and both sexes in a dried state.


**Spec. Char.,** &c. Leaves ovate-lanceolate, pointed, serrated, green on both sides, glabrous, except a downy rib and footstalk. Catkins accompanying the leaves, villous. Stamens about 5, bearded at the base. Ovary stalked, ovate-lanceolate, glabrous. Stigmas divided, the length of the style. (Sal. Wob.) A tree, with smooth branches, brittle at the base. Pennsylvania to Virginia, on the banks of rivers. Height 20 ft. Introduced in 1811. Flowers yellow; May.
Mr. Forbes observes that *S. ligustrina* of Michaux differs principally from *S. nigra* in its larger stipules, which resemble, as well as the leaves, those of *S. triumfia*. (Sal. Wob., p. 28.) In fig. 1448, a shows *S. nigra*, b *S. ligustrina*.

29. *S. HUMBOLDTIANA* Willd. (Sal. Wob., No. 8.; and fig. 8. in p. 792.) is described in our first edition.

29. *S. BONPLANDIANA* Humb. et Bonpl. (Sal. Wob., t. 9.; and fig. 9. in p. 792.) is described in our first edition.

Group viii. **Prinoides** Borrer.

**Shrubs, mostly Natives of North America, and used in Basket-making.**

Prin. sp. 32. and 33.

Kinds all, or all but *S. conformis* Forbes, natives of North America. The kinds which Mr. Borrer has placed in this group are *S. rigida* Mühl., *S. prinoides* Pursh, and *S. conformis* Forbes. To these *S. discolor* Willd. and *S. angustata* Pursh have been added, from their resemblance to *S. prinoides*.

31. *S. RIGIDA* Mühlb. (Sal. Wob., No. 141., a leaf; and fig. 141. in p. 818.) is described in our first edition.


**Engravings.** Sal. Wob., No. 40.; our fig. 1449.; and fig. 40. in p. 800.

**Spec. Char., &c.** Leaves oval-oblong, acute, with distant wavy serratures; glabrous above, glaucous beneath. Stipules half-heart-shaped, deeply toothed. Catkins villous, protruded before the leaves. Ovary stalked, ovate, pointed, silky. Style elongated. Stigmas cloven. (Pursh.) A large deciduous shrub or low tree. Pennsylvania to Virginia, on the banks of rivers. Height 6 ft. to 12 ft. Introduced in 1811. Flowers yellow; March and April.

33. *S. DISCOLOR* Mühlb. (Sal. Wob., No. 147., a leaf; and our fig. 147. in p. 818.) is described in our first edition.

34. *S. ANGUSTATA* Pursh (Fl. Amer. Sept., 2. p. 113.) is described in our first edition.

35. *S. CONFORMIS* Forbes (Sal. Wob., No. 24.; and fig. 24. in p. 795.) is described in our first edition.

Group ix. **Grisea** Borrer.

**Chiefly Shrubs, Natives of North America.**

Prin. sp. 40. and 43.

Most of the kinds are natives of North America. *S. Mühlenbergiana* Willd.,
S. cordata Mühlenb., S. falcata Pursh, and S. tristis Adl., are additions to the kinds which Mr. Borrer has placed in this group. With regard to S. reflexa Forbes, S. virgata ? Forbes, and S. Lyœni ? Schl., included in it by Mr. Borrer, he remarks, "I am unacquainted with these, and have, perhaps, placed them in the wrong group."

36. S. virgescens Forbes. The greenish-leaved Willow, or verdant Osier.

37. S. reflexa Forbes (Sal. Wob., No. 94.; and our fig. 94. in p. 807.) is described in our first edition.

38. S. virgata Forbes (Sal. Wob., No. 12., without flowers; and our fig. 12. in p. 793.) is described in our first edition.

39. S. Lyœni ? Schl. (Sal. Wob., No. 10., without flowers; and our fig. 10. in p. 792.) is described in our first edition.


41. S. falcata Pursh (Sal. Wob., No. 148., a leaf; and our fig. 148. in p. 818.) is described in our first edition.

42. S. grisea Willd. (Ann. of Bot., 2. t. 5. f. 8.) is described in our first edition.

43. S. petiolaris Smith. The long-petiolated Willow.

S. cordata, S. falcata Pursh, and S. tristis Adl., are additions to the kinds which Mr. Borrer has placed in this group. With regard to S. reflexa Forbes, S. virgata ? Forbes, and S. Lyœni ? Schl., included in it by Mr. Borrer, he remarks, "I am unacquainted with these, and have, perhaps, placed them in the wrong group."

36. S. virgescens Forbes. The greenish-leaved Willow, or verdant Osier.

Synonym. Mr. Forbes received the kind from Messrs. Lodiges, under the name S. hippocastanifolia, but has substituted the specific name of virgescens, as being one more descriptive of the plant.


37. S. reflexa Forbes (Sal. Wob., No. 94.; and our fig. 94. in p. 807.) is described in our first edition.

38. S. virgata Forbes (Sal. Wob., No. 12., without flowers; and our fig. 12. in p. 793.) is described in our first edition.

39. S. Lyœni ? Schl. (Sal. Wob., No. 10., without flowers; and our fig. 10. in p. 792.) is described in our first edition.


Synonym. S. tristis Lodd. Cat. ed. 1836.
The Sepals. The male is described in Pursh’s specific character, and the female is described and figured in Sal. Wob.
Engravings. Sal. Wob., No. 11.; and fig. 11. in p. 792.

41. S. falcata Pursh (Sal. Wob., No. 148., a leaf; and our fig. 148. in p. 818.) is described in our first edition.

42. S. grisea Willd. (Ann. of Bot., 2. t. 5. f. 8.) is described in our first edition.

43. S. petiolaris Smith. The long-petiolated Willow.

Synonym. S. grisea Willd, var. subglabra Koch Comm. p. 21. note 8. Koch regards the S. petiolaris Smith as a var. of S. grisea.; and it probably is so. (Borrer in a letter.)
The Sepals. The female is figured in Eng. Bot. and Sal. Wob. Smith observes that he “knows nothing of the male plant.” (Eng. Fl.) Mr. Borrer had formerly both sexes growing at Henfield, having received the male from Mr. G. Anderson, but at present he has the female only. (W. B.)
Spec. Char., &c. Leaves lanceolate, serrated, glabrous; glaucous beneath, somewhat unequal at the base. Stipules lunate, toothed. Catkins lax. Bracteas hairy, shorter than the stalks of the ovate silky ovaries. Stigmas divided, sessile. (Smith.) A bushy tree, with slender, spreading, flexible, smooth, purplish or dark brown branches. Scotland, in Angus-shire and other places. Height 12 ft. to 15 ft. Flowers yellow; April and May.

Easily known from every other species, by its short obtuse atkins, and long dark leaves. After gathering, the young
leaves especially exhale a strong scent, not unlike the flavour of bitter almonds, but less agreeable.

<44. *S. pennsylvanica* Forbes (Sal. Wob., No. 95.; and our fig. 95. in p. 808.) is described in our first edition.

<45. *S. Mühlenbergiana* Willd. (Sal. Wob., No. 145.; and our fig. 145. in p. 818.) is described in our first edition.

<46. *S. tristis* Ait. (Sal. Wob., No. 150., a leaf; and our fig. 150. in p. 818.) is described in our first edition.

<47. *S. cordata* Mühlenb. (Sal. Wob., No. 142., a leaf; and our fig. 142. in p. 818.) is described in our first edition.

**Group x. Rosmarinifolia Borrer.**

*Low Shrubs, with narrow Leaves. Prin.* sp. 48.

Stamens 2 to a flower. Ovary silky, stalked. Catkins short. Flowers loosely disposed in the catkin. Leaves linear-lanceolate, entire, or toothed with extremely minute glanded teeth.—Plants small upright shrubs. (Hook.)


**Synonyme.** S. rosmarinifolia, part of, Koch Comm. p. 49.


**Spec. Char., &c.** Leaves linear-lanceolate, silky, quite entire, or with a few very minute glanded teeth, especially the young leaves. Catkins shortly oblong, curved, lax. Ovaries stalked, silky, lanceolate-acuminata. Style about as long as the linear divided stigmas. Bracteas short, villous. (Hook.) A slender upright shrub. Sweden, Germany, and the northern parts of Britain. Height 2 ft. to 5 ft. Flowers yellow; April.

<49. *S. angustifolia* Borrer, Hooker, & Wulf. The Narrow-leaved Willow.


**Engravings.** Eng. Bot., t. 1365.; Sal. Wob., t. 86.; our fig. 1453.; and fig. 86. in p. 806.

**Spec. Char., &c.** Leaves linear-lanceolate, nearly glabrous, with minute glandular teeth; the young leaves silky; glabrous beneath. Catkins ovate, erect. Ovaries ovate-acuminata, densely silky, stalked. Style about as long as the broad, erect, entire stigmas. Bracteas very villous, nearly as long as the young ovaries. (Hook.) A low shrub. Scotland, on the Clowa Mountains, and also near Dumfries. Height 1 ft. Flowers yellow; April.

<50. *S. decumbens* Forbes (Sal. Wob., No 88.; and fig. 88. in p. 806. is described in our first edition.

Stamens 2 to a flower, as far as to the kinds whose male flowers have been observed. Ovary silky, stalked. Catkins ovate or cylindrical. Leaves between elliptical and lanceolate; mostly silky beneath; nearly entire.

—Plants small shrubs. Stem, in most, procumbent. *S. fuscæ L.*, Hooker, var. 1., and *S. Dominiæ Smith*, have a likeness in aspect to the kinds of the group Purpureæ, except *S. rubra Huds.* (Hook.)

**52. S. fusuca L.** The brown Willow.


*The Sexes.* The female is figured in *Hayne Abbild.*, if the *S. fuscæ* of that work is the *S. fuscæ L.*

*Engravings.* Hayne Abbild., t. 184.; Sal. Wob.; and our fig. 83. in p. 806.

*Spec. Char., &c.* Stems more or less procumbent. Leaves elliptical or elliptic-lanceolate, acute; entire, or serrated at minute glanded serratures; somewhat downy; glaucous, and generally very silky beneath. Ovary lanceolate, very silky, seated upon a long stalk. Stigmas 3fidi. (Hook.) A decumbent shrub. Britain, on heaths. Height 6 in. to 1 ft. Stamens yellow; May.

*Varieties.*


- **S. f. 6 argentea. S. f. 6 Hook. Br. Fl. ed. 2.; S. argentea Smith Eng. Bot. t. 1364., Forbes in Sal. Wob. No. 78.; and our fig. 78. in p. 806.—Leaves elliptical, entire, somewhat revolute, with a recurved point; rather downy above, silky and shining beneath, as well as the branches. Stem upright. Ovary ovate-lanceolate, silky; its silky stalk nearly equal to the linear oblong bractæa. Style not longer than the stigmas.
53. **S. Doniana** Smith. Don's, or the rusty-branched, Willow


**The Sexes.** The female is described and figured in *Sat. Wob., and Eng. Bot.* The male has not yet been discovered.

**Engravings.** *Sat. Wob., No. 85.; Eng. Bot.,* t. 2569.; *our fig. 1454.; and fig. 83. in p. 806.

**Spec. Char., &c.** Leaves obovate-lanceolate, partly opposite, acute, slightly serrated, even; livid and somewhat silky beneath. Stipules linear. Branches erect. Catkins erect, cylindrical. Ovary stalked, silky, longer than the obovate bearded bractea. (*Smith.*) A shrub, with straight, wand-like, round, leafy branches, of a reddish or rusty brown, scarcely downy, except when very young. Scotland, on mountains. Height 5 ft. to 6 ft. Flowers yellow; May.

**Group xii. Ambigua Borrer.**

**Shrubs.** Prim. sp. 54. and 58.

*S. funmarchica* Willd. has been added to the kinds included in this group by Mr. Borrer.

54. **S. ambigua Ehrh., Borrer.** The ambiguous Willow.


**Synonyms.** Some are cited under the varieties treated of below; *S. ambiguus* Koch, part of, Koch in *Com.,* p. 49.

**The Sexes.** Both sexes of var. a, the female of var. b, the male of var. g, and the female of var. ë are figured in *Eng. Bot. Suppl.*

**Engravings.** Eng. Bot., Suppl., t. 2733.; and our fig. 1455.

**Spec. Char., &c.** Leaves oval, obvate, or lanceolate, slightly toothed, and having a recurved point; pubescent, somewhat rugose above, glaucous and having prominent veins beneath. Stipules half-ovate, acute. Catkins stalked, upright, cylindrical. Ovary stalked, densely silky. Style very short. Stigmas short, at length cloven. (Borr.) A small decumbent shrub. Sussex, Essex, and Suffolk; and various parts of Scotland. Height 6 in. to 1 ft. Flowers yellow; May.

It varies much in the procumbent, ascending, or more erect manner of its growth, in the paler or darker brown tinge of the twigs, and in the quantity of pubescence.

**Varieties.**

* S. a. 1 vulgaris. * S. a. a* Borr. in *Eng. Bot. Suppl.,* t. 2733., 5 figures of the two sexes, and description. — A small straggling shrub, with branches sometimes procumbent, sometimes rising 1 or 2 feet from the ground.


S. a. 4 undulata. S. a. 5 undulata Borrer in Eng. Bot. t. 2733., 4 figures of the female, and description; S. spathulata Willd., var. undulata of Professor Mertens. (Borrer.) — Remarkable for its lanceolate or almost linear leaves, and distinctly stalked stigmas.

? x 55. S. finnmarkica Willd. is described in our first edition.


57. S. alaternoides Forbes (Sal. Wob., No. 76.; and our fig. 76. in p. 806.) is described in our first edition.


Group xiii. Reticulatæ Borrer.

Leaves reticulated and coriaceous. Prin. sp. 59

The characteristics of this group, as adopted in Hook. Br. Fl., are not described; because it consists of only one species, the S. reticulata L., and the characteristics of this species may be deemed representative of those of the group.

59. S. reticulata L. The netted, or wrinkled, leaved Willow.


A very pretty little plant, particularly well adapted for forming one of a selection for growing in pots, so as to form a portable salicetum; or for growing on rockwork.
Stamens 2 to a flower. Ovaly very downy, or silky, sessile. — Plants small shrubs, most of them upright; all, or most of them, remarkable for their foliage, which consists of leaves that are oblong-lanceolate, soft, hairy, silky, and, in most, white and cottony on the under surface. The kinds are very closely akin, each among the rest. (Hook.) Only S. glauca L., S. arenaria L., and S. Stuartiana Smith are associated together under the above characteristics in Hook. Br. Fl., ed. 2. Of the kinds brought together below, as agreeing more or less in the quality of similarity, Mr. Borrer has indicated S. eleagnifolia Forbes (eleagnoides Schleicher), S. glauca L., S. sericea Villars, S. Lappounum L., S. arenaria L., S. arenaria L.? var., S. leuco-phylla Schleicher; and S. Stuartiana Smith.

60. S. ELEAGNÖT'ES Schleicher (Sal. Wob., No. 69.; and fig. 69 in p. 804.), is described in our first edition.

61. S. GLAU'CA L. The glaucous Mountain Willow.

62. S. SERI'CEA Villars. The silky Willow.

63. S. LAPPO'NUM L. The Laplanders' Willow.
SfL and related, S. the beneath Koch S. V. S. the? downy a. nifig. and om?^ Pursh 71 Introduced identical, our'. very J;: Jdentification. a at ^ Identification. Spec. Engravings. The Willows Stamens rhe the gustifblia 65. subtended yellow 67. the footstalks. obscurely 69. Height lanceolate. hairy 68. Stigmas linear, mostly entire. Leaves lanceolate. — Plants trees of more or less considerable size, with long pliant branches. (Hook.)

71. S. subalpina Forbes (Sal. Wob., No. 93.; and fig. 96. in p. 808.) is described in our first edition.

72. S. candida Wildl. The whitish Willow.

The Sezex. The male is described and figured in Sal. Wob.
Engravings. Sal. Wob., No. 91.; our fig. 1460.; and fig. 91. in p. 807.


A very handsome species, well deserving a place in shrubberies, both for its ornamental white leaves, and very early flowers.

73. S. inca'na Schranck. The hoary-leaved Willow, ? or Osier.

The Sezex. Both are figured in Hayne Abbld.: the male is figured in Sal. Wob., where Mr. Forbes has noticed that he had not seen the catkins of the other sex. If the kind of Host Sal. Austr. is identical, both sexes of it are figured in that work.

Spec. Char., &c. Leaves linear-lanceolate, denticulated, hoary on the under surface with hoary tomentum. Catkins arched, slender, almost sessile, subtended at the base with small leaves. Capsule ovate-lanceolate, glabrous, stalked; the stalk twice the length of the gland. Style elongated. Stigmas
bifid. Bracteas subglabrous, ciliate with short hairs. (Koch.) A shrub, with leaves bearing a strong resemblance to those of S. viminalis; while the catkins, branches, and mode of growth are quite different. Alps of France and Switzerland. Height 5 ft. to 6 ft. Introduced in 1821. Flowers yellow; April.

≡ 74. **S. linearis** Forbes. The linear-leaved Willow.

**Identification.** Forbes in Sal. Wob., No. 80.

**Synonyme.** ? S. incana var. linearis Borrer. (Borrer in a letter.)

**The sexes.** The male is described and figured in Sal. Wob. Mr. Forbes has noted that he had not seen catkins of the female.

**Engravings.** Sal. Wob., 89.; our fig. 1462.; and fig. 89. in p. 807.

*Spec. Char.*, &c. Leaves linear, villous; shining above, cottony beneath; margins slightly dentilicated. Branches brown. Stipules none. Catkins elliptical, nearly sessile. Bracteas elliptical, yellow, as are also the anthers. (Sal. Wob.) A low bushy deciduous shrub, with copious branches, dark brown or purplish in every stage. Switzerland. Height 5 ft. to 10 ft. Introduced in 1820. Flowers yellow; April and May.

≡ 75. **S. viminalis** L. The twiggy Willow, or common Osier.


**Synonyme.** S. longifolia Lam. Fl. Fr. 2. 232. (Koch.)

**The sexes.** Both sexes are figured in Eng. Bot., Sal. Wob., Hayne Abbott., and Host Sal. Austr. Both exist in Britain. The male seems less robust and vigorous than the female.

**Engravings.** Eng. Bot., t. 1599.; Sal. Wob., No. 133.; our fig. 1493.; and fig. 133. in p. 817.

*Spec. Char.*, &c. Leaves linear, inclining to lanceolate, elongated, taper-pointed, entire, wavy; snow-white and silky beneath. Branches straight and slender. Ovary sessile. Style as long as the linear undivided stigmas. (Smith.) A large shrub or low bushy tree. England, in wet meadows. Height 10 ft. to 20 ft. Flowers yellow; April and May.

Readily distinguished from the other species of the section by the satiny under surface of the leaves; and more generally cultivated than any other for basketwork and hoops. A variety called the Dutch willow, with brown bark, is preferred where hoops are the object.

≡ 76. **S. stipularis** Smith. The stipuled, or auricled-leaved, Osier, or Willow.


**The sexes.** Both are described in Eng. Flora, and both are figured in Eng. Bot. and Sal. Wob.


*Spec. Char.*, &c. Leaves lanceolate, pointed, slightly wavy, obscurely crenate; soft and nearly naked above, white and downy beneath. Stipules half-heart-shaped, stalked, very large. Gland cylinndrical. Ovary ovate, nearly sessile, as well as the linear undivided stigmas. (Smith.) A large shrub or low tree. England, in osier holts, heidges, and woods. Height 10 ft. to 20 ft. Flowers yellow; March.

Twigs upright, tall, soft and downy, of a pale reddish brown, brittle, and of little or no use as an osier.

≡ 77. **S. smithiana** Willd. (Eng. Bot., t. 1509.; Sal. Wob., No. 134., the female; and our fig. 134. in p. 817.) is described in our first edition.

≡ 78. **S. mollissima** Ehrh. (Beitr., 6. p. 101.) is described in our first edition.

≡ 79. **S. holosericea** Hook. (Br. Fl., ed. 2., p. 421.) is described in our first edition.

≡ 80. **S. micheliana** Forbes (Sal. Wob., t. 135.; and fig. 135. in p. 817.) is described in our first edition.

82. S. ACUMINATA Smith. The acuminated-leaved, or large-leaved, Sallow, or Willow.


Synonym. S. lanceolata Ser. et Eng.


A very distinct sallow, soon recognised to be different from S. macrostipulacea by its downy germs, and much larger leaves.

Group xvi. Cinereae Borrer.

Sallows. — Trees and Shrubs, with roundish shaggy Leaves, and thick Catkins.

Prin. sp. 90. and 97.

Stamens 2 to a flower. Ovary tomentose with silky tomentum. Leaves mostly ovate, toothed, grey or hoary, more or less wrinkled; very veiny beneath; stipulated branches downy. — Plants trees or shrubs. The group includes the kinds of willow that are usually called the sallows. (Hook.) The sallows are known by their obovate or rounded downy leaves, and thick, early, silken catkins, with prominent, yellow, distinct stamens, 2 to a flower. (Smith Eng. Fl., iv. p. 216.) Not a few of the group Nigricantes Borrer also have been regarded as sallows. Mr. Borrer, however, states that he is unacquainted with many of the species, or supposed species, of this group, and of the group Nigricantes; and it is highly probable that many of them are placed wrongly. (Borrer in a letter.)

83. S. PALLLIDA Forbes (Sal. Wob., No. 96.; and fig. 96. in p. 808.) is described in our first edition.

84. S. WILLDENOVIA FORBES (Sal. Wob., No. 41.; and fig. 41. in p. 801.) is described in our first edition.


The species. The male is noticed in Koch's specific character; the female is figured in Sal. Wob.

Engravings. Sal. Wob., No. 43.; our fig. 1463. in p. 775.; and fig. 43. in p. 801.

Spec. Char., &c. Leaves elliptical, serrated, acute, glabrous; glaucous beneath, and obtuse at their base; the midrib, footstalks, and young leaves hairy. Ovary oblong and downy. (Sal. Wob.) A shrub or low tree. Switzerland. Height 12 ft. to 13 ft. Introduced 1821. Flowers yellow; April.

86. S. MACROSTIPULAcea Forbes (Sal. Wob., No. 130.; and fig. 130. in p. 815.) is described in our first edition.

87. S. INCANESCENS ? Schl. (Sal. Wob., No. 120.; and fig. 120. in p. 813.) is described in our first edition.

88. S. PANNO'SA Forbes (Sal. Wob., t. 123.; and fig. 123. in p. 814.) is described in our first edition.
Sálix acumínata

† 90. *S. cinerrea* L. The grey Sallow, or ash-coloured Willow.


**Synonyme.** *S. cinerea* var. Koch Comm. p. 36.


**Engravings.** Eng. Bot., t. 1897; Sal. Wob., No. 125.; our fig. 1465.; and fig. 125, in p. 814.

**Spec. Char., &c.** Stem erect. Lower leaves entire; upper serrated, ovate-lanceolate; glaucous, downy, and reticulated with veins beneath. Stipules half-heart-shaped, serrated. Ovary silky; its stalk half as long as the lanceolate bracteas. (Smith.) A shrub or middle-sized tree. England, on the banks of rivers, and in moist woods. Height 20 ft. to 30 ft. Flowers yellow; April, and again in September.

† 91. *S. aquatica* Smith (Eng. Bot., t. 1437; Sal. Wob., No. 127.; and our fig. 127. in p. 815.) is described in our first edition.

† 92. *S. oleifolia* Smith (Eng. Bot., t. 1402; Sal. Wob., No. 126.; and fig. 126. in p. 814.) is described in our first edition.

† 93. *S. geminata* Forbes (Sal. Wob., No. 129.; and fig. 129. in p. 815.) is described in our first edition.

† 94. *S. crispa* Forbes (Sal. Wob., No. 42.; and fig. 42. in p. 801.) is described in our first edition.


† 96. *S. latifolia* Forbes (Sal. Wob., No. 118.; and fig. 118. in p. 813.) is described in our first edition.

† 97. *S. caprea* L. The Goat Willow, or the great round-leaved Sallow.


**Synonymes.** Common Black Sallow, Saugh in Yorkshire, Grey Withy.

**Derivation.** The name *cåprea* seems to have originated in the reputed fondness of goats for the catkins, as exemplified in the wooden cut of the venerable Tra- gus, their namesake.
The Sexes. Both sexes are figured in **Sal. Wob.**, and both in **Hayne Abbild.**

*Engravings.* Hoffrn. **Sal.** t. 3. f. 1, 2. t 21. f. a. b. c.; **Eng. Bot.**, t. 1488.; **Sal. Wob.**, No. 122; our fig. 1467., from the **Sal. Wob.**; and fig. 1468., representing the male, and fig. 1469., the female, both from Host's **Sal. Aust.**, t. 66, 67.; and fig. 122. in p. 814.


Flowers yellow, very showy; April and May.

Leaves larger and broader than in any other of the genus; of a deep green above, with a downy rib; white underneath, or rather glaucous, and veiny, densely clothed with soft, white, cottony down; generally broadly ovate, approaching to orbicular, with a sharp point; sometimes more elliptical; either rounded or slightly heart-shaped at the base; varying in length from 2 in. to 3 in.; the margin wavy, and more or less strongly serrated. Foot-stalks stout, downy. Catkins numerous, much earlier than the foliage, and almost sessile. This tree, Sir W. J. Hooker observes, "distinguishes itself, in the spring, by being loaded with handsome yellow blossoms before any of its leaves appear. The flowering branches of this species are called palms, and are gathered by children on Easter Sunday; the relics of the Catholic ceremony formerly performed in commemoration of the entry of our Saviour into Jerusalem.

98. **S. sphacelata** Smith (Eng. Bot., t. 2333.; **Sal. Wob.**, No. 121.; and fig. 121. in p. 813.) is described in our first edition.

**Group xvii. Nigricantes Borrer.**

*Shrubs with long Branches, or small Trees. Mostly Sallows.* **Prin. sp. 105. 109. 111. and 122.**

A group as difficult to define as are the kinds of which it is constituted. Stamens 2 to a flower. Ovary stalked, glabrous or silky. Style more or less 2-cleft. In leaves, many of this kind approach those of the group **Cinereae** very nearly, having ovate or obovate ones; but the leaves are less wrinkled.—Plants shrubs with long branches, or small trees. (Hook.)
term Nigricantes has been applied to this group, not, as it has been supposed, in allusion to the leaves of the kinds of which it is constituted turning black in drying, but to mark their affinity to S. nigricans Smith, a well-known individual of their number.

99. S. australis Forbes (Sal. Wob., No. 103.; and our fig. 103. in p. 809.) is described in our first edition.

100. S. vaude'nsis Forbes (Sal. Wob., No. 117.; and our fig. 117. in p. 812.) is described in our first edition.

101. S. grispophy'illa Forbes (Sal. Wob., No. 119.; and our fig. 119. in p. 813.) is described in our first edition.

102. S. lacustris Forbes (Sal. Wob., No. 116.; and our fig. 116. in p. 812.) is described in our first edition.

103. S. crassifo'lia Forbes (Sal. Wob., No. 115.; and our fig. 115. in p. 812.) is described in our first edition.

104. S. cotinifo'lia Smith. The Cotinus, or Quince, leaved Sallow, or Willow.


Synonyme. S. spadicea Villars’s Danph. 3777.; S. phylidiofla var. Koch

Comm. p. 42.


Spec. Char., &c. Stem erect. Branches spreading downy. Leaves broadly elliptical, nearly orbicular, slightly toothed, glaucous and downy, with rectangular veins beneath. Style as long as the linear notched stigmas. (Smith Eng. Fl.) An upright shrub, with straight, round, brown, downy, moderately spreading branches, Britain, in woods, and on the banks of rivers. Height 2 ft. to 8 ft. Flowers yellow; May.

105. S. hir'ta Smith. The hairy-branched Sallow, or Willow.


Synonyme. S. pecta Schleich. is the female of S. hirta. (Forbes in Sal. Wob.)


106. S. rivula'ris Forbes (Sal. Wob., No. 102.; and our fig. 102. in p. 809.) is described in our first edition.

107. S. atropurpu'rea Forbes (Sal. Wob., No. 156.) is described in our first edition.

108. S. coria'cea Forbes (Sal. Wob., No. 112.; and our fig. 112. in p. 811.) is described in our first edition.


The sexes. Smith has described both sexes in Eng. Fl.; the female from Lapland specimens; the male is figured in Eng. Bot. and Sal. Wob. The S. nigricans Schl., female, is figured in Sal. Wob., as the female of S. nigricans Smith. It does not appear that the flowers of the female have been found wild in Britain. (Hook. Br. Fl., ed. 2)


Spec. Char., &c. Leaves elliptic-lanceolate, acute, crenate; glabrous, with a
downy rib, above; glaucous beneath. Stamens 2, thirce the length of the hairy bractea. Ovary lanceolate, downy, on a short downy stalk. (Smith.)

A large bushy shrub, scarcely attaining the height or form of a tree, with upright, round, stout, rather brittle branches, glabrous, except when young. Britain, in fens, osier grounds, woods, and thickets. Height 10 ft. to 12 ft. Flowers yellow; April.

110. S. ANDERSONIANA Smith. Anderson's Willow, or the Green Mountain Sallow.


Spec. Char., &c. Stem upright. Leaves elliptical, acute, finely notched, slightly downy, paler beneath. Stipules half-ovate, nearly glabrous. Branches minutely downy. Ovary glabrous; its stalks almost equal to the bractea. Style cloven, longer than the cloven stigmas. (Smith.) An upright bushy shrub. Scotland, on the Breadalbane Mountains; and England, on the banks of the Tyne below Newcastle. Height 6 ft. to 12 ft. Flowers yellow; April and May.

111. S. DAMASCEN'A Forbes. The Damson-leafed Willow, or Sallow.


Synonyme. S. damascenitolia Anderson MSS.; S. phylicifolia Lin. ex A. DC.

The Spec. The female is described in Sal. Wob., and described in Eng. Bot. Suppl. "Mr. Anderson possessed both sexes, but we have seen the female only." (Borrer.)


Spec. Char., &c. Upright. Young shoots densely hairy. Leaves ovate, or rhomboidal, bluntly toothed; silky when young; at length nearly glabrous; green on both surfaces. Stipules half-heart-shaped. Catkins, with the flowers in blossom, longer than the floral leaves. Bractea (scales) ob-ovate. Ovary stalked, glabrous. Style divided, longer than the diverging stigmas. (Borrer.) An upright bushy shrub, nearly allied to S. Andersoniana. Scotland, on the borders of England. Height 6 ft. to 12 ft. Flowers yellow; April.

112. S. ANSONIANA Forbes (Sal. Wob., No. 107.; and our fig. 107. in p. 810.) is described in our first edition.

113. S. HELVETICA Forbes (Sal. Wob., No. 159.) is described in our first edition.

114. S. FORSTERIANA Forbes (Sal. Wob., No. 106.; and our fig. 106. in p. 810.) is described in our first edition.


116. S. ROTUNDATA Forbes. The round-leafed Willow, or Sallow.


Synonyme. S. rotundifolia Host.

The Spec. Both sexes are described and figured in Sal. Wob.

Engravings. Sal. Wob., No. 104; our fig. 1471., p. 780.; and fig. 104. in p. 809.

Spec. Char., &c. Leaves orbicular, bluntly serrated; glabrous and shining above; glaucous, reticulated, and slightly hairy beneath. Stipules rounded, serrated, glandular. Ovary awl-shaped, glabrous, stalked. Style twice the length of the parted stigmas. (Sal. Wob.) An upright-growing shrub or low tree. Switzerland. Height 15 ft. to 20 ft. Introduced in 1824. Flowers yellow; April and May.

117. S. DU'RA Forbes (Sal. Wob., No. 105.; and our fig. 105. in p. 810.) is described in our first edition.

118. S. FORSTERIANA Smith. The glaucous Mountain Sallow, or Forster's Willow.

The Sexes. The female is described in Eng. Fl., and figured in Eng. Bot. where the style is represented too short (Smith Eng. Fl.) ; and in Sal. Wob.
Engravings. Eng. Bot., t. 2344 ; Sal. Wob., No. 110 ; and our fig. 110. in p. 811.


119. S. rupestris Dnnn. The silky Rock Willow, or Sallow.
Engravings. Eng. Bot., t. 2342 ; Sal. Wob., No. 111 ; and our fig. 111. in p. 811.

Spec. Char., &c. Stem trailing. Leaves obovate, acute, serrated, flat, even, silky on both sides. Stipules hairy. Branches minutely downy. Ovary stalked, awl-shaped, silky. Style as long as the blunt undivided stigmas. (Smith.) A trailing shrub, with dark-coloured branches, covered with very fine down when young. Scotland, in woods, and on the banks of rivers. Height 1 ft. to 2 ft. Flowers yellow ; April.

A perfectly distinct kind. The branches are tough, and suitable for tying and basketwork.

120. S. tenuifolia L. The thin-leaved Willow.
Engravings. Sal. Wob., No. 56 ; Eng. Bot. Suppl., t. 2795 ; and our fig. 50. in p. 802.


121. S. propinquua Borr. The nearly related, or flat-leaved, upright, Mountain Willow.
The Sexes. The female is described in the Specific Character; and described and figured in Eng. Bot. Suppl.
Engravings. Eng. Bot. Suppl., t. 2729 ; and our fig. 1472.

Spec. Char., &c. Upright. Young shoots pubescent with minute down. Leaves elliptical, obscurely crenate, nearly flat, nearly glabrous on both surfaces; veins slightly sunken; under surface pale green. Stipules small, vailed, glanded. Ovary stalked, silky towards the point. Style longer than the notched stigmas. (Borrer.) An upright shrub. Britain. Height 4 ft. to 6 ft. Flowers yellow ; May.

122. S. petrae'a Anders. The Rock Sallow, or Willow.
Engravings. Sal. Wob., No. 97 ; Eng. Bot. Suppl., t. 2729 ; and our fig. 97. in p. 808.

Spec. Char., &c. Upright. Young shoots densely hairy. Leaves oblong,
serrated, carinate, twisted, reticulated with deeply sunken veins; beneath, hairy, glaucous, at length pale green. Stipules large, half-heart-shaped, flattish, having few glands. Ovary stalked, naked, wrinkled towards the point. Style divided, longer than the cloven stigmas (Borr.) An upright shrub. Scotland, on the Breadalbane Mountains. Height 10 ft. to 15 ft. Flowers yellow; May.

S. petrae'a is nearly allied to S. hirta Smith Eng. Bot. t. 1404.; and still more nearly, perhaps, to S. stylaris of Seringe Monogr. des Saules de la Suisse, p. 62.


124. S. atrov'i'rens Forbes (Sal. Wob., No. 108.; and our fig. 108. in p. 810.) is described in our first edition.

125. S. stre'pida Forbes (Sal. Wob., No. 100.; and our fig. 100. in p. 809.) is described in our first edition.

126. S. so'rdida Forbes (Sal. Wob., No. 101.; and our fig. 101. in p. 809.) is described in our first edition.

127. S. Schleicheri'ana Forbes (Sal. Wob., No. 98.; and our fig. 98. in p. 808.) is described in our first edition.

128. S. Grisonen'nis Forbes (Sal. Wob., No. 99.; and our fig. 99. in p. 808.) is described in our first edition.

Group xviii. Bicolores Borrer.

Bushy Shrubs, with Leaves dark green above, and glaucous beneath. Prin. sp. 131. 133, 134. and 142.

Stamens 2 to a flower. Ovaries silky. Leaves between obovate and lanceolate, glabrous, or nearly so; dark green on the upper surface, very glaucous on the under one. — Plants twiggy bushes. (Hook.)


130. S. laxiflo'ra Borr. The loose-catkined Willow.

The Sexes. The female is described and figured in Eng. Bot. Suppl. The male plant is not known.


Spec. Char., &c. Upright. Young shoots slightly pubescent. Leaves glabrous, flat, broadly obovate, narrower to the base, slightly toothed, glaucescent beneath; upper leaves acute. Stipules small, concave. Flowers loosely disposed in the catkin. Ovary stalked, bluntish, glabrous in the lower part. Style as long as the linear divided stigmas. (Borrer.) A low, bushy, deciduous tree, or tree-like shrub. Britain, in various places, both in England and Scotland. Height 12 ft. to 20 ft. Flowers yellow; April and May.
131. S. LAUŘINA Smith. The Laurel-leaved, or shining dark-green, Willow.


Spec. Char., &c. Leaves elliptic-oblong, acute, waved, and slightly serrated, nearly glabrous; glaucous beneath. Footstalks dilated at the base. Stipules pointed, serrated. Bracteas obtuse, hairy, and half as long as the densely downy, ovate, long-tailed ovary. (Smith.) A shrub or small tree. Britain, in various parts; growing plentifully in woods and thickets. Height 6 ft. to 12 ft. Flowers yellow; March and April.

132. S. PATENS Forbes (Sal. Wob., No. 39.; and our fig. 39. in p. 800.) is described in our first edition.

133. S. RADIČANS Smith. The rooting-branched Willow.


Synonyme. S. phylicifolius Linn. Fl. Lapp. No. 351, t. 8, f. d.

The sexes. The female is described in Eng. Fl., where Smith has noticed that he had not observed the catkins of the male. The female is figured in Eng. Bot. and Sal. Wob.


Spec. Char., &c. Leaves elliptic-lanceolate, with wavy serratures, very glabrous; glaucous beneath. Stipules glandular on the inside. Ovary lanceolate, stalked, silky. Style twice the length of the stigmas. Branches trailing. (Smith.) A low, spreading, glabrous bush, whose long, recumbent, brown or purplish branches take root as they extend in every direction. Scotland, on the Breadalbane Mountains. Height 1 ft. to 2 ft. Flowers yellow; May.

134. S. BORRERIÁNA Smith. Borrer's, or the dark upright, Willow.


Spec. Char., &c. Branches erect. Leaves lanceolate, serrated with shallow nearly even serratures, very glabrous; glaucous beneath. Stipules lanceolate, small. Bracteas (scales) acute, shaggy. (Smith.) A much-branched shrub, decumbent at the base only. Scotland, in Highland mountain valleys. Height 6 ft. to 10 ft. Flowers yellow; April.


137. S. RAMIFUSCA Forbes, ? Anders. (Sal. Wob., No. 53.; and our fig. 53. in p. 803.) is described in our first edition.

138. S. FORBESIÁNA. Forbes's Willow (Sal. Wob., No. 51.; and our fig. 51. in p. 803.) is described in our first edition.


**Spec. Char., &c.** Leaves elliptical, rhomboidal, or almost round, with a short point, obsoletely crenate; glabrous on both sides, glaucous beneath. Stipules small. Catkins on short stalks. Floral leaves small. Bracteas (scales) oblong, hairy, longer than the hairy stalks of the ovary. Style longer than the stigmas. (Borrer.) An upright shrub. Height 10 ft. to 12 ft. Flowers yellow; April and May.

A desirable species for small collections, on account of its roundish foliage.

**§ 140. S. nitens Anders.** The glittering-leaved Willow.


**The Sexes.** Both sexes are described and figured in Eng. Bot. Suppl.

**Engravings.** Eng. Bot. Suppl., t. 2655.; Sal. Wob., No. 44.; fig. 1477.; and fig. 44. in p. 801.

**Spec. Char., &c.** Leaves ovate or elliptical, acute, slightly serrated; nearly glabrous above, with sunk veins; glabrous and glaucous beneath. Stipules small. Catkins on short stalks. Floral leaves small. Bracteas (scales) oblong, hairy, longer than the hairy stalks of the ovary. Style longer than the stigmas. (Borrer.) An upright shrub, nearly allied to *S. Weigeliana*, and more nearly to *S. Croweana*. England, in Teesdale. Height 5 ft. to 10 ft. Flowers yellow; April and May.

**§ 141. S. Croweana Smith.** Crowe’s Willow.


**Synonyms.** *S. arbuscula Weig. var. Koch* Comm. p. 45.; *S. humilis Schl.* is cited in *Sal. Wob.*, as the female of *S. Croweana Smith*; *S. heterophylla Host.*

**The Sexes.** Both sexes are described in *Eng. Bot.*, and figured in *Sal. Wob.* Mr. Borrer deems the case of the combination of the filaments to be one monstrous in the species, rather than innate and characteristic.

**Engravings.** Eng. Bot., t. 1146.; Sal. Wob., No. 52.; and our fig. 52. in p. 803.

**Spec. Char., &c.** Filaments combined below. Leaves elliptical, slightly serrated, quite glabrous, glaucous beneath. (Smith.) A bushy shrub, with many stout, irregularly spreading, glabrous, leafy, brittle, brownish yellow branches. England, in swampy meadows and thickets. Height 5 ft. to 10 ft. Flowers yellow; April and May.

This *Salix*, when covered with male blossoms, is amongst the most handsome of the genus; nor are the leaves destitute of beauty.

**§ 142. S. bi’color Ehrh.** The two-coloured Willow.


**Synonyms.** *S. tetonifolia Smith Eng. Bot.*, t. 2186., as to the figure; *S. Bambûnda Forbes.*


**Engravings.** Eng. Bot., t. 2186.; Sal. Wob., No. 54.; and our fig. 54. in p. 803.

**Spec. Char., &c.** Leaves elliptical; green and shining above, glabrous and glaucous beneath; serrated, ending in oblique points. Stipules crescent-shaped, serrated. Catkins of the male copious, bright yellow. Filaments slightly bearded at the base. (Sal. Wob.) A bushy spreading shrub, with short yellow branches, slightly villous when young; the older ones rather a yellowish green, quite glabrous. Britain. Height 6 ft. to 8 ft. Flowers yellow; April, and a second time in July.

**§ 143. S. phillyreifo’lia Borrer.** The Phillyrea-leaved Willow.


**The Sexes.** Both sexes are described and figured in *Eng. Bot. Suppl.*, the female in the fruit-bearing stage.

**Engravings.** Eng. Bot. Suppl., t. 2660.; and our fig. 1478.

**Spec. Char., &c.** Leaves elliptic-lanceolate, acute at each end, strongly serrated, glabrous on both surfaces, glaucous on the under one. Stipules
small. Young shoots pubescent. Bracteas (scales) oblong, hairy, longer than the glabrous stalk of the glabrous ovary. Style as long as the stigmas. In the arrangement of the kinds, this one may stand between S. bicolor and S. Dicksoniâna, in both of which the leaves are for the most part absolutely serrated, and of a figure approaching to ovate with a point. (Borrer.) An upright much-branched shrub. Highland valleys of Scotland. Height 4 ft to 5 ft. Flowers yellow; April.

144. S. Dicksoniâna Smith (Eng. Bot., t. 1390.; Sal. Wob., No. 55.; and our fig. 55. in p. 803.) is described in our first edition.

Group xix. Vacciniifolâce Borrer.

Small, and generally procumbent, Shrubs. Prin. sp. 145. and 149.

Stamens 2 to a flower. Ovary sessile, downy. Leaves bearing a considerable resemblance to those of a Vaccinium; opaque; the under surface glaucous. — Plants, small shrubs, usually procumbent, rarely erect. (Hook. Br. Fl., ed. 2., adapted.) It is probable that S. arbûsûca L. is the same as one or more of the four kinds, S. vacciniifolâ Walker, S. carinâta Smith, S. prunifolâ Smith, and S. venulûsa Smith. (Borrer, in his manuscript list.)

145. S. Vacciniifolâ Walker. The Vaccinium-leaved Willow.


Spec. Char., &c. Leaves lanceolate-ovate, serrated; glabrous and even above, glaucous and silky beneath. Capsules ovate, silky. Stems decumbent. (Smith.) A low decumbent shrub, very distinct from S. prunifolâ, of a much more humble stature, with decumbent, or trailing, long and slender branches, silky when young, though otherwise glabrous. Scotland, on Highland mountains. Height 1 ft to 2 ft. Flowers yellow; April and May.


147. S. Prunifolâ Smith (Eng. Bot., t. 1361.; Sal. Wob., No. 56.; and our fig. 56. in p. 803.) is described in our first edition.


149. S. Cæsîa Villars. The grey-leaved Willow.


Engravings. Villars Dauph., 3. t. 50. f. 11.; Sal. Wob., No. 66.; and our fig. 66. in p. 804.

3 E
Spec. Char., &c. Leaves elliptic or lanceolate, acuminate, glabrous, not shining, entire, and revolute at the edge. Catkin upon a short leafy twiglet. Capsule ovate-conical, tomentose, seemingly sessile, eventually having a very short stalk. Glabrous to the base of the capsule. Style shortish. Stigmas ovate-oblong, entire, and bifid (Koch.) — A low straggling shrub. Alps of Dauphiné; and in Savoy, upon the mountain Enzendoog. Height 3 ft. to 4 ft. Introduced in 1824. Flowers yellow; May, and again in August.

Group xx. Myrtillioides Borrer.

Small Bilberry-like Shrubs, not Natives of Britain. Prin. sp. 150.

This group consists of exotic kinds, and, therefore, does not appear in Hook. Br. Fl.; and, consequently, we cannot quote characteristics thence. In S. myrtillioides L., we believe that the epithet was meant to express a likeness in the foliage to that of Vaccinium Myrtillus L.; and we suppose that this likeness appertains to each of the kinds of which Mr. Borrer has constituted his group Myrtillioides.

150. S. MYRTILLIOIDES L. The Myrtillus-like, or Bilberry-leaved, Willow.


The Sexes. The female is described in Rev's Cyclo., and the male partly so.

Engravings. Lin. Fl. Lapp., ed. 2, t. 8. f. i. k.; and our fig. 1480.

Spec. Char., &c. Leaves very various in form, ovate, subcordate at the base, oblong, or lanceolate; entire, opaque, glabrous; veins appearing reticulated beneath. Stipules half-ovate. Fruit-bearing catkin (? catkin of the female in any state) borne on a leafy twiglet. Bractes (scales) glabrous or ciliated. Capsules (? or rather ovaries) ovate lanceolate, glabrous, upon a stalk more than four times as long as the gland. Style short. Stigmas ovate, notched. (Koch.) The flowers of the female are disposed in lax cylindrical catkins. (Smith.) A low shrub. Carpathia, Poland, Livonia, Volhynia, and through Russia, Sweden, and Lapland. Height 2 ft. to 4 ft. Introduced in 1772. Flowers yellow; April and May.

151. S. PEDICELLA'RIS Pursh (Fl. Amer. Sept., 2. p. 611.) is described in our first edition.

152. S. PLANIFOLIA Pursh (Fl. Amer. Sept., 2. p. 611.) is described in our first edition.

Group xxi. Myrsinites Borrer.

Small bushy Shrubs. Prin. sp. 153. 155. and 159.

Stamens 2 to a flower. Ovaries downy. Leaves oval or broadly elliptical, serrated, small, glossy, rigid. — Plants small and bushy. (Hook. Br. Fl., adapted.) It seems to be the case that the epithet Myrsinites in S. Myrsi-
nites L. has been intended to imply a likeness in the foliage of that kind to that of the Vaccinium Myrsinantes; and it may be supposed that this character obtains more or less in all the kinds of the group.


Identification. Lin., cited by Borrer in Eng. Bot. Suppl., t. 2733, the text; Ft. Dan., t. 1054. (Smith.)


The Sexes. It is implied in the Spec. Char., &c., that the female is known.

Engravings. Ft. Dan., t. 1054. (Smith); and our fig. 1411.

Spec. Char., &c. This has, like S. betulifolia, short catkins, and distinctly serrated leaves; but these are more acute, and of an ovate-lanceolate figure; and the long style seems to afford a distinctive character. (Borrer.) A low shrub. Scottish mountains. Height 6 in. to 1 ft. Flowers yellow; April and May.

Stems and leaves like those of Betula nana, very dark, and almost black when dry.

154. S. Betulifolia Forster (Sal. Wob., No. 60.; and fig. 60. in p. 803.) is described in our first edition.

155. S. Procumbens Forbes. The procumbent Willow.


The Sexes. The female is described and figured in Eng. Bot. Suppl. and Sal. Wob. The male plant has not come under our notice. (Borrer.)


156. S. Retusa L. The retuse-leaved Willow.


The Sexes. Both sexes are described in Reeve's Cyclo, and hence in Sal. Wob., and below; and both are figured in Hayne Abbild.; the male is figured in Sal. Wob.

Engravings. Jacq. Austr., t. 298.; Sal. Wob., No. 139.; our fig. 1492.; and fig. 139. in p. 818.

Spec. Char., &c. Leaves obovate, entire, glabrous, shining above. Catkins of the female oblong, of few flowers. Bracteas (scales) the length of the oblong smooth ovary. (Smith.) A trailing shrub. Alps of Germany, Switzerland, France, and Italy. Height 6 in. to 1 ft. Introduced in 1763. Flowers yellow; May.

157. S. Kitaibeliana Willd. (Sal. Wob., No. 64.; and our fig. 64. in p. 804.) is described in our first edition.

158. S. Uva-ursi Pursh (Sal. Wob., No. 151.; and our fig. 151. in p. 818.) is described in our first edition.


The Sexes. The male is figured in Sal. Wob.; the male in Hayne Abbild.

Engravings. Scop. Carn., t. 61.; Sal. Wob., No. 65.; our figs. 1483, 1484.; and fig. 65. in p. 804.

* 160. *S. cordifolia* Pursh (Sal. Woh., No. 143.; a leaf; and fig. 143. in p. 818.) is described in our first edition.

**Group xxii. Herbaceae Borrer.**

*Very low Shrubs, scarcely rising an inch above the Ground.* Prin. sp. 161. and 162.

There are only two species in this group, the characteristics of which will be found in their specific characters.


**Spec. Char., &c.** Leaves orbicular, serrated, reticulated with veins; very glabrous and shining on both sides. Ovary stalked, ovate-lanceolate, glabrous. (Smith.) A diminutive shrub. Britain, on the Welsh and Highland mountains. Height 1 in. to 3 in. in a wild state, but much higher in a state of culture. Flowers yellow; June.

*S. herbaeae* is the least of British willows, and, according to Sir J. E. Smith, the least of all shrubs. Dr. Clarke, in his *Scandinavia*, calls it a perfect tree in miniature; so small, that it may be taken up, and root, trunk, and branches spread out in a small pocket-book.


**Identification.** Wahlenb. Suec., p. 636.; Fl. Lapp., p. 291.; Koch Comm., p. 64.

The Sexes. The female is described and figured in Sal. Wob.

**Engravings.** Wahlenb. Suec., p. 636.; Fl. Lapp., p. 291.; Koch Comm., p. 64.; and fig. 63. in p. 803.

**Spec. Char., &c.** Leaves ovate, very obtuse, nearly entire, glabrous. Catkins of few flowers. Stem filiform, or thread-shaped. (Wahlenberg.) A diminutive shrub. Lapland. Height 1 in. to 3 in. Introduced in 1820. Flowers yellow; April, and again in July.

The branches and leaves of this species are more tender during the spring than those of *S. herbaeae*; the stem is almost filiform.

**Group xxiii. Hastaeae Borrer.**

*Low Shrubs, with very broad Leaves, and exceedingly shaggy and silky Catkins* (Hook Br. Fl.) Prin. sp. 163. and 164.

* 163. *S. hastata* L. The halberd-leaved Willow.


The Sexes. The female is described and figured in Sal. Wob.

**Engravings.** Lin. Fl. Lapp., ed. 2, t. 8, f. 9.; Sal. Wob., No. 35.; our fig. 1488.; and fig. 35. in p. 799.

**Spec. Char., &c.** Leaves ovate, acute, serrated, undulated, crackling, glabrous; heart-shaped at the base, glaucous beneath. Stipules unequal
heart-shaped, longer than the broad footstalks. Catkins very woolly. Ovary lanceolate, glabrous, on a short stalk. (Smith.) A tall shrub, or small spreading tree. Lapland, Sweden, and in Britain but rare. Height 5 ft. to 10 ft. Flowers yellow; April and May.

Varieties.

\[ S. h. 2 \text{ serrulata.} \]  
\[ S. hastata Willd, Sp. Pl. iv. p. 664. — Leaves broadly ovate, heart-shaped at the base. \]

\[ S. h. 3 \text{ malifolia.} S. malifolia Smith Eng. Bot. t. 1617. {\text{(For a leaf, see our fig. 36. in p. 739.) — Leaves elliptic oblong, toothed, wavy, thin and crackling, very glabrous.}} \]

\[ S. h. 4 \text{ arbuscula.} S. arbuscula Wahl. Fl. Dan. t. 1055., Forbes in Sal. Wob. No. 138., where there are a figure and description of the female plant (see our fig. 1480., also fig. 138. in p. 818.); S. arbuscula \beta \text{ Lin. Fl. Suec. p. 248.}; S. arbuscula \gamma \text{ Lin. Sp. Pl. p. 1545., Fl. Lapp. t. 8. f. m. — Leaves lanceolate, serrated with distant, small, and appressed teeth, or almost entire.}} \]

\[ 164. S. \text{LANA'TA L. The woolly-leaved Willow.} \]

**The sexes.** Both sexes are described and figured in Eng. Bot. Suppl., t. 2624.: both sexes of S. chrysanthos Fl. Dan. are figured in Sal. Wob.  

**Spec. Char., &c.** Leaves roundish ovate, pointed, entire; shaggy on both surfaces; glaucous on the under one. Ovary sessile, oblong, glabrous. Styles four times as long as the blunt divided stigmas. Catkins clothed with long, yellow, silky hairs. Ovary nearly sessile, lanceolate, longer than the style. Stigmas undivided. (Hook.) A low shrub. Scotland, on the Clova Mountains. Height 3 ft. to 4 ft. Flowers yellow; May.

The splendid golden catkins at the ends of the young shoots light up, as it were, the whole bush, and are accompanied by the young foliage, sparkling with gold and silver. It yields, also, more honey than any other salix. Grafted standard high, it would make a delightful little spring-flowering tree for suburban gardens.

**Group xxiv. Miscellanea A.**

**Kinds of Sälix described in Sal. Wob., and not included in any of the preceding Groups.**

\[ S. \text{EGYPTI'ACA L. (Sal. Wob., No. 146.; and our fig. 146. in p. 818.) is described in our first edition.} \]

\[ S. \text{ALPI'NA Forbes (Sal. Wob., No. 149.; and our fig. 149. in p. 818.) is described in our first edition.} \]

3 & 3
167. S. BERRERIFO'LLA Pall. The Berberry-leaved Willow.

The sexes. The male is figured in Sal. Wob.; the female is noticed in the specific character.

Engravings. Sal. Wob., No. 140.; our fig. 1491.; and fig. 140. in p. 818.

Spec. Char., &c. Leaves obovate, bluntish, with deep tooth-like serratures, glabrous, shining, ribbed, and reticulated with veins on both sides. Capsules ovate, glabrous. (Smith.) A low shrub. Dauria, in rocky places on the loftiest mountains; growing, along with Rhododendron chrysanthum, near the limits of perpetual snow. Height 6 in. to 2 ft. Introduced in 1824. Flowers yellow; May.

168. S. TETRASPE'RMUS Roxb. (Sal. Wob., No. 31.; and fig. 31. in p. 797.) is described in our first edition.

169. S. ULMIF'O'LLA Forbes (Sal. Wob., No. 158.) is described in our first edition.

170. S. VILLO'SA Forbes (Sal. Wob., t. 92.; and fig. 92. in p. 807.) is described in our first edition.

Group xxv. Miscellaneæ B.

Kinds of Salix introduced, and of many of which there are Plants at Messrs. Loddiges's, but which we have not been able to refer to any of the preceding groups.


Appendix.

Kinds of Salix described or recorded in Botanical Works, but not introduced into Britain, or not known by these Names in British Gardens. Descriptions and reference to figures are given in our first edition, but here we insert only the names.


The plates, which form pages 791. to 818., contain figures of leaves, of the natural size, from the engravings of willows given in the Salicetum Woburnensis and against each leaf, or pair of leaves, we have placed the same number, at the same name, which are given in the Salicetum.
§ 1. Adult Leaves serrated, nearly smooth.

OSIERS AND WILLOWS.

3. S. Lambertiana.

5. S. Forbyana.

1. S. purpurea.

2. S. Helix.

3 & 4

4. S. mouandira.
§ i. continued.—Adult Leaves serrated, nearly smooth.

OSIERS AND WILLOWS.

7. S. viridescens.

10. S. Lydonii.

4. S. Humboldtiana.

11. S. Houstoniana.

6. S. rubra.
§ 1. continued.—Adult Leaves serrated, nearly smooth.

OSIERS AND WILLOWS.

15. S. triandra.

12. S. virgata


§ i. continued.—*Adult Leaves* serrated, nearly smooth.

**OSIERS AND WILLOWS.**


20. *S. vitellina.*

18. *S. amygdâlina.*


17. *S. Villarsiana.*

19. *S. montana.*
§ i. continued.—Adult Leaves serrated, nearly smooth.

OISIERS AND WILLOWS.

24. S. conformis.

25. S. violacea.

22. S. babylonica.

23. S. petiolaris.
§ i. continued.—Adult Leaves serrated, nearly smooth.

OSIERS AND WILLOWS.


27. S. frágilis.

26. S. praecox.
§ 1. continued.—*Adult Leaves serrated, nearly smooth.*

WILLOWS.

20. *S. decipiens.*

31. *S. tetrasperma.*

30. *S. monspeliensis.*
§ i. continued.—Adult leaves serrated, nearly smooth.

WILLOWS.
§ i. continued.—Adult Leaves serrated, nearly smooth

WILLOWS

35. *S. malifolia.*

37. *S. nigricans.*
§ 1. continued.—Adult Leaves serrated, nearly smooth.

WILLOWS.
§ i. continued.—Adult Leaves serrated, nearly smooth.

WILLOWS.

43. S. Pontederiana.

42. S. crispa.

41. S. Wilhdenoviæna.

41. S. nitens
§ i. continued.—Adult Leaves serrated, nearly smooth.

WILLOWS.

45. *S. tenuifolia.*

46. *S. phylicifolia.*

47. *S. Davalliana.*

48. *S. tetraptera.*

49. *S. tetrapla.*

50. *S. tenuifolia.*
§ i. continued.—Adult Leaves serrated, nearly smooth.

**WILLOWS.**

56. *S. prunifolia.*  
57. *S. vaccinifolia.*  
58. *S. venulosa.*  
59. *S. carinata.*  
60. *S. Myrsinites.*  
61. *S. procumbens.*  
62. *S. herbacea.*  
63. *S. polaris.*  
64. *S. floribunda.*  
65. *S. Dicksoniana.*  
66. *S. ramosa.*
§ ii. Adult Leaves entire, nearly smooth.

WILLOWS.

66. S. myrtioides.

65. S. serpyllifolia.

64. S. Kitaibeliana.

67. S. reticulata.

§ iii. Leaves all shaggy, woolly, or silky.

WILLOWS.

68. S. glauca.

69. S. eisagnifolia.
§ iii. continued.—*Leaves all shaggy, woolly, or silky.*

**WILLOWS.**

72. *S. Stuartiana.*

71. *S. lanata.*

74. *S. sericea.*

70. *S. arenaria.*

73. *S. Lapponicum.*

75. *S. procerifolia.*
§ iii. continued.—Leaves all shaggy, woolly, or silky.

WILLOWS.

76. S. alaternoides.
80. S. ascendentens.

78. S. argentea.

81. S. parvifolia.

82. S. prostrata.

85. S. Domiina.

77. S. versicolor.

83. S. fusca.

79. S. neubaccce.

88. S. drummondii.

84. S. repens.

86. S. arbustula.
§ iii. continued. — Leaves all shaggy, woolly, or silky.

WILLows.

93. S. subalpina.
92. S. villosa.
89. S. line-aris.
94. S. reflexa.
91. S. candida.
90. S. incana.
§ iii. continued.—Leaves all shaggy, woolly, or silky.

WILLOWS AND SALLOWS.

95. S. pennsylvânia.

96. S. pâllida.

97. S. petra'â a.

98. S. Schleecheiânaa.

99. S. grison'trisia.
§ iii. continued.—Leaves all shaggy, woolly, or silky.

100. S. strépida. s.

102. S. rivuláris. s.

103. S. austrális. s.

104. S. rotundáta. s.

101. S. sórítida. s.
§ iii. continued.—Leaves all shaggy, woolly, or silky.

Sallows.

106. S. firma s.
108. S. atrovirens s.
105. S. dura s.
107. S. Ansoniana s.
§ iii. continued.—*Leaves all shaggy, woolly, or silky.*

109. *S. Andersoniana.*

**Sallows.**

110. *S. Forsteriana.*

111. *S. rupéstris.*

112. *S. coriácea.*

113. *S. hirta.*
§ iii. continued.—Leaves all shaggy, woolly, or silky.

Sallows.

114. S. cotinifolia. s.

115. S. crassifolia. s.

116. S. laeviscula. s.

117. S. vaudensia. s.
§ iii. continued.—Leaves all shaggy, woolly, or silky.

Sallows. 119. S. grisophylla. s.

121. S. sphacelata. s.

118. S. latifolia. s.

120. S. inconspicua. s.
§ iii. continued.—Leaves all shaggy, woolly, or silky.

122. S. caprea. s.

123. S. pannosa. s.

124. S. aurita. s.

125. S. cinerea. s.

126. S. oleifolia. s.

SALLOWS.
§ iii. continued.—Leaves all shaggy, woolly, or silky.

Sallows.
§ iii. continued.—Leaves all shaggy, woolly, or silky.

SALLOW AND OSIER.
iii. continued.—Leaves all shaggy, woolly, or silky.

OSIERS AND WILLOWS.

134. *S. Smithiana.*

137. *S. carulea.*

135. *S. viminalis.*

135. *S. Miscellana.*
§ iv. Miscellaneous Kinds.

WILLOWS, OSIERS, AND SALLOWS.

143. S. cordifolia.  
138. S. retusa.  
140. S. berberifolia.  
148. S. falcata.  
146. S. egyptiaca.  
141. S. rigida.  
147. S. discolor.  
151. S. U'va-fersi.  
142. S. cordata.


Synonyms. Peuplier, Fr.; Pappel, Ger.; Poppo, Ital.; Popler, Dutch; Alamo, Span.

Derivation. Some suppose the word Populus to be derived from pasto, or paijaldo, to vibrate or shake; others, that the tree obtained its name from its being used, in ancient times, to decorate the public places in Rome; where it was called arbor populii, or the tree of the people. Bullett derives the name also from populus, but says that it alludes to the leaves being easily agitated, like the people. From the Spanish name for this tree, alamo, is derived the word alamedo, the name given to the public walks in Spain, from their being generally planted with poplars.

Gen. Char., &c. Bractea to the flower of each sex laminated in its terminal edge. Male flower consisting of a calyx, and 8 stamens at fewest; in many instances many more. Female flower consisting of a calyx and a pistil. (G. Don.)

Leaves simple, alternate, stipulate, deciduous; entire or serrated, with the disk more or less oblate, and the petiole in most compressed in the part adjoining the disk. Flowers in catkins, greenish, red, or yellow. Seed cottony, ripe in a month or six weeks after the appearance of the flowers. Decaying leaves yellow, yellowish green, or black. — Trees deciduous; natives of Europe, Asia, or North America.

They are all of rapid growth, some of them extremely so; and they are all remarkable for a degree of tremulous motion in their leaves, when agitated by the least breath of wind. The catkins of the males of most of the species are very ornamental, from the red or dark brown tinge of their anthers, and from their being produced very early in spring, when the trees are leafless. The females of all the species have their seeds enveloped in abundance of cottony down; which, when ripe, and the seeds are shed, adheres to every object near it; and is so like cotton wool in appearance and quality, that it has been manufactured into cloth and paper, though it has been found deficient in elasticity. The wood of the poplar is soft, light, and generally white, or of a pale yellow. It is of but little use in the arts, except in some departments of cabinet and toy making, and for boarded floors; for which last purpose it is well adapted, from its whiteness, and the facility with which it is scoured; and, also, from the difficulty with which it catches fire, and the slowness with which it burns. In these respects, it is the very reverse of deal. Poplar, like other soft woods, is generally considered not durable; but this is only the case when it is exposed to the changes of the external atmosphere, or to water. One of the most valuable properties of the poplar is, that it will thrive in towns in the closest situations; and another is, that, from the rapidity of its growth, it forms a screen for shutting out objects, and affords shelter and shade sooner than any other tree. All the kinds, whether indigenous or foreign, are readily propagated by cuttings or layers, and some of them by suckers. The species which produce suckers may all be propagated by cuttings of the roots. They all like a moist soil, rich rather than poor, particularly when it is near a running stream; but none of them thrive in marshy soil, as is commonly supposed, though in such situations the creeping-rooted kinds are to be preferred, as living on the surface.

1. P. A'ALBA L. The white Poplar, or Abele Tree.


Synonyms. P. alba latifolia L.ob. 1c. 2, p. 153. fig. 1.; P. major Mill. Dict. 8. No. 4.; P. nivea Wild. Arb. 227.; P. Alba nivea Mart. MILL.; the name of Leukè, given to this species by Dioscorides, is still used among the modern Greeks (see Smith Prod., Sibth. Fl. Grecia) ; the great white Poplar, great Aspen, Dutch Beech; Peuplier blanc, Aprean, Blanc de Hollande, Franz Picard, Fr.; Aubo, or Aouibo, in some provinces; weisse Pappel, Silber Pappel, weisse Aspe, Weissalber Baum, Ger.; Abeelboom, Dutch.

Derivation. The specific name of White applies to the under surface of the leaves, which, when quivering in the wind, give the tree a peculiarly white appearance. The English name of Abele
is derived from the Dutch name of the tree, Abec; and this name is supposed by some to be taken from that of the city of Arbeia, in the plains of Niveveh, near which, on the banks of the Tigris and Euphrates, great numbers of these trees grew. It is said to be the same tree as that mentioned in the Bible as Abel-shittim, Chittim, Shittim-wood, and Kittim. The Dutch Beech is an old name, given to this tree, as we are informed by Hartlib, in his Compleat Husbandman (1659), on account of ten thousand trees of it having been brought over all at once from Flanders, and planted in the country places; where the people, not knowing what they were, called them Dutch beech trees. The French name of Ypren alludes to the tree being found in great abundance near the town of Ypres.

The Species. Both sexes are described in the English Flora, and are not unfrequent in plantations.


Spec. Char., &c. Leaves lobed and toothed; somewhat heart-shaped at the base; snow-white, and densely downy beneath. Catkins of the female plant ovate. Stigmas 4. (Smith.) Root creeping, and producing numerous suckers. Branches very white, and densely downy when young. Leaves angular, and generally with three principal lobes, variously and unequally toothed, blunt-pointed, veiny; dark green and smooth above, and covered with a thick remarkably white down beneath. The leaves vary very much in form; and on young luxuriant branches they are almost palmate. The leaves are not folded in the bud, and the buds are without gum. A large tree. Europe, in woods or thickets, in rather moist soil. Height 90 ft. Flowers dark brown; March. Seed ripe; May. Decaying leaves dark brown.

Varieties. These are numerous, but the principal one, P. (a.) canescens, being generally considered as a species, we shall first give it as such; after enumerating the varieties which belong to P. alba.

† P. a. 2 hýbrída Bieb. Fl. Taur. Cana. 2. p. 423. and Suppl. p. 633. P. alba Bieb. l. c.; † P. intermédia Mertens; P. a. crassífólia Mertens; and P. grísea Lodd. Cat. 1836. — Appears to be intermediate between P. alba and P. (a.) canescens. It is plentiful in the neighbourhood of streams in Tauria and Caucasus; whence it appears to have been introduced into Britain in 1816.

† P. a. 3 acerífólia, P. acerífólia Lodd. Cat. ed. 1836; P. quercífólia Hort.; P. palmátá Hort.; P. arembérgica Lodd. Cat. 1836; P. bélgica Lodd. Cat. 1836. — A very distinct variety of P. alba, with the leaves broad, and deeply lobed, like those of some kinds of Acer.

† P. a. 4 cándicans. P. cándicans Lodd. Cat. ed. 1836; P. nívea Lodd. Cat. — A strong-growing variety of P. alba; probably identical with P. acerífólia. This is the P. tomentósa of the Hawick Nursery, and the hoary poplar of the Edinburgh nurseries, where it is propagated by layers.

† P. a. 5 egypíaca Hort. P. a. pállída Hort.; the Egyptian white Poplar. — A much weaker-growing plant than any of the preceding varieties.

† P. a. 6 pendula. P. a. var. grácilis rámis pendéntibus Mertens. — Specimens of this variety, of both sexes, are in the Linnean herbarium; and there are trees of it on the ramparts at Bremen.

‡ 2. P. (A.) cañéscens Smith. The grey, or common white, Poplar.


The Species. Only the female plant is expressly described in the English Flora. The plant in the Horticultural Society's Garden is the male.


Spec. Char., &c. Leaves roundish, deeply waved, toothed; hoary and downy beneath. Catkins of the female plant cylindrical. Stigmas 8. It is essentially distinguished from P. alba, as Mr. Crowe first discovered, by the stigmas, which are 8, spreading in two opposite directions. The
bracteas of the fertile flowers are, also, more deeply and regularly cut. The branches are more upright and compact. The leaves are rounder, more conspicuously 3-ribbed, and less deeply or acutely lobed; not folded in the bud, and without gum. They are downy beneath; but the down is chiefly greyish, and not so white or cottony as in P. alba: in some instances the leaves are glabrous. (Smith.) A tree closely resembling the preceding species, and found in similar situations.

The wood of the white poplar weighs, when green, 58 lb. 3 oz. per cubic foot; and in a dried state, 38 lb. 7 oz.; it shrinks and cracks considerably in drying, losing one quarter of its bulk. The wood of P. (a.) canescens is said to be much harder and more durable than that of P. alba; in the same manner as the wood of the Tilia europea parvifolia is finer-grained and harder than that of T. e. grandifolia. The wood of both kinds is the whitest of the genus; and it is used, in France and Germany, for a variety of minor purposes, particularly when lightness, either of weight or colour, is thought desirable; or where an artificial colour is to be given by staining. It is excellent for forming packing-cases, because nails may be driven into it without its splitting. It is used by the turner and the cabinet-maker, and a great many toys and small articles are made of it. The boards and rollers around which pieces of silk are wrapped in merchants’ warehouses and in shops are made of this wood, which is peculiarly suitable for this purpose, from its lightness, which prevents it much increasing the expense of carriage. The principal use of the wood of the white poplar in Britain is for flooring-boards; but for this purpose it requires to be seasoned for two or three years before using. For the abele to attain a large size, the soil in which it is planted should be loamy, and near water; though on a dry soil, where the tree will grow slower, the timber will be finer-grained, and more durable. In British nurseries, it is commonly propagated by layers; which, as they seldom ripen the points of their shoots, or produce abundance of fibrous roots the first season, ought to be transplanted into nursery lines for at least one year before removal to their final situation. The tree is admirably adapted for thickening or filling up blanks in woods and plantations; and, for this purpose, truncheons may be planted 3 in. or 4 in. in diameter, and 10 ft. or 12 ft. high. Owing to the softness of the wood, and its liability to shrink and crack, it is dangerous to cut off very large branches; and, even when branches of moderate size are cut off, the wound ought always to be covered over with grafting clay, or some description of plaster, to exclude the air. The tree is considered, both by French and English authors, as bearing lopping worse than any other species of the genus; and, when transplanted, the head should never be cut off, and not even cut in, unless in cases where the tree is to be planted in a hot and dry soil.

Fig. 3. P. tremuloides. The trembling-leaved Poplar, or Aspen.


fig.: P. pendula Du Roi: Aspe; le Tremble, Fr.; la Tremola, Alberalla, Alberetto, Ital.; Zitter-Pappel, Espe, Ger.

Derivation. The English name of Aspen or Aspe is evidently derived from the German, espe.

The Species. Both sexes are described in the English Flora.


Spec. Char., &c. Young branchlets hairy. Leaves having compressed footstalks, and disks that are roundish-ovate, or nearly orbicular; toothed in a repand manner, downy when young, afterwards glabrous on both surfaces. Stigmas 4, erect, cared at the base. (Smith.) A large tree, but seldom seen so high as P. alba. Europe; in rather moist woods. Height 50 ft. to 70 ft.

3 a 3
Flowers brown; March and April. Seeds ripe; May. Decaying leaves dark brown or black.

Varieties.

♀ P. t. 2 pêndula. P. pêndula Lodd. Cat. 1836; P. supina Lodd. Cat. ed. 1836. (The plate of this variety in our first edition, vol. vii.)—The only distinct variety of P. trêmula that exists in the neighbourhood of London.


A rapid-growing tree, rather exceeding the middle size, with a straight clean trunk, tall in proportion to its thickness; and a smooth bark, which becomes grey, and cracks with age. The branches, which extend horizontally, and are not very numerous, at length become pendulous. The young shoots are tough, pliant, and of a reddish colour; and both the wood and the leaves vary exceedingly, according to the dryness or moisture of the soil in which the tree is grown. The young shoots and leaves, produced in the form of suckers from the roots, are greedily eaten by cattle and sheep. The roots, from their nearness to the surface, impoverish the land, and prevent anything else from growing on it luxuriantly; and the leaves destroy the grass. The wood weighs, when green, 54 lb. 6 oz.; half-dry, 40 lb. 8 oz.; and quite dry, 34 lb. 1 oz.: it consequently loses two fifths of its weight by drying. It shrinks by this operation one sixth part of its bulk, and cracks and splits in an extreme degree. The wood is white and tender; and it is employed by turners; by cooperers, for herring casks, milk-pails, &c.; by sculptors and engravers; and by joiners and cabinet-makers; and for various minor uses, such as clogs, butchers' trays, pack-saddles, &c. As the roots of this tree chiefly extend close under the surface of the ground, it is better adapted for soils that are constantly wet below, than almost any other tree, since its roots, by keeping so very near the surface, are never out of the reach of the air, which they would be if they penetrated into soil perpetually saturated with water. Propagated by cuttings, but not so readily as most other species. Wherever trees are found, they generally throw up suckers from which plants may be selected; or cuttings of the roots may be made use of.


The Sexes. A plant of the female is in the London Horticultural Society's arboretum, where it flowered in April, 1835, though only 5 or 6 feet high. The stigmas were 6 or 8.


Spec. Char., &c. Disk of leaf suborbiculate, except having an abruptly acuminate point; toothed; having two glands at its base on the upper surface; silky while young, afterwards glabrous. Bud resinous. Petiole compressed. Disk of leaf toothed with hooked teeth, ciliate. Catkins silky. (Michx.) A tree. Canada to Carolina, in swamps; and found also from Hudson's Bay to the northward of the Great Slave Lake, as far as lat. 64°. Height 20 ft. to 30 ft. Introduced in 1812. Flowers brown; April. Seed ripe in May. Decaying leaves dark brown or black.
Its usual period of leafing, in England, is before that of P. trémula. Among
the Cree Indians, the wood is esteemed to burn better, in a green state, than
that of any other tree in the country.

5. P. (t.) grandidentată Michx. The large-toothed-leaved Poplar,
or North American large Aspen.

The Seex. The female is represented in Michaux's figure.

**Engravings.** Michx. North Amer. Sylva, 2. t. 99. f. 2.; and our fig. 1456.

**Spec. Char., &c.** Leaf, when young, reddish, villous, afterwards glabrous on both sur-
faces; the petiole compressed in the terminal part; the disk roundish-ovate, acute, sima-
taneously toothed with large unequal teeth. (Pursh.) A tree. Canada.

Height 40 ft. to 50 ft. with a trunk 10 or 12 inches in diameter. Introduced in
1772. Flowers brown; April. Decaying leaves dark brown or black.

**Variety.**

5. **p. (t.) g. 2 pendula Michx. Flor.**

Bor. Amer. is said to have pendulous branches. H. S.

The full-formed disk of the leaf is nearly round, and 2 or 3 inches in width, with large
unequal indentations in the margins. The most ornamental of all the poplars, when
the leaves expand in spring, from their deep purplish red colour.

6. **P. græca Ait.** The Grecian, or Athenian, Poplar.

p. 185.

**Derivation.** The tree is supposed to be a native of North America, and to be named after
the village called Athens, on the banks of the Mississippi, where the tree grows abundantly. See
Gard. Mag., 1840, p. 231.

**The Seex.** The female is in the London Horticultural Society’s arboretum; and was, some years
ago, in gardens at Bury St. Edmunds, and in the plantations of O. R. Oakes, Esq., at Newton,
near that town. Willdenow, in his Sp. Pl., also mentions the male as the only one that he had
seen living. It is doubtful whether the male is in Britain.

**Engravings.** N. Du Ham, 2. t. 84.; the plate of this tree in Arb. Brit., 1st edit., vol. vii.; and our
fig. 1497.

**Spec. Char., &c.** Branch round, glabrous. Petiole
compressed. Disk of leaf roundish ovate, having a shallow sinus at the base, and terminating in an
acute point; serrated with equal teeth that are adpressed; glabrous, except being slightly ciliated
on the edge. (Willd.) A tree, according to Wild.,
wild in the islands of the Archipelago; but, not
being included in the Prod. Flora Græca, it is more
probably a native of North America. Height 30 ft.
to 60 ft. Seeds ripe in May. Cultivated in Britain
in 1779. Flowers brown; March and April. De-
caying leaves black.

A handsome vigorous-growing tree, very interesting
when in flower, from its numerous darkish-coloured
catkins, which have the plume-like character of those
of P. trémula, P. trépida, and P. grandidentată. The
leaves, in their form, colour, and general aspect, re-
semble those of P. trépida, but are longer.
7. *P. nigra* L. The black-barked, or common black, Poplar.


*Synonymes.* *P. alba* Trog. Hist. 1880, fig. 1; *P. vinifera* Du Ham. Arb.; *P. vistulensis* Hort.; *P. pollanica* Hort.; *Alnus*, Greek; *Kabaki*, Modern Greek; the old English Poplar, *Sycifih*; the Willow Poplar, *Cambridge*; Water Poplar; the female of *P. nigra* is called the Cotton Tree at Bury St. Edmunds; Peuplier noir, Peuplier hidal, Osier blanc, Fr.; schwarze Pappel, Ger.


*Spec. Char., &c.* Petiole somewhat compressed. Disk of leaf deltoid, pointed, serrated with glanded teeth, glabrous on both surfaces. Catkins lax, cylindrical. Stigmas 4, simple, spreading. (Smith.) A tree. Europe, from Sweden to Italy, on the banks of rivers, and in moist woods; and found, also, in the north of Africa. Height 50 ft. to 80 ft. Flowers dark red; March and April. Seed ripe in May. Decaying leaves rich yellow.

*Variety.*


The leaves are slightly notched on their edges, of a pale light green; and the petioles are yellowish. The leaves are protruded about the middle of May, much later than those of *P. fastigiata*, *P. alba*, or *P. a.* canecescens; and, when they are first expanded, their colour appears a mixture of red and yellow. The catkins are shorter than those of *P. tremula* or *P. alba*; they appear before the leaves, in March and April; those of the males are of a dark red, and, being produced in abundance, have a striking effect. The capsules of the female catkins are round; and the seeds which they enclose are enveloped in a beautiful white cotton. The tree is of rapid growth, especially in good soil, in moist situations, or on the banks of rivers. In the climate of London, it attains the height of 30 or 40 ft. in ten years; and, when planted for timber, arrives at perfection in from forty to fifty years, beginning to decay when about sixty or eighty years old. It is readily known from all other species from the numerous large nodosities on its trunk. It bears lopping; and, when treated as a pollard, it produces abundance of shoots. In moist soil, when cut down to the ground annually, it throws up numerous shoots, like willows. The wood is yellow, soft, and, being more fibrous than that of any other species of poplar, it splits more readily than the wood of either *P. alba* or *P. tremula*. It weighs, in a green state, 60 lb. 9 oz. per cubic foot; half-dry, 42 lb. 13 oz.; and dry, 29 lb.; thus losing more than one half its weight by drying; and it loses, by shrinking, more than a sixth of its bulk. It is applied to all the different purposes of that of *P. alba*, but its most general use on the Continent is for packing-cases, more especially for the transport of bottled wines. In Berlin, the wood produced by knotty trunks, which is curiously mottled, is much used by cabinetmakers for making ladies' workboxes, which are celebrated both in Germany and France. This wood is brought from the banks of the Vistula, where the tree abounds, and hence the names of *P. vistulensis* and *P. pollonica*.


*The Species.* Willdenow has seen the male living; Bose says that only the female is in France.

*Engravings.* Michx. Arb., 3. t. 11.; North Amer. Syl., 2. t. 53., and our *fig. 1498.*
Spec. Char., &c. Young branches angled. Petiole compressed. Disk of leaf roundish ovate, deltoid, acuminate, subcordate at the base, where there are glands, serrated with unequal teeth, glabrous. The branches are angular, and the angles form whitish lines, which persist even in the adultage of the tree. The trunk is furrowed, even in old age; less so than that of P. angulata, more so than that of P. monilifera. The young buds are gummy. The catkins of the female are from 6 in. to 8 in. long. (Michx.) A large tree. North America, in high rocky places between Canada and Virginia, and about the western lakes. Height 70 ft. to 80 ft. Introduced in 1769. Flowers red; April and May. Seeds ripe in June. Decaying leaves yellow.

In Britain, the Canadian poplar used to be very commonly propagated in nurseries, and extensively introduced into plantations; but, within the last 30 years, the black Italian poplar (P. monilifera) has been substituted for it. Bosc says that the Canadian poplar approaches nearer to P. nigra than any other species; and Michaux, in 1840, expressed to us the same opinion, and in short that it was difficult to distinguish them.

Propagated by cuttings of the young wood, about 18 in. long, put in during autumn. The first shoots produced from these cuttings are always curved at the lower extremity, though in a few years this curvature entirely disappears. The same thing takes place with the cuttings of P. monilifera.


The Species. It is uncertain whether it is the male or female plant that is in European collections.

Engravings. Michx. Arb., 3 t. 10. f. 1.; Michx. N. Amer. Syl., 2 t. 96. f. 1.; and our fig. 1561.

Spec. Char., &c. Young branches yellow. Branchlets hairy when young. Petioles yellow, and also hairy when young. Disk of leaf rhomboid, but much acuminate; toothed in every part of the edge; hairy on the under surface when young, but afterwards glabrous. The catkins are 4 in. to 5 in. long, and destitute of the hairs which surround those of several other species. (Michx.) A tree, found by Michaux on the banks of the river Hudson, a little above Albany; and by Pursh about Lake Ontario. Height 30 ft. to 40 ft. Introduced in ? 1780. Flowers ?

Tolerably distinct; and forming a small, neat, deep-green-leaved tree, but in our opinion only a variety of P. nigra. M. Michaux, in 1840, acknowledged the probability of this being the case.

*10. P. (? N.) MONILIFERA Alt. The Necklace-bearing, or black Italian Poplar.*


Description. The epithet necklace-bearing alludes to the shape of the female catkins, which, in their capsules, and the manner in which these are attached to the racis, resemble strings of beads. Swiss poplar, and black Italian poplar, allude to the tree being very abundant in Switzerland and the north of Italy.

The Sexes. Both sexes are frequent in British collections, but the male is most abundant. The female is figured and described by Watson (see Dend. Brit., t. 102.), who has figured some parts of the male flower in the same plate. Both male and female are abundant in French gardens; the male is known by the petioles of the leaves being red, while those of the female are white.


Spec. Char., &c. Shoot more or less angular. Branch round. Petiole slender, compressed in the upper part; in some leaves, shorter than the disk, in others longer. Disk deldated, glanded at the base, which is subcordate in some leaves, and very obtusely wedge-shaped in others; tip acute; edge serrated all round, except in the central part of the base, and at the acute tip; the teeth have incurved points; glabrous except in the edge, which, at least when the leaf is growing, is ciliate; edge ultimately and perhaps early, gristly. Male flowers about 30 in a catkin, upon pedicels. Bracteas glabrous. Stamens 16, a little longer than the corolla. Female flowers about 40 in a catkin. Stigmas 4, dilated, jagged. It is rather doubtful to what country this poplar is indigenous: Canada is given as its native country in the Hortus Kewensis; but in the Nouveau du Hamel it is stated to be a native of Virginia. Michaux, jun., states that neither he nor his father ever found it wild in America; and Pursh adds that he has only seen it in that country in gardens. According to the Hortus Kewensis, it was introduced into Britain by Dr. John Hope, in 1772. It is a tree, according to Pursh, from 60 ft. to 70 ft. high in America; but in Britain it grows to the height of 100 or 120 ft., or upwards; flowering in March, and ripening its seeds about the middle of May. Decaying leaves greenish yellow, or rich yellow.

Varieties.

♀ P. (n.) m. 2 Lindleyana Booth. The new waved-leaved Poplar, Hort.-Leaves rather larger than in the species, and they are somewhat more undulated. H. S.

♀ P. (n.) m. 3 foliis variegatis Hort.—Leaves variegated; conspicuous in early spring, but afterwards unsightly.

P. monilifera is the most rapid-growing of all the poplars; and its timber is equal, if not superior, in quality to that of any other species. It comes into leaf, in the climate of London, in the last week of April, or in the beginning of May, long after the P. fastigiata, but about the same time as P. nigra, of which we believe it to be only a variety, about which time the male catkins have chiefly dropped off. The cottony seed of the female is ripe about the middle of May, and is so abundant, even in young trees, as to cover the ground under them like a fall of snow. The rate of growth, in the climate of London, on good soil, is between 30 ft. and 40 ft. in 7 years; even in Scotland it has attained the height of 70 ft. in 16 years. The wood may be applied to the same purposes as that of the species previously described; but, being of larger dimensions, it may be considered as better fitted for being used in buildings. Pon- tey observes that the tree is not only an astonishingly quick grower, but that its stem is remarkably straight; and that, with very trifling attention to side pruning, it may be kept clear of branches to any required height. For these
reasons, he considers it the most profitable of all trees to plant in masses in a fertile soil, rather moist. At Fontainebleau, the female tree bears fertile seeds, from which many thousand plants come up annually in the walks, and are mostly destroyed, though some varieties have been selected from them.

*11. P. fastigia'ta Desf.* The fastigiate, or Lombardy, Poplar.


**The Sexes.** Plants of the male are plentiful in England. The female is known to be extant in Lombardy, whence we received dried specimens and seeds in November, 1836. (See Gard. Mag., vol. xii.) M. C. A. Fischer, inspector of the University Botanic Garden, Göttingen, found, in 1827, a single plant of the female, after having many years before sought fruitlessly for it, among many thousands of plants around Göttingen. (See Gard. Mag., vol. vi. p. 419, 420.)

**Engravings.** Thouin and Jaume St. Hilaire, t. 152; the plates in Arb. Brit., 1st edit., vol. vii.; and our fig. 1503, in which a represents the female catkins with the blossoms expanded; b, the female catkins with seeds ripe; c, a portion of the female catkin of the natural size; d, a single flower of the natural size; and e, a single flower magnified.

**Spec. Char., &c.** Petiole compressed. Disk of leaf deltoid, wider than long, crenulated in the whole of the edge, even the base; glabrous upon both surfaces. Leaves in the bud involutely folded. A fastigiate tree.
Persia, and apparently indigenous in Italy. Height 100 ft. to 150 ft. Introduced 1758. Flowers red; March and April. Decaying leaves yellow.

The Lombardy poplar is readily distinguished from all other trees of this genus by its tall narrow form, and by the total absence of horizontal branches. The trunk is twisted, and deeply furrowed; and the wood, which is small in quantity in proportion to the height of the tree, is of little worth or duration, being seldom of such dimensions as to admit of its being sawn up into boards of a useful width. The leaves are very similar to those of \( P. \) nigra, and the female catkins to those of \( P. \) monilifera; the male catkins resemble those of \( P. \) nigra, and have red anthers, but are considerably more slender. One difference between \( P. \) fastigiata and \( P. \) nigra is, that the former produces suckers, though not in any great abundance, while the latter rarely produces any. \( P. \) fastigiata, also, in the climate of London, protrudes its leaves eight or ten days sooner than \( P. \) nigra. The rate of growth of \( P. \) fastigiata, when planted in a leamy soil, near water, is very rapid. In the village of Great Tew, in Oxfordshire, a tree, planted by a man who, in 1835, was still living in a cottage near it, was 125 ft. high, having been planted about 50 years.

\[ \text{12. } P. \text{ angulata } \text{Ait.} \] The angled-branched, or Carolina, Poplar.


**Synonymes.** \( P. \) angulata Michx. Pl. Bor. Amer. 2. p. 243.; \( P. \) heterophylla Du Roi Harbk. 2. p. 150.; \( P. \) macrophylla Ledd. Cat. edit. 1836.; \( P. \) balsamifera Mid. Dict. No. 5.; Mississippi Cotton Tree, Amer.

**The Species.** A plant at Ampton Hall, Suffolk, and one in the London Horticultural Society's arbor-atum, are both of the male sex.


**Spec. Char., &c.** Bud not resinous, green. Shoot angled, with wings. Disk of leaf ovate, deltoid, acuminate, toothed with blunt teeth that have the point incurved, glabrous: upon the more vigorous shoots, the disk is heart-shaped, and very large; branches brittle. (Michx.) A large tree. Virginia, Florida, and on the Mississippi, in morasses, and on the banks of rivers. Height 70 ft. to 80 ft. Introduced in 1738. Flowers reddish or purplish; March. Decaying leaves greenish yellow.

**Varieties.**

\[ \text{1. } P. \text{ a. 2 nova Audibert.} - \text{Hort. Soc. Garden in 1836.} \]

\[ \text{1. } P. \text{ a. 3 Medius Booth.} - \text{Hort. Soc. Garden in 1836.} \]

The shoots of this species, when young, are extremely succulent; and, as they continue growing late in the summer, they are frequently killed down several inches by the autumnal frosts. After the tree has attained the height of 20 or 30 feet, which, in the climate of London, it does in five or six years, this is no longer the case; because the shoots produced are shorter and less succulent, and, of course, better ripened. According to Michaux, the leaves
when they first unfold are smooth and brilliant, 7 in. to 8 in. long on young plants, and as much in breadth; while on trees 30 or 40 feet high they are only one fourth the size. As an ornamental tree, it forms a very stately object; but, from the brittleness of the branches, they are very liable to be torn off by high winds. The wood is of little use either in America or England. Propagated by layers, as it strikes less freely from cuttings than most of the other species.

**Fig. 13. P. heterophylla L.** The various-shaped-leaved Poplar Tree.


*The Sexes.* Only the male is in British gardens.

*Engravings.* Michx. North Amer. Sylva, 2. t. 97; N. Du Ham., 2. t. 51.; and our fig. 1506.

*Spec. Char., &c.* Shoot round, tomentose. Leaf, while young, tomentose; afterwards less so, or glabrous. Petiole but slightly compressed. Disk roundish ovate, having a small sinus at the base, and being slightly auricled there (or, as Michaux, jun., has expressed it, with the lobes of the base lapped, so as to conceal the junction of the petiole), blunt at the tip, toothed; the teeth shallow, and having incurved points. Male flowers polyandrous. Female flowers glabrous, situated distantly along the glabrous rachis, and upon long pedicels. (Michx.) A tree. New York to Carolina, in swamps, and more particularly in the country of the Illinois, and on the western rivers. Height 70 ft. to 80 ft. in America; 8 ft. to 10 ft. in England. Introduced in 1765. Flowers reddish. Decaying leaves greenish yellow; April and May.

We have never seen plants of this species higher than 5 or 6 feet; though a specimen tree in the Mile End Nursery, and another at Syon, must have been planted more than 50 or 60 years; and though it is said by Bosc to be a lofty tree in the neighbourhood of Paris.

It is a very remarkable species, from the particular character of its leaves, which, though as large as, or larger than, those of *P. angulata*, and something resembling them in outline and in position on the branches, yet have nearly cylindrical footstalks, and their disks hanging down on each side from the midrib in a flaccid manner, not observable in any other species of the genus. The young branches and the annual shoots are round, instead of being angular, like those of *P. angulata*, *P. canadensis*, and *P. monilifera*. The leaves, while very young, are covered with a thick white down, which gradually disappears with age, till they at last become perfectly smooth above, and slightly downy beneath. Propagated by inarching on any of the varieties of *P. nigra*. If this species were grafted at the height of 30 or 40 feet on *P. monilifera*, it would form a very singular and beautiful drooping tree.
14. **P. balsamifera L.** The Balsam-bearing Poplar, or *Tacamahac Tree*.


**Synonyms.** *P. Tacamahaca* Mill. Dict., No. 6.; *the Tacamahac, Amer.; le Baumier, Fr.; Peuplier hard, and also Tacamahac, in Canada; Balsam Pappel*, Ger.

**The Sexes.** Plants of the male are in English gardens, and trees are occasionally found with male and female flowers on the same catkin.


**Spec. Char., &c.** Shoot very gummy. Petiole round. Disk of leaf ovate-acuminate, or ovate-lanceolate, serrated with depressed teeth; deep green on the upper surface, whitish on the under one, and tomentose there, but rather inconspicuously so, and netted with glabrous veins. Stipules subspinescent, bearing gum. Stamens 16, or more. (*Michx.*) A tree of the middle size. North America, in the most northern parts, and in Dahuria and Altai. Height 40 ft. to 50 ft.; in America, 80 ft. Introduced in 1692. Flowers purplish; March and April. Decaying leaves brown and black.

**Varieties.**

† **P. b. 2 viminalis.** *P. viminalis* Lodd. Cat. ed. 1836; *P. salicifolia* Hort.; *P. longifolia* Fischer, Pall. Ross. t. 41. B. (Our fig. 1510. from a living plant.) — A native of Altai, with slender twiggy branches, and leaves nearly lanceolate. Lodd.

‡ **P. b. 3 latifolia Hort.** — Leaves rather broader than those of the species. H.S.

‡ **P. b. 4 intermedia Hort., Pall. Fl. Ross. t. 41.** A. — A native of Dahuria, with stout, short, thick branches knotted with wrinkles; and ovate, long, and rather narrow leaves; and generally attaining only the height of a large shrub. Hort. Soc. Garden.

† **P. b. 5 suaveolens.** *P. suaveolens* Fischer, and Lodd. Cat. ed. 1836.; the new sweet-scented Poplar of the nurseries. — Said to be more fragrant than any other form of the species.


The balsam poplar, in the climate of London, is the very first tree that comes
into leaf; its foliage is of a rich gamboge yellow, and so fragrant as in moist evenings to perfume the surrounding air. The tree is remarkably hardy, but, unless in the vicinity of water, it seldom attains a large size in England, or is of great duration. Readily propagated by suckers, which it sends up in abundance; or by cuttings, which, however, do not strike so readily as those of the poplars belonging to P. nigra.

† 15. P. cāndicans Ait. The whitish-leaved Balsam-bearing, or Ontario, Poplar.


Synonymes. P. macrophylla Lindl. in Encyc. of Plants p. 540; P. latifolia Mannch Meth. p. 338; P. ontariensis Desf. Hort. Paris.; P. cordàna Lodd. Cat. 1836; P. canadensis Mannch Weitcin. 81, but not of Michx. which is P. levigāta Wild.; Balm of Gilead Tree, Boston, North Amer.; Peuplier liard, Canada; Peuplier à Feuilles vernissées, Fr.

The Sexes. The male is in the London Horticultural Society’s Garden; the female is in the Duke of Wellington’s garden at Apaley House, London.

Engravings. Michx. North Amer. Sylva, 2. t. 98. f. 2.; and our fig. 1511.

Spec. Char., &c. Shoot round. Bud very gummy. Stipules gummy. Petiole compressed in its upper part, hairy in many instances. Disk of leaf heart-shaped at the base, ovate, acuminate; serrated with blunt unequal teeth; 3-nerved; deep green on the upper surface, whitish on the under one, on which the veins appear reticulate. Inflorescence similar to that of P. balsamifera, and the disk of the leaf thrice as large as in that species. (Michx.) A tree. North America, in the states of Rhode Island, Massachusetts, and New Hampshire. Height 50 ft. to 60 ft. Introduced in 1772. Flowers purplish; March. Decaying leaves brownish.

The Ontario poplar bears a close general resemblance to the balsam poplar: it has the rigid fastigiate habit of that tree, its fine fragrance, and its property of throwing up numerous suckers; but it differs from it, in having very large heart-shaped leaves, and in attaining a larger size, both in its native country, and in British gardens. The buds are covered with the same balsamic substance as those of P. balsamifera; and the leaves are of the same fine yellow colour in spring, though they come out a fortnight later. Like those of the balsam poplar, they preserve, at all stages of their growth, the same shape. Readily propagated by cuttings or suckers, but the tree will not attain a large size unless on rich soil near water; though, as the roots creep along the surface, the soil need not be deep.

Order LXIX. Betula'ceæ.


Leaves simple, alternate, stipulate, deciduous; entire or serrated. Flowers in terminal catkins. — Trees deciduous; natives of Europe, Asia, and North America. Propagated by seeds or layers.

The genera are two, which are thus contra-distinguished:—

A'lnus Tourn. Female catkins cylindrical; seeds furnished with a membrane on each side.

Betula Tourn. Female catkins oval, borne on a branchy peduncle; seeds not bordered with membranes.
Genus I.


**Synonyms.** Bétula species *Liu.;* Aune, Fr.; Erle, Ger.; Ontario, Ital.; Aliso, Span.

**Derivation.** From al, near, and lan, the edge of a river, Celtic; habitat; from the Hebrew, alon, an oak; or, according to others, from alitūr amnē, it thrives by the river.


Leaves simple, alternate, stipulate, deciduous; serrated or entire. *Flowers* terminal, greenish white, appearing earlier than the foliage, in pendulous catkins.—Trees deciduous, natives of Europe and North America; rarely exceeding the middle size, and some so low as to be considered shrubs.

With the exception of *A. glutinosa* laciniata and *A. cordifolia,* the species are not very ornamental; nor is the timber of great value, except for the charcoal which may be made from it. All the species prefer a moist soil, or one in the vicinity of water. *A. glutinosa* ripens seeds freely, as do most of the other sorts; but all the latter are generally propagated by layers. Decaying leaves dark brown or black, and not very ornamental.

1. *A. glutinosa* Gaertn. The glutinous, or common, Alder.


**Synonyms.** *Bétula Alnus* Lin.; *E. emarginata* Ehrb. Arb. 9.; *A. glutinosa* Linn., t. 244. 442.; Aune, Fr.; gemeine Else, or Eliser, or schwartz Erle, Ger.; Elisenboom, Dutch; Alno, or Ontario, Ital.; Aliso, or Alamo nigro, Span.


**Spec. Char., &c.** Leaves roundish, wedge-shaped, wavy, serrated, glutinous, rather abrupt; downy at the branching of the veins beneath. (Smith.) A deciduous tree. Europe, from Lapland to Gibraltar; and Asia, from the White Sea to Mount Caucasus; and also the North of Africa. Height 30 ft. to 60 ft. Flowers brownish; March and April. Fruit brown; ripe in October. Decaying leaves brownish black, or almost black.

**Varieties.**


1. *A. g.* 4 *quercifolia* Willd. l. c. — Leaves sinuated, with the lobes obtuse.

♀ *A. g.* 5 *oxyacanthifolia.* *A. oxyacanthifolia* Lodd. Cat. ed. 1836. (Our fig. 1513.) — Leaves sinuated and lobed; smaller than those of the preceding variety, and somewhat resembling those of the common hawthorn.

1512. *A. g.* laciniata.
A. g. 6 macrocarpa. A. macrocarpa Lodd. Cat. 1836.—Leaves and fruit rather larger than those of the species, and the tree is also of somewhat more vigorous growth.

A. g. 7 folius variegatis Hort. — Leaves variegated.

Other Varieties. The following names are applied to plants in the collection of Messrs. Loddiges: A. nigra, A. rubra, a native of the Island of Sitcha, A. plicata, and A. undulata.

The alder, in a wild state, is seldom seen higher than 40 or 50 feet; but, in good soil near water, it will attain the height of 50 or 60 feet and upwards. A. g. lucinata forms a handsome pyramidal tree, which, at Syon, has attained the height of 63 ft.; and at Woburn Farm, near Chertsey, is still higher. The rate of growth of the alder, in a favourable soil and situation, is about 2 or 3 feet a year for four or five years; so that a tree 10 years planted will frequently attain the height of 20 or 25 feet; and at 60 years the tree is supposed to have arrived at maturity. The roots are creeping; and sometimes, but rarely, they throw up suckers. The tree does not associate well with others, with the exception of the ash (Betulæ); but its shade and fallen leaves are not injurious to grass. Near water it retains its leaves longer than any other British deciduous tree. The wood, though soft, is of great durability in water. It weighs, when green, 62 lb. 6 oz.; half-dry, 48 lb. 8 oz.; and quite dry, 39 lb. 4 oz., per cubic foot; thus losing above a third of its weight by drying, while it shrinks about a twelfth part of its bulk. In the Dictionnaire des Eaux et Forêts, the wood is said to be unchangeable either in water or earth. It is used for all the various purposes to which soft homogeneous woods are generally applied; viz. for turnery, sculpture, and cabinet-making; for wooden vessels, such as basins, plates, and kneading-troughs; for sabots, wooden soles to shoes and patterns, clogs for women, and similar purposes. At Culzean Castle, Ayrshire, the alder is used as a nurse plant in situations exposed to the sea breeze. (See Gard. Mag. for 1841.)

For raising the alder from seeds, the catkins should be gathered in dry weather, as soon as the seeds are matured, and carried to a loft, where they should be spread out thinly. The proper time of sowing is March; and the covering, which ought to be of very light soil, should on no account exceed a quarter of an inch in thickness. The plants from spring-sown seeds will attain the height of from 3 in. to 6 in. the first summer. The second year they will be double or treble that height; and in three or four years, if properly treated, they will be 5 or 6 feet high. The nursery culture and after-management in plantations have nothing peculiar in them; except that, when full-grown trees are to be cut down, it is advisable to disband them a year before, that the wood, which is very watery, may be thoroughly seasoned; a practice as old as the time of Evelyn. When alders are cut down as coppice-wood in spring, when the sap is in motion, care should be taken that the cuts are not made later than March; and that they are in a sloping direction upwards. If, at this season, the cuts are made downwards, the section which remains on the stool will be so far fractured as,
by the exudation of the sap and the admission of the weather, no longer to throw up vigorous shoots, and it will decay in a few years.

2. A. oblong\'a\'ta Wild. The oblong-leaved Alder.


Engravings. Our fig. 1515. from a specimen in Sir W. J. Hooker's herbarium; and fig. 1516. from a specimen in the Museum of the Jardin des Plantes.

Spec. Char., &c. Leaves elliptic, somewhat obtus, gluttonous; axes of the veins naked on the under side. (Wild.) A large deciduous shrub or low tree. Hungary, Austria, and Turkey. Height 20 ft. to 30 ft. Introduced in 1749. Flowers greenish; March and April. Fruit brown; ripe in October or November.

Variety.

2 2 f\'ol\'is ellip-
ticiis Ait. A. pu-
mila Lodd. Cat. - The leaves are somewhat narrower than in the species.

3. A. inc\'a\'na Wild. The hoary-leaved Alder.


Engravings. Hayne Abbild., t. 136.; and our fig. 1517.

Spec. Char., &c. Leaves oblong, acute, pubescent beneath; axes of the veins naked. Stipules lanceolate. (Willd.) A deciduous tree. Lapland, Sweden, and Prussia; and on the hills in Austria, Carniola, the Ukraine, Tyrol, and Switzerland; also in North America. Height 50 ft. to 70 ft. Introduced in 1780. Flowers greenish; March and April. Fruit brown; ripe in October.

Varieties.

2 laci\'nii\'a Lodd. Cat. ed. 1836. - The leaves are slightly laciniate. Horticultural Society's Garden.

2 3 gla\'uca Ait. A. glauca Michx. N. Amer. Syl\'e.; B\'etula inc\'a\'na var. glauca Ait.; Black Alder, Amer. - The leaves are dark green above, and glaucous beneath; the petioles reddish. This is one of the most beautiful trees of the genus.

2 angul\'i\'a Ait.- Leaves green underneath, with the petioles also of a dark green.

Other Varieties. A. americ\'a\'na Lodd. Cat., and A. canad\'e\'nis Lodd. Cat., appear to belong to this species; but the plants in the Hackney arboretum are so small, that we have not been able to satisfy ourselves that they are sufficiently distinct to constitute even varieties.
A. incana differs from the common alder, in the leaves being pointed, in the leaves and the young wood not being glutinous, in their hoary appearance, and in the absence of tufts of hair in the axils of the nerves of the leaves. It forms a very handsome tree, will grow in either dry or moist soil, and well deserves a place in ornamental plantations.


Engravings. Wang. Amer., t. 29. f. 60.; Michx. N. Amer. Syl., t. 75. f. 1.; and our fig. 1518. from a living specimen.


Its leaves are of a beautiful green, about 2 in. long; oval, distinctly furrowed on the surface, and doubly denticulated at the edge. The wood, when cut into, is white; but like that of all the alders, it becomes reddish when it comes in contact with the air.

5. A. undula'ta Wild. The waved-leaved Alder.


Engravings. Our fig. 1519. from a specimen in the British Museum.

Spec. Char., &c. Leaves oblong, acute, rounded at the base; petioles and veins hairy on the under side; axils of the veins naked; stipules ovate-oblong. (Willd.) A deciduous shrub. Canada, and on high mountains in sphagnum swamps in Pennsylvania. Height 10 ft. to 15 ft. Introduced in 1782. Flowers greenish; March and April. Fruit brown; ripe in October.


Engravings. Bot. Cab., t. 1231.; the plate of this species in Arb. Brit., 1st edit. vol. vii.; and o....Fig. 1520.

Spec. Char., &c. Leaves heart-shaped, acuminate, dark green and shining (Teneure.) A tree of similar magnitude to the common alder, Calabria and Naples, in woods. Height 15 ft. to 20 ft. Introduced in 1820. Flowers greenish brown; March and April, before the developement of the leaves. Fruit brown; ripe in October.
A large and very handsome round-headed tree, with broad, deep green, shining leaves, deeply heart-shaped at the base. It grows with rapidity in dry soil, and is one of the most interesting ornamental trees that have of late years been introduced. It is a most distinct species; and, though a native of the kingdom of Naples, it is perfectly hardy. It ripens seeds in the climate of London, and might easily be rendered as common as A. glutinosa.


Synonyms. A. ovata Lodd. Bot. Cab. t. 1141; A'lnus fruticosa Schmidt; Dëtula ovata Schrank Sol., No. 159; B. A'lnus Dëtula Ehrh. Beitr. 3. p. 72; B. viridis Hort.
Engravings. Dend. Brit. t. 96; Bot. Cab. t. 1141; Schmidt Estr. Baum., 3. t. 189; and onr. fig. 1521, in which a is the aemint, or male catkin; b, the male flower magnified; c, the stamen magnified; d, a longitudinal section of the cone or female catkin; e and g, transverse sections of the cone, to show the position of the scales; f, the female catkins; h, the samara, or seed, with its wings.

Spec. Char., &c. Leaves ovate, doubly serrated, glabrous. Peduncles of the female catkins branched. Scales of the strobiles having equal lobes, truncate-nerved. (Willd.) A large deciduous shrub, or low bushy tree. Hungary, Styria, and Carinthia, on high mountains; and Germany, in the neighbourhood of Saltzburg, Height 5 ft. to 6 ft. Introduced in 1820. Flowers greenish brown; March and April. Fruit brown; ripe in August.

This plant is considered by many botanists as intermediate between the alders and the birches. It agrees with the alders, in having the peduncles of the female catkins ramose; and in general appearance it resembles the A'lnus incana in a young state: but it belongs to the birches, by the parts of its fructification, and by the somewhat greater number of its stamens.
Other Species of *Alnus.* A. *barbata* Meyer (our fig. 1522.); A. *obtusifolia* Royle, is very abundant on the banks of the Jumna and Tonce. A. *elongata* Royle occurs in Cashmere; and A. *nepalensis* Wall. (Pl. As. Rar. t. 131.) on the mountains surrounding the valley from which it was named. (Illust. p. 341.) It appears probable, that *A. nepalensis,* a tree from 30 ft. to 40 ft. high, may prove sufficiently hardy to bear the climate of London. A. *subcordata* Meyer (our fig. 1523.) was raised from seeds in the Birmingham Botanic Garden in 1838; and *A. jorullensis* in the Horticultural Society's Garden in 1839.

*A. acuminata* Humb. et Bonpl. (Mem. Mus. vol. xiv. p. 464. t. 22; our fig. 1524.) has the leaves ovate, or ovate-oblong, acuminate, roundish at the base, doubly serrated, glabrous above; the veins downy beneath. Panicle naked. Female catkins terminal. (Mirb.) A tree. Peru. Leaves 3 in. to 6 in. long, and 1½ in. to 3 in. broad.

*A. castaneifolia* Mirb. (Mem. Mus. vol. xiv. t. 21; and our fig. 1525.) has the leaves oblong-elliptic, blunt, repand, or oblong-lanceolate, erose or dentate, petiolate; glabrous above; the axils of the veins downy beneath, panicle leafy at the base. Male catkins leafy, erect. (Mirb.) A tree. Tarma in Peru. Leaves 3 in. to 5 in. long, and 10 lin. to 15 lin. broad. Stipules small, glabrous, membranaceous, linear-lanceolate. Male catkins 1 in. to 2 in. long, more slender than in *A. glutinosa,* and 4 or 5 in a panicle. Female catkins about 2 in. long, 4 or 5 on a common pedicel. (Mem. Mus., xiv. 464.)

**Genus II.**


Synonymes. Bouleau, Fr.; Betula, Ital.; Abeaul, Span.; Betulla, Port.; Birke, Ger.; Berk., Dutch; Birk, Danish and Scotch; Blork, or Bork, Swedish; Bereza, Russian; Brzozka, Polish.

Derivation. From *beta,* its Celtic name; or, according to others, from the Latin word *batuere,* to
ABRORETUM ET FRUTICETUM BRITANNICUM.

beat; from the fases of the Roman lictors, which were always made of birch rods, being used to drive back the people. Pliny derives the name from bitumen.

Gen. Char., &c. Barren flowers. Catkins cylindrica, lax, imbricated all round with ternate concave scales the middle one largest, ovate. Corolla none. Filaments 10 to 12, shorter than the middle scale, to which they are attached. Anthers roundish, 2-lobed.—Fertile flowers. Catkins similar but more dense; scales horizontal, peltate, dilated outwards, 3-lobed, 3-flowered. Corolla none. German compressed. Styles 2. Stigma simple. Nut oblong, deciduous, winged at each side. (G. Don.)

Leaves simple, alternate, stipulate, deciduous; serrated or entire. Flowers whitish, in pendulous catkins. — Trees or shrubs, deciduous, with round slender branches, and the bark in most species in thin membranous layers.

The species are generally found in mountainous rocky situations in the middle of Europe; but they grow wild in plains and peaty soils in the northern regions. The common birch is one of the hardiest of known trees; and there are only one or two other species of ligneous plants which approach so near to the North Pole. They all ripen seeds in the climate of London; and are all of the easiest culture in any ordinary soil; but, being hair-rooted, they do not grow so well in very strong clays; nor do plants of this genus, when raised from layers or cuttings, grow so freely as in the case of most other genera. The leaves of the birch having little succulency, and being astringent and aromatic, are very rarely subject to the attacks of insects. The wood of all the species is much less durable than the bark. The leaves of most of the species die off of a rich yellow, and some of them of a deep red or scarlet.

Leaves small. Natives chiefly of Europe.

♀ 1. B. A'ALBA L. The white, or common, Birch.


Spec. Char., &c. Leaves ovate, acute, somewhat deltoid, unequally serrated, nearly glabrous. (Smith.) A deciduous tree. Europe, more especially in the colder regions; a diminutive shrub in the extreme north, but a tree from 50 ft. to 60 ft. high in the middle regions. Flowers whitish; in Lapland, in May; and in the Apennines, and in England, in February and March. Fruit brown; ripe in September and October. Decaying leaves rich yellow, scarlet, or red.

Varieties.

♀ B. a. 2 pendula Smith. B. pendula Roth Germ. i. p. 105. pt. 2. p. 476.; B. verrucosa Ehrh. Arb. 96.; B. pendulis virgulis Locs. Pruss.; the weeping Birch.—A well-known tree, distinct from the species in having the shoots more slender, smoother, and pendulous. (See the plate of the young tree in Arb. Brit., 1st edit., vol. vii.)

♀ B. a. 3 pubescens. B. pubescens Ehrh. Beitr. vi. 98. (Our fig. 1526.) — The leaves covered with white hairs.

♀ B. a. 4 pontica. B. pontica Lodl. Cat. ed. 1836. (Our fig. 1527.) —Leaves somewhat larger than in the species, and the plant of more robust growth.
B. a. 5 urticifolia. B. urticifolia Lodg. Cat. — Leaves deeply laciniated, serrated, and hairy.

B. a. 6 dalecarlica L. Supp. 416. — Leaves almost palmate, with the segments toothed; "cut like those of hemp," according to Bose.

B. a. 7 macrocarpa Wild. — Female catkins twice as long as those of the species.

B. a. 8 fóliis variegátis Dumont. — Leaves blotched with yellowish white.

Other Varieties. B. dünhrica appears to be a variety of B. álba, stunted from the climate in which it grows; and the same observation will apply to B. sibírica, and some others, enumerated in the Catalogue of Messrs. Loddiges, for 1836. B. excelsa and B. nigra of some of the London gardens are mere varieties of the common birch, and quite distinct from the species described by botanists under these names, which are natives of America. (See Gard. Mag., vol. xi. p. 502. 689.) B. undulátá, B. Thouiniána, and B. Fischéri also appear to us to belong to B. álba; but the plants being exceedingly small, we are not able to determine this with certainty.

The rate of growth of the common birch is considerable when the tree is young, averaging from 18 in. to 2 ft. a year for the first 10 years; and young trees cut down to the ground often make shoots 8 or 10 feet long in one season. The duration is not great, the tree attaining maturity, in good soils, in from forty to fifty years; but, according to Hartig, seldom lasting in health till it attains a hundred years. The wood is white, shaded with red; of a medium durability in temperate climates, but lasting a long time when it is grown in the extreme north. The grain of the wood is intermediate between coarse and fine. It is easily worked while green; but it chips under the tool when dry. It weighs, when green, 65 lb. 6 oz.; half-dry, 56 lb. 6 oz.; and dry, 45 lb. 1 oz.

Though the birch may be propagated by layers and even by cuttings, yet plants are not readily produced otherwise than by seed; and those of certain varieties, which are procured from layers or by inarching, never appear to grow with the same vigour as seedlings. Birch seed ripens in September and October, and may be either gathered and sown immediately, or preserved in a dry loft, and sown in spring. Sang directs particular attention to be paid to gathering the seeds only from weeping trees; and this we know to be the directions given to the collectors employed by the nurserymen in the north of Scotland. If the seeds are to be sown immediately, the catkins may be gathered wet; but, if they are to be kept till spring, they ought not to be gathered except when quite dry; and every day's gathering should be carried to a dry loft and spread out thinly, as they are very apt to heat when kept in sacks or laid up in heaps. The seeds should be sown in very fine light, rich soil, in beds of the usual width, and very slightly covered. Boucher says: — "Sow the seeds and clap them into the ground with the back of the spade, without any earth spread over them, and throw a little peas haulm over the beds for three or four weeks, till the seeds begin to vegetate. The peas haulm will keep the ground moist, exclude frost, and prevent the birds from destroying the seeds," (Treat. on Forest Trees, p. 113.) "It is scarcely possible," Sang observes, "to cover birch seeds too little, if they be covered at all." The plants, if sown in autumn, will come up in the March or April following. If sown in spring, they will come up in May or June; which, in very cold climates, is a preferable season. If any danger is apprehended.
from moisture in the soil during winter, the alleys between the beds may be deepened, so as to act as drains. In the nursery lines, the plants require very little pruning, and their after-care, when in plantations, is equally simple.

2. B. (? A.) dā'ūricā Pall. The Daurian Birch.

Engravings. Pall. Ross., 1. t. 30.; Willd., Baum., t. 1. f. 3. and 4.; and our fig. 1529.

Spec. Char., &c. Leaves ovate, narrow at the base, quite entire, unequally dentate, glabrous. Scales of the strobiles ciliated on their margins; side lobes roundish. (Willd.) A deciduous tree. Dauria, and part of Asiatic Siberia; but not in European Siberia, nor in Russia. Height 20 ft. to 30 ft. Introduced 1796. Catkins whitish brown, larger than those of the common birch; February and March. Fruit brown; ripe September. Decaying leaves red or yellow.

Variety.

B. (? A.) d. 2 parvifolīa Hayne. Pall. p. 167.—Leaves smaller than those of the species.

3. B. (? A.) fruticosā Pall. The shrubby Birch.


Spec. Char., &c. Leaves roundish-ovate, nearly equally serrate, glabrous. Female catkins oblong. (Willd.) A deciduous shrub. Eastern Siberia, Germany, and Canada. Height 5 ft. to 6 ft. in moist situations, but much higher on mountains. Introduced in 1818. Catkins whitish brown; February and March. Fruit brown; ripe in October or November.

4. B. (? A.) du'mīla L. The hairy dwarf Birch.


The root is red, and is used for veneering and inlaying.

5. B. na'nā L. The dwarf Birch.

LXIX. Betula'ceæ: Betula.


Engravings. Am. Acad., 1. t. 1.; Eng. Bot., t. 2326; and our fig. 1532.

Spec. Char., &c. Leaves orbicular, crenate, reticulated with veins beneath. A shrub, with numerous branches, slightly downy when young, and beset with numerous, little, round, firm, smooth, sharply crenated leaves, beautifully reticulated with veins, especially beneath; and furnished with short footstalks, having a pair of brown lanceolate stipules at their base. Catkins erect, stalked, cylindrical, obtuse; the barren ones lateral, and the fertile ones terminal. Scales of the latter 3-lobed, 3-flowered, permanent. Stigmas red. (Smith.) A bushy deciduous shrub. Lapland, Sweden, Russia, and Scotland, in Europe, and Hudson’s Bay, and other parts of Canada, in America; on mountains, but almost always in boggy places. Height 2 ft. to 3 ft.; in British gardens 6 ft. to 8 ft. Catkins whitish green; April and May. Fruit brown; ripe in October.

Variety.

n. B. n. 2 stricta Lodd. Cat., ed. 1836, is somewhat more erect in habit than the species.

n. 6. B. (? n.) GLANDULOSA Michx. The glandular-branchied Birch.


Engraving. Our fig. 1533. from a specimen in the British Museum.

Spec. Char., &c. Branches beset with glandular dots, glabrous. Leaves obovate, serrate, quite entire at the base, glabrous, almost sessile. Female catkins oblong; scales half 3-cleft. Seeds round, with narrow margins. (Willd.) A handsome little deciduous shrub. Canada, about Hudson’s Bay; and on the borders of lakes on the high mountains of New Jersey and Pennsylvania. Height 2 ft. Introduced?.

Corresponds in America with the B. nana of Europe, and probably only a variety of that species. Catkins whitish; May.

Leaves large. Natives of North America.

† 7. B. POPULIFOLIA Alt. The Poplar-leaved Birch.


Spec. Char., &c. Leaves deltoid, much acuminate, unequally serrated, quite smooth. Scales of the strobiles having roundish side lobes. Petioles glabrous. (Willd.) A tree, in every respect closely resembling B. alba, but growing with less vigour, and not attaining so large a size as that species. Canada to Pennsylvania, in barren rocky woods. Introduced in 1756. Flowers greenish white; April and May.

Varieties.

† B. p. 2 laciniata. B. laciniata Lodd. Cat. ed. 1836. — Leaves large, shining, and deeply cut.

† B. p. 3 pendula. B. pendula Lodd. Cat. ed. 1836. — Spray drooping, like that of the weeping variety of the common birch.
A very graceful tree, with rather broader leaves than the common birch. The wood is very soft, brilliant when polished, and perfectly white; but it speedily decays, and, in America, is employed for no purpose, not even for fuel. The twigs are too brittle for common brooms. When the plants are raised from seed, they make very handsome trees; and, as seed is freely produced, this mode ought always to be adopted; but plants from layers seldom attain any magnitude.

__B. papyrifera Ait. The Paper Birch._


**Engravings.** Michx. N. Amer. Syl., 2. t. 35.; the plate of this tree in Arb. Brit., 1st edit., vol. vii.; and our figs. 1555. and 1556.

**Spec. Char., &c.** Leaves ovate, acuminate, doubly serrate; veins hairy beneath; petiole glabrous. Female catkins on long footstalks, drooping; scales having the side lobes short, somewhat orbiculate. (Wild.) A deciduous tree. North America. Height 60 ft. to 70 ft. Introduced in 1750. Flowers greenish white; May and June. Fruit brown; ripe in October. Decaying leaves greenish yellow.

**Varieties.**

- **B. p. 2 fuscæ. B. fuscæ Bosc.**—Leaves smaller than those of the species, and less downy.

- **B. p. 3 trichocéladæ Hort.**—Branches extremely hairy, and twigs in threes; leaves heart-shaped. Horticultural Society's Garden.


The branches are much less flexible than those of the common birch, and are more ascending in direction. The bark, in Canada and the district of Maine, is employed for many purposes. It is placed in large pieces immediately under the shingles of the roof, to prevent the water from penetrating through it. Baskets, boxes, and portfolios are made of it, which are sometimes embroidered with silk of different colours. Divided into very thin sheets, it forms a substitute for paper; and, placed between the soles of the shoes, and in the crown of the hat (as the bark of the birch of Europe is in Lapland), it is a defence against humidity. But the most important purpose to which it is applied, and one in which it is replaced
by the bark of no other tree, is the construction of canoes. The plant
usually known by the name of B. papyracea, in the London nurseries, is the
B. rubra of Michaux, jun., the B. lamulosa of Michaux, sen., and our B. nigra,
No. 9. This mistake has arisen from the bark of B. nigra, even in trees not
above 1 in. in diameter, separating from the trunk, and rolling up in very thin
paper-like laminae.

† 9. B. Nigra L. The black Birch.

angulata Lodd. Cat. ed. 1836; red Birch, Amer.; Betula du Canoa, Ital.
of this tree in Arb. Brit. 1st edit., vol. vii.; and our figs. 1537. and 1538.

Spec. Char., &c. Leaves rhomboid-ovate, doubly serrated, acute; pubescent
beneath, entire at the base. Scales of the strobiles villose; segments
linear, equal. (Willd.) A deciduous tree, with the bark rising in very
thin paper-like laminae.
New Jersey to Carolina.
Height 60 ft. to 70 ft. Introduced in 1736. Flowers
greenish white; May.
Fruit brown; ripe in June.
The epidermis is reddish, or of a cinnamon
colour. The petioles are
short and downy. The
leaves, on young trees, are
about 3 in. long, and 2 in.
broad, of a light green on
the upper surface, and
whitish beneath, though on
old trees they are much
smaller: they are doubly
denticulated at the edge,
very acuminate at the sum-
mmit, and terminated at the base in an acute angle, more regular than is seen in
the leaf of any other tree. The female catkins in America are 5 or 6 inches long,
straight, and nearly cylindrical; about London, they are not half the size.

† 10. B. EXCE'LSA H. Kew. The tall Birch.

Synonymes. B. lutea Michx. N. Amer. Syl. 2. 103.; B. nigra Du
Rot Herb. Baum. 1. p. 148.; yellow Birch, Amer.
Ham, 3. t. 92.; Wild. Baum., t. 1. t. 2.; and our fig. 1539.
from Michaux, and
fig. 1540. from the Nouv. Du Ham.

Spec. Char., &c. Leaves ovate,
acute, serrated; petioles pubes-
cent, shorter than the pedun-
cles. Scales of the strobiles having the side lobes roundish (Wildd.) A deciduous tree. Nova Scotia to Pennsylvania. Height 70 ft. to 80 ft. Introd. 1767. Flowers greenish white; May. Fruit brownish; ripe in October.

The young shoots and leaves, at their unfolding, are downy. Towards the end of summer, when fully expanded, the leaves are perfectly smooth, except the petiole, which remains covered with fine short hairs. The leaves are about $3\frac{1}{2}$ in. long, and $2\frac{1}{4}$ in. broad; oval, acuminate, and bordered with sharp irregular teeth. The epidermis is of a brilliant golden yellow; and the leaves, the bark, and the young shoots, have all an agreeable taste and smell, similar to those of the pliant birch (B. lenta), though they lose it in drying. In its fructification, this species nearly resembles B. lenta.

**11. B. le'nta L.** The pliant Birch.


Spec. Char., &c. Leaves cordate-ovate, acutely serrated, acuminate; petioles and nerves hairy beneath. Scales of the strobiles smooth, having the side lobes obtuse, equal, with prominent veins. (Wildd.) A deciduous tree. Canada to Georgia. Height 60 ft. to 70 ft. Introd. 1759. Flowers greenish white; May and June. Fruit brown; ripe in November.

According to Pursh, this is an elegant and large tree, the most interesting of its genus, on account of the excellence of its wood. Michaux strongly recommends the tree for cultivation, on a large scale, in the north of France, in England, and in Germany; and to the lovers of curious trees, "as eminently adapted from the beauty of its foliage and the agreeable odour of its flowers, to figure in their parks and gardens."

Species of Birch lately introduced.—In Royle's Illustrations several species of birch are mentioned as occupying the loftiest stations in the mountains of Nepal, and other parts of the Himalayas: B. Bhojpútra Wall., B. nftida, B. cylindrostachya, B. resinifera Royle, and B. acuminata Wall.

B. Bhojpútra Wall. The Indian Paper Birch. Leaves oblong-acute, with nearly simple serratures, somewhat heart-shaped at the base; their stalks, veins, and twigs hairy. Female catkins erect, cylindrical, oblong. Bracteas smooth, woody, two-parted, blunt, much longer than the fruit, which has narrow wings. A tree, found on the Alps of Gurwal, in Kamaon, where its thin delicate bark furnishes the masses of flexible laminated matter, of which great quantities are brought down into the plains of India, for lining the tubes of hookahs; and which is used by the mountaineers, instead of paper, for writing upon. (Wall. Plant. As. Rav., vol ii. p. 7.) The bark of this species is of a pale cinnamon colour. Raised in the Hort. Soc. Gard. in 1810.

B. acuminata Wall. Leaves ovate lanceolate, sharply serrated, taper-
pointed, smooth, dotted beneath; leaf-stalks and twigs quite smooth; ripe catkins very long, pendulous, cylindrical, crowded; the racemes, and the bracteas, which are auricled at the base, downy. Found on many of the mountains of Nepal, and in the great valley of that country, following the course of rivers. The flowers and fruit are produced from December to April. It forms a very large and noble tree, from 50 ft. to 60 ft. high, of an oval shape, being covered with branches from its base. The wood is stated by Dr. Wallich to be greatly esteemed by the inhabitants, who employ it for all sorts of purposes where strength and durability are required. (Wall. Pl. As. Rar., t. 109.) Doubtless as hardy as the preceding species.

B. nitida. The shining Birch. Leaves oblong, taper-pointed, with fine double serratures, the twigs and leaf-stalks hairy. Female catkins pendulous, cylindrical, crowded. Bracts three-lobed, hairy, with the lengthened middle lobe longer than the fruit. A tree, found in Kamaon.

B. cylindrostachya. Leaves oblong, taper-pointed, heart-shaped, with fine double serratures; twigs, leaf-stalks, and veins downy; female catkins pendulous, very long, cylindrical; fruit deeply two-lobed; bracts linear lanceolate, blunt, membranous, with two teeth at the base, fringed with hairs. A tree, found in Kamaon. Most probably hardy, and, like the preceding species, if not already introduced it will very soon be so.

Order LXX. Corylaceae, or Cupuliferæ.

Ord. Char. Flowers unisexual.—Male flowers disposed in cylindrical catkins. Perianth small, scale-formed. Filaments usually free.—Female flower. Involuture various, 1- or many-flowered. Perianth many-toothed, adhering to the ovary. Ovarium 1- or many-celled, containing many ovula. Styles 2—3, or multiplied. Stigmas distinct. The involucre, after florescence, becoming enlarged, and enclosing, in part or altogether, the pericarps which are either solitary or many together. Acorns, or nuts, 1-celled, 1-seeded, by abortion. Seed pendulous. Albumex none. (G. Don.)

Leaves simple, alternate, stipulate, deciduous or evergreen; lobed, serrated, or entire. Flowers in catkins, bracteate, sometimes pedunculate.—Large trees, deciduous and evergreen; natives of the temperate regions of every part of the world.

The hardy ligneous genera belonging to this order are six, which are thus contradistinguished:

Quercus Lin Monocious. — Male flowers in loose pendulous catkins. Stamens 5—10. — Female flowers within an involucre, which is composed of numerous imbricate scales combined into a cup, which at length surrounds the acorn at the base.

Fagus Tourn. Monocious.—Male flowers in dense pendulous catkins. Stamens 8. — Female flowers 2, within a 4-celled involucre, which at length encloses the triangular nut ciliated with soft spurs outside.


Carpinus Tourn. Monocious. — Male flowers in long cylindrical catkins having the scales ciliated at their bases. Stamens 8—14.—Female flowers in loose strobiles or cones, each composed of a 3-lobed, 2-flowered, scale-formed involucre. Stigmas 2. Nut bony at the base of the scale.

Ostrya Michx. Monocious. — Male flowers in long cylindrical catkins, each flower consisting of a scale and a branched filament. — Female flowers in strobiles, each composed of a scale-formed imbricated involucre. Stigmas 2. Nut bony, at the base of the scale.

Corvulus Lin. Monocious. — Male flowers in long cylindrical catkins, which are composed of 3-lobed deltoid scales. Stamens 8. Anthers 1-celled,—
Female flowers numerous, enclosed in a scaly bud. Nut oval, smooth, at length surrounded by a lacerated involucrum.

**Genus I.**

**QUE'RCUS L. The Oak. Lin. Syst. Monœcïa Polyandria.**


*Synonymes.* Flex Tourn.; Sibth. Tourn.; Derw., Celtic; Aneck, or Ac. Saxen; Al, Alon, or Allun. Hebrew; Drus, Greek; Chêne, Fr.; Eiche, Ger.; Eik, Dutch; Quercia, Ital.; Encina, Span.

*Derivation.* From *quer*, fine, and *cuez*, a tree, Celtic, according to Lepelletier: but, according to others, from the Greek word *choiros*, a pig; because pigs feed on the acorns. The Celtic name for this tree (Derw) is said to be the root of the word Druid (that is, priest of the oak), and of the Greek name Drus. The Hebrew name for the oak (Al, or Alon) is said to be the origin of the old English word *than* (originally signifying an oak grove, or place of worship of the druids, and afterwards, by implication, a town or parish), and also of the Irish words *shan* and *cuan*. In the Book of Isaiah, xxiv. 14., idols are said to be made of Allun, or Alon; that is, of oak. (Loudon's Trans.)

*Gen. Char., &c.* Flowers unisexual. — Males disposed in long, slender, pendulous catkins, in groups. Each flower consists of 8 or more stamens, and these are attended by 6—8 bracteas, that are coherent at the base, and resemble a 6—8-parted calyx. — Female flowers erect on axillary peduncles, a few upon a peduncle. Each flower consists of a pistil, whose ovary, and the basal part of whose style, are invested with an adnate calyx toothed at the tip. Style short. Stigma 3-lobed. Fruit an acorn; its lower part having an imbricate cup. (G. Don.)

Leaves simple, alternate, stipulate, deciduous or evergreen; entire, serrated, or lobed. Flowers greenish white. — Trees, chiefly large and deciduous; natives of Europe, Asia, and America.

The oaks, in point of usefulness to man, are only to be equalled by the pine and fir tribe. The latter may be considered the domestic, and the former the defensive, trees of civilised society. The oak is never found in perfection, except in a good soil, and in a temperate climate. Like almost all other plants, it will thrive in a deep sandy loam or in vegetable soil, but to attain its full size, and to bring its timber to perfection, it requires a soil more or less alluvial or loamy; and the European oaks are always most luxuriant, and produce the best timber, on a soil somewhat calcareous. No oak, in the temperate climates, is found of a large size at a great elevation above the level of the sea, or where the climate is very severe in spring. In the Himalayas, and in Mexico, oaks are found of large size on mountains; but then the climate, naturally hot, is only rendered temperate by elevation. All oaks whatever are impatient of spring frosts. The wood of most of the species of oaks is, comparatively with that of other trees, hard, compact, heavy, tough, and durable; and, in most, the entire plant, and more especially the bark, leaves, and fruit, abound in astringent matter and in tannin. The wood of the larger-growing European kinds, and more especially of the group Robur, is considered superior to all other European or American woods for ship-building. The wood of *Q. alba*, and that of *Q. virens*, are most esteemed for the same object in America. The wood of the group Cerris is also employed in ship-building in Turkey and Greece. The oak is generally propagated by seed, and time will be gained by sowing acorns where the plants are intended finally to remain. Varieties are propagated by marching or whip-grafting, the latter being performed close to the surface of the ground on the collar of the plant; and the graft afterwards earthed up. All the American deciduous oaks may be grafted on *Q. Cerris*, and all the evergreen oaks, both European and American, on *Q. Flex*. The mode of raising oaks from the acorn is the same in all the species. The acorns need not be gathered from the tree, but may be collected from the ground immediately after they have dropped; and, as in the case of other tree seeds, they may be either sown then, or kept till the following spring. If they are to be kept...
they should be made perfectly dry in the sun; or in an airy shade mixed with dry sand, in the proportion of three bushels of sand to one bushel of acorns, or with dry moss; and then excluded from the air and vermin, by being put into barrels or boxes, or laid up in a cellar, or buried in heaps, and covered with a sufficient thickness of earth to exclude the weather. If the acorns are to be transported from one country to another, the same mixing with dry sand or dry moss, and exclusion from the air, are adopted; but the more certain mode of retaining the vital principle in acorns is, to mix them with moist earth, or with moist live moss (Sphagnum): in either of the latter mediums, they will germinate during a long voyage; but no evil will result from this, provided they are sown immediately on their arrival. When acorns are to be sown in a nursery, the soil ought to be thoroughly prepared and rendered fine; and, after the earth is drawn off the beds, or the drills opened, the acorns may either be scattered over the beds, or along the drills, so that the nuts may be about 2 in. apart; and, to regulate this distance with greater certainty, the sand may be separated from the acorns with a sieve. In either case, the acorns, before covering, must be patted down with the back of a spade in the beds, and with the back of a wooden-headed rake in the drills. The covering, which ought to be of well-broken soil, should vary in depth, according to the size of the acorn; 1½ in. being enough for those of the largest size, such as those of the groups Robur, A'lbæ, &c.; and ½ in. for those of the smallest size, such as those of the groups Ilex, Phéllos, &c. No mode of depositing acorns in the soil can be worse than that of dropping them in holes made by a dibber. The acorn drops into the hole, and becomes wedged by its sides before it gets to the bottom; and, if the upper extremity of the acorn should be downwards instead of upwards, it can hardly be expected to grow. For this reason, the dibber should only be used in pulverised soils; and the point of the instrument should be of a diameter greater than the length of the largest acorn which has to be dropped into the hole. As acorns are greedily devoured by vermin, and especially by land rats and mice, they ought to be sown in an open part of the nursery, not near hedges, ditches, or houses; and where, whether in nurseries or in fields intended to become oak woods, much danger is apprehended from vermin, they ought not to be sown till late in March, so as to lessen the period between the depositing of the acorn and its becoming a plant.

As all oaks, when young, are remarkable for throwing down long and vigorous taproots, and producing few lateral ones, they ought to be sown where they are finally to remain, especially if the subsoil be good, and other circumstances not unfavourable; but, as this cannot always be the case, it is customary among nurserymen to transplant the oak at one or two years' growth, removing great part of the taproot; some of them, however, shorten the taproot without removing the plant, by inserting the spade obliquely in the soil, so as to cut through the roots, at from 6 in. to 8 in. beneath the surface; an operation most conveniently performed when the oaks are sown in drills; because in that case the spade can first be inserted all along one side of the drill, and then all along the other. The French nurserymen, when acorns, walnuts, and other tree seeds which send down very long taproots, are to be reared with a view to being transplanted, sometimes germinate them in moist earth, or in sawdust, placed in a temperature of 50° or 60°; and, after the radicle has been protruded two or three times the length of the acorn or nut, pinch off its extreme point before the seed is committed to the soil. This treatment, which is applicable, as we have seen in the case of the horsechestnut (see p. 125.), to most large-seeded trees, has the effect of immediately causing the taproot to throw out numerous lateral fibres; which is highly favourable for transplantation, though it is not so for the rapid growth of the tree for the first year or two afterwards. To counteract its effect in this respect, when the tree is planted where it is finally to remain, and has grown there two or three years, it ought to be cut down to the ground; after which it will throw up vigorous shoots, and send down perpendicular
roots; and if from the shoots one is selected to form the future tree, and the others carefully rubbed off, the tree will advance at as rapid a rate as if it had been sown where it was intended finally to remain; and, in cases where the subsoil is bad, much more so.

In the future culture of the oak, the trees generally require side-pruning when the object is a straight clean trunk. As most of the species grow erect, the hardier deciduous kinds are well adapted for hedgerows; but, as many of the American kinds are comparatively tender, they are most advantageously cultivated in masses. The group *F*lex forms excellent evergreen hedges, and most of the species belonging to it endure the sea breeze. The Nepale species, as far as they have hitherto been introduced, require, even in the climate of London, the protection of a wall.

We have arranged the species in the following groups:

A. Leaves deciduous.


2. **Cy’ris.** Turkey Oaks. Leaves lobed and sinuated, or dentated; in some varieties sub-evergreen; always dying off of a dirty white. Bark rough. Buds furnished with linear stipules. Fructification biennial. Cups echinate, ramentaceous, or scaly-squarrose.

B. Natives of North America.

3. **A’lbe.** White Oaks. Leaves lobed and sinuated; dying off more or less shaded with a violet colour. Bark white, and scaling off in thin laminae. Fructification annual. Cup imbricate or echinate. Nut oblong, generally large.


5. **Ru’bre.** Red Oaks. Leaves lobed, sinuated, and deeply cut, mucronated; dying off of a deep red, scarlet, or purple. Bark blackish; smooth or furrowed, but never scaly. Fructification biennial. Nut ovate, and with a persistent style. Cup imbricate, large in proportion to the nut.

6. **N’gre.** Black Oaks. Leaves obtusely and very slightly lobed; with mucros, which generally drop off when the leaves have attained their full size; leaves dying off of a blackish green, or very dark purplish red, and in America frequently persistent. Bark quite black, smooth, or furrowed; but never scaly. Fructification biennial. Cup imbricate. Nut with a persistent style, and sometimes marked with flark lines.

7. **Phe’llos.** Willow Oaks. Leaves quite entire; dying off without much change of colour; but in America sometimes persisting during two or three years. Young shoots straight and wand-like. Bark very smooth, black, and never cracked. Fructification biennial. Cup imbricate and shallow. Nut roundish and very small.

B. Leaves evergreen.

A. Natives of Europe.

8. **F*lex.** Hohr, or Holly, Oaks. Leaves ovate or oval, entire or serrated, with or without prickly mucros. Bark smooth and black, or rough and coryck. Fructification biennial. Cup imbricate. Nut ovate, acuminate; sometimes very long in proportion to the cup.

B. Natives of North America.

c. Natives of Nepal and Mexico.

§ X. LANA'TE. Woolly-leaved Oaks. Leaves oval, oblong, or lanceolate; serrated or dentate; woolly beneath.

A. Leaves deciduous.

A. Natives of Europe.


— Trees from 30 ft. to above 100 ft. high.

† 1. Q. PEDUNCULATA Willd. The common, or peduncled, British Oak.


Derivation. The French and German names signify the white oak, the bunch-fruit oak, the female oak, the stalked oak, the early oak (alluding to the production of the leaves), the valley oak, the taming oak, and the wood oak.


Spec. Char., &c. Leaves on short footstalks, lobed, smooth, dilated upwards; sinuses rather acute; lobes obtuse. Stalks of the fruit elongated. Nut oblong. (Willd.) A large deciduous tree. Europe and Britain. Height 50 ft. to 100 ft., with spreading tortuous branches and spray, and, when standing singly, with a head often broader than it is high. Flowers greenish and white; April. Nut brown; ripe September.

Varieties.

† Q. p. 2 pubescens Lodder. Cat. ed. 1836. — Leaves downy beneath.

Y Q. p. 3 fastigiata. Q. fastigiata Lam.; Q. pyramidalis Hort.; Chêne Cypres, Chêne des Pyrénées, Fr. (The plate of this tree in Arb. Brit., 1st edit., vol. vii.; and our fig. 1543.) — A handsome deciduous tree, resembling in general form the Lombardy poplar. It is found in the valleys of the Western Pyrenees, and in the Landes near Bordeaux, though but sparingly, and frequently comes true from seed. In British gardens it grows most rapidly and vigorously when grafted on the species, or on Q. sessiliflora.

† Q. f. pendula. Q. pendula Lodder. Cat. 1836; the Weeping Oak. — Branches decidedly penulous. The largest tree of this variety that
we know of, in England, stands in the park at Moccas Court, Herefordshire, and is, perhaps, one of the most extraordinary trees of the oak kind in existence. It generally comes true from seed. (See Gard. Mag. vol. xii. p. 368.)
**LXX. CORYLACÆÆ: QUERCUS.**

*Q.* p. 5 heterophylla. *Q.* salicifolia *Hort., Q.* laciniata *Lod. Cat.*, *Q.* filicifolia *Hort.*, *Q.* Fennesii *Hort.* (Our fig. 1544.) — In this variety the leaves vary exceedingly in magnitude, in shape, and in being lanceolate and entire, cut at the edges, or deeply laciniated.

*Q.* p. 6 foliis variegatis *Lodd. Cat.* — Leaves variegated with white, with some streaks of red. When finely grown, a very ornamental tree.

*Q.* p. 7 purpurea. *Q.* purpurea *Lodd. Cat.* — Young shoots, and the footstalks of the leaves, tinged with purple. Young leaves, when they first come out, almost entirely purple, and very striking. A tree, which is among the oaks what the purple beech is among the beeches. There is a specimen 30 ft. high at Arno’s Grove, Southgate.

Other Varieties. *Q.* p. Hodginsii, *Q.* p. cinerea, and *Q.* p. dulcis are described in our first edition. The varieties of British oaks which might be selected from extensive woods of that tree are without end.

**Quercus pedunculata**, both in Britain and on the Continent, is generally found on better soil than *Q.* sessiliflora; and its wood splits more easily, and is lighter, than the wood of that species. In France, the chêne-à-grappes is always planted in preference to the chêne-rouvre, where the soil is sufficiently good. When both oaks are planted together in good soil, the red oak (*Q.* sessiliflora) outgrows the white oak (*Q.* pedunculata); and, when either oak grows on particular descriptions of soils, with bad subsoils, the wood assumes a brown or dark colour, and is found, when worked up, to be of comparatively short duration. Hence, a good deal of confusion has arisen as to the comparative value of the wood of these two species. For splitting, the white oak is to be preferred; and, with respect to durability, we believe that depends more on the soil, and on the rapidity or slowness of growth, than on the species. (See Arb. Brit., 1st edit., p. 1731. to p. 1842.; and Gard. Chron., vol. i. p. 70.)

**2. Q. Sessiliflora Sal.** The sessile-flowered Oak.


**Derivation.** The name of Chestnut Oak is given to this species, because its wood is supposed by some to resemble that of the sweet chestnut, as do the leaves in a slight degree, of some of the varieties. The French names imply the male oak, the red oak, and the hard oak. The German

---

1545 *Q.* sessiliflora.
ARBORETUM ET FRUTICETUM BRITANNICUM.

names, the stone oak; the common oak, the late oak, in allusion to its lateness in leafing; the winter oak, from its frequently keeping on its leaves during winter; dry oak, probably from the leaves remaining on the tree after they have become dry and withered; red oak, from the colour of its wood; and hill oak, from its being more abundant on hilly ground than the Quercus pedunculata.


(Willd.) Leaves, when young, pubescent beneath. (Smith.) A large deciduous tree, readily distinguished from the preceding species, even at a distance, by the less tufted appearance, and generally paler green, of its foliage during summer; and, in winter, by its less tortuous spray and branches, by its lighter-coloured bark, by its larger buds, and by its frequently retaining its leaves, after they have withered, till the following spring.

**Varieties.**


\[ Q. s. 3 \] macrocarpa. Q. Robur macrocarpum Booth. (Our fig. 1546.)—Fruit large. Lodd.


**Other Varieties** are mentioned by Bosc and some French authors, and in the Gardener's Magazine, vol. xii. p. 571., and Arb. Brit., 1st edit., p. 1737., fifteen are described as having been found by the Rev. W. T. Bree in Warwickshire, in the district called the Forest of Arden.

Quercus sessiliflora is generally the only British oak found in poor soil; for example, on the high grounds on the south bank of the Thames between Greenwich and Gravesend. On the poor soils of the north and middle of France, it is the only oak which is indigenous. The oaks of the Bois de Boulogne are entirely of this species; as are those in the woods of Meudon, and throughout the whole of the extensive Forest of Fontainebleau. In Britain it is also frequently found in rich soil, with or without Quercus pedunculata; but the latter species is never found indigenous on soils so poor as those in which Q. sessiliflora is found. (See our first edition.)
**LXX. CORYLACEÆ: QUERCUS.**

1548. *Q. castridis.*


**Identification.** Willd.; N. Du Ham., 7, p. 179; Rees's Cyc., No. 76.


**Engravings.** Secondat, Mem. du Chêne, t. 2. and t. 5; N. Du Ham., 7, t. 56; and our fig. 1549.

**Spec. Char., &c.** Leaves oblong, pinnatifid; stalked; downy beneath; somewhat heart-shaped and unequal at the base; lobes obtuse, slightly toothed.

Fruit stalked. (Willd.) A low tree, technically deciduous, but retaining its withered leaves throughout the winter, and till they are pushed off by the expanding buds in the following summer. Pyrenees. Height 20 ft. to 30 ft. Introduced in 1822. Flowers greenish white; May and June.

Readily known, from its infancy upwards, from every other oak, in spring, by the dense covering of woolly down that is spread over its young leaves, which, on their first appearance (in the climate of London, three weeks later than those of the common oak), are of a reddish tinge. The leaves are retained during the winter, when they appear curled up, and at the extremities of the shoots remind one of the carved work in wood of the sculptor Gibbons.

The roots run near the surface, and throw up numerous suckers. The wood, which weighs 60 lb. per cubic foot, is of great hardness, toughness, and durability, but apt to warp; the bark furnishes the best of all tan. It is one of the most ornamental of oaks, and being of small stature it ought to find a place in every collection, instead of which it is comparatively rare in England. Several varieties are mentioned in the New DuHamel.

1549. *Q. pyrenaica.*

† 4. *Q. Eesculus* L. The Esculus, or Italian, Oak.


**Synonymes.** *Phagus Eesculus*, mas et fem., Dutech. Hist. 5; *Chêne grec*, Fr.

**Derivation.** From *esca*, food. The Esculus of the classics is by some taken for the beech tree; but the *Q. Eesculus* of Linnaeus is now believed to be the *Phagos* of Theophrastus, which he expressly says is a kind of oak.

**Engravings.** The plate of this tree in Arb. Brit., 1st edit., vol. vii.; and our fig. 1550.
Spec. Char., &c. Leaves ovate-oblong, sinuated, smooth; paler beneath; segments bluntish, somewhat angular at the base. Fruit nearly sessile. Calyx scaly, hemispherical. (Smith.) A deciduous tree of the middle size. South of Europe. Height 20 ft. to 30 ft. Introduced in 1739. Flowers greenish white; May. Acorns brown; ripe in October.

A very handsome species, quite hardy, and deserving a place in every collection. There are large specimens of it in Whitten Park.

§ 5. Q. (E.) APENNINA Lam. The Apennine Oak.


Synonymes. Q. conglomerata Pers.; Chène hivernal, Fr. Engravings. N. Du Ham., 7. t. 53.; and our fig. 1551.

Spec. Char., &c. Leaves oval-oblong, petiolated, sinuated, pubescent beneath, bordered with obtuse lobes, somewhat angular. Acorns oval, disposed along a short peduncle. (Lam.) The leaves are exceedingly woolly beneath; the acorns small, almost globular, and sometimes borne to the number of 8 or 10 on one peduncle, not above 1 in. in length. The tree does not attain a large size, seldom exceeding the height of 20 ft. Not yet introduced; but apparently only a variety of Q. E'sculus; or perhaps even identical with it.

§ ii. Cérris. Mossy-cupped, or Turkey, Oaks.

Sect. Char. Leaves lobed and sinuated, or dentated; more or less persistent; in some varieties, sub-evergreen or evergreen; always dying off of a dirty white or paper brown, never with any tinge of red or yellow. Buds furnished with linear stipules. Fructification generally biennial. Cups edematous, ramentaceous, or scaly, squarrose.

§ 6. Q. CE'RRI'S L. The bitter, or mossy-cupped, Oak.


Derivation. The specific appellation Haliphloeos was applied by Pliny to an oak with very bitter acorns: but it may be derived from hais, enough, and phloi'os, bark; in reference to the tendency to corkiness in the bark. The Iron Oak alludes to the weight of its wood, which is much heavier than that of the common oak. The term Wainscot Oak refers to its suitability for lining the walls of rooms, from the Dutch words, ward, a wall; and schorten, to suspend. 


Spec. Char., &c. Leaves on very short stalks, oblong, deeply and unequally pinnatifid; hairy beneath; lobes lanceolate, acute, somewhat angular. Stipules longer than the footstalks. Calyx of the fruit hemispherical, bristly. (Smith.) A large deciduous tree, attaining the same height as the British oak, but of much more rapid and vigorous growth. France, Italy, Spain, Austria, and the Levant, Introduced in 1735. Flowers greenish white; April. Acorns brown; ripe in October of the second year, and sometimes in the autumn of the first year.

Varieties. There is a great tendency in this species to sport; so that many varieties may be selected from every bed of seedlings. It also appears to hybridise with facility, especially with Q. Süber; and from this cross the numerous race of varieties known as the Lucombe or Exeter oaks, the Fulham oaks, and the Ragnal oaks have been raised. There are also some varieties of Q. Cérris which appear to owe their origin to geographical circumstances; such as Q. C. austriaeaca, and Q. C. crinita. The varieties cultivated in British nurseries may, for practical purposes, be arranged as deciduous, sub-evergreen, and evergreen.

* Foliage deciduous.

a. Leaves pinnatifid or sinuated. Cups of the Acorns mossy.

Q. C. vulgaris. Q. C. frondosa Mill. Dict. ed. 5. (see fig. 1552., and the plates of this tree in Arb. Brit., 1st edit., vol. vii.) — Leaves pinnatifidly sinuated, and the cups covered with soft moss. Of this variety there is an endless number of subvarieties. Fig. 1552. may be considered as the normal form; fig. 1554. has the leaves more deeply sinuated: fig. 1553. is from a specimen of great

314
beauty, sent us by John Thomas Brook, Esq., of Flitwick House: and fig. 1553., copied from the figure given in Olivier's Travels, is the Q. crinita var. ε Lam. Dict. i. p. 718.; Q. Tournefortii Willd. No. 74.; Q. orientalis latifolia, &c., Tourn. Cor. 40., Voy. ii. p. 172.; Q. Cérris Oliv. Voy. i. p. 221., Eng. ed. ii. p. 5. and t. 12.; and Q. Haliphæ'os Bosc Mérm. sur les Chènes. Fig. 1556. shows portraits of three leaves, taken from a specimen of Q. Cérris vulgâris gathered in the arboretum at Millford in 1835, and there erroneously named Q. insitânica.

We have observed a similar diversity of appearance in the leaves of an old tree of Q. Cérris in the grounds at Buckingham Palace.

Q. C. 2 pendula Neill in Lauder's Gilpin, vol. i. p. 73.—Branches pendulous. The handsomest tree of this variety in Britain is probably that at Hackwood Park, 40 ft. high, from a specimen of which fig. 1557. was taken. The branches not only droop to the ground, but, after touching it, they creep along the surface to some distance, like those of Sophora japonica pendula, p. 196.

Q. C. 3 laciniata. (fig. 1558.)—There is a fine tree of this interesting variety in Hackwood Park.


b. Leaves dentate. Cups of the Acorns bristly.


(Smith.) Sir J. E. Smith observes that this tree is "generally mistaken for Q. Cerris, from which nothing can be more certainly distinct;" we admit their distinctness, but no one who has seen the two trees together in the Horticultural Society's Garden can, we think, doubt their being only different forms of the same species. Austria, Hungary, Carniola, Italy, and other parts of the South of Europe, in stony mountainous places. Height and other particulars as in the species.

Q. C. 6 cana major. Q. cana maior Lodd. Cat. ed. 1836 (fig. 1560.); the hoary-leaved bitter, or Turkey, Oak.—Resembles Q. austriaca in the form of its leaves; but they are much more downy beneath.

Q. C. 7 cana minor. Q. cana minor Lodd. Cat. ed. 1836.—Resembles the preceding kind, but has narrower leaves.

Q. C. 8 Rágnal. Q. Rágnal Lodd. Cat. ed. 1836; the Rágnal Oak. —This variety has rather narrower and more deeply cut leaves than
Q. C. cana major; but, in other respects, scarcely differs from that variety.

**Foliage sub-evergreen. Leaves dentate. Acorns with bristly Cups.**

The leaves remain on the tree through a great part of the winter, retaining their vitality and greenness. In mild winters, the leaves do not begin to drop till March or April; and, even in severe winters, a part of them, on the sheltered side of the tree, continue green till near the end of that month.
their sides excurred, and their vertices shortly nucrroune. (Wats.)

This is a fine broad-leaved sub-evergreen variety, of which there is a
magnificent specimen in the Fulham Nursery.

* Q. C. 10 f. latifolia Hort.—Leaves broader than those of the preceding
variety.

Cat. ed. 1836; the Lucombe Oak, the evergreen Turkey Oak, the
Devonshire Oak, the Exeter Oak. (See the plate of this tree in
Arb. Brit., 1st edit.; and our fig. 1562.)—Raised by Lucombe,
nurseryman at Exeter, from seeds of the species sown about
1762, and so closely resembling Q. C. fulhaménsis as scarcely to be
worth keeping distinct.

*** Foliage evergreen, or very nearly so. Leaves varying from dentate to
sinuate. Cups of the Acorns bristly.

This section consists entirely of subvarieties of the Lucombe Oak, which differ
from the parent in being nearly evergreen.

* Q. C. 12 L. crispa. Q. Lucombeàna crispa Hort.; the new Lucombe Oak.
(fig. 1563.)—Leaves somewhat curled at the edges, and the bark
corky.

* Q. C. 13 L. suberòsa. Q. L. suberòsa Hort.—Leaves somewhat longer
than in the preceding variety, and the bark double the thickness; that from
a specimen sent us measuring 2 in. in
thickness.

* Q. C. 14 L. incìsa. Q. L. incisa Hort.—Leaves longer, and somewhat more
deply cut, than those of the preceding
varieties.

* Q. C. 15 L. dentàta. Q. L. dentàta Hort.—A fine large-leaved evergreen
variety, lately raised in the Exeter
Nursery.

* Q. C. 16 heterophylla. Q. L. heterophylla Hort. (fig. 1564.)—Foliage
ever variable; also a recent production of the Exeter Nursery.

The Turkey oak is a free-growing tree, with straight vigorous branches,
which take a much more upright direction than those of the British or
common oak; and both branches and twigs are, in every stage of the tree's growth,
wholly free from the tortuous character of those of that species. The trunk
is also straighter; but the branches, at their junction with it, being remark-
able for an unusual degree of expansion, the trunks of middle-aged trees, as
it is observed in the Dictionnaire des Étux et Forêts, often appear gibbous.
The bark is comparatively smooth and dark when young, but corky as it grows
old; and it is reckoned less liable to chap and crack than that of the common
oak. The leaves are of a beautiful bright shining green, somewhat glaucous or
noary beneath; and they vary so exceedingly in size and shape in different
trees raised from seed, that almost every individual, if described from the
leaves alone, might be constituted a distinct species: they have short foot-
stalks, and are most readily distinguished from those of oaks of every other
section by their small buds, and the numerous linear persistent stipules which
proceed from them. The acorns are sessile, or on very short footstalks; and
they are easily known by the bristly or mossy clothing of their cups. They
are remarkably bitter and austere; a circumstance noticed by Pliny. The
wood and bark are by some considered as having the same properties as those of the British oak; but, as it is only about a century since the tree was introduced into this country, very few specimens have attained a sufficient size to be cut down for timber, and very little experience has been obtained on the subject. The tree is one of very great beauty, both in point of form and foliage; and, being of great rapidity of growth, it is equalled by few for ornamental plantations. The foliage of some varieties is persistent, like that of the beech and the hornbeam: and of others, supposed to be hybrids, it is sub-evergreen, or so near being completely evergreen, as to be retained on the trees till May. The species, and most of the varieties, ripen acorns in England, from which plants are raised with great facility; but the varieties, like those of every other oak, being very liable to sport, can only be continued by grafting or by layers. The stocks employed may be either those of Q. Cerris, or of the common British oak; and the grafting may be performed in the whip manner, with as great certainty of success as in grafting common fruit trees.

† 7. Q. Ægilops L. The Ægilops, or Valonia, Oak.


Spec. Char., &c. Leaves ovate-oblong, with bristle-pointed tooth-like lobes; hoary beneath. Calyx of the fruit very large, hemispherical, with lanceolate, elongated, spreading scales. (Smith.) A low deciduous tree. Islands of the Archipelago, and throughout all Greece. Height 20 ft. to 50 ft. Introduced in 1731. Flowers greenish white; May. Acorns large, brown, with numerous lanceolate scales, very ornamental; ripe in October.

Varieties.

† Q. Æ. 2 pendula Hort.—Branches drooping.
† Q. Æ. 3 latifolia Hort.—Leaves rather broader than those of the species.

One of the most splendid species of the genus. In British nurseries it is not very common, but it is quite hardy, never injured by frost, and acorns may be imported in abundance from the South of France. The cups and acorns are annually exported from the Levant in large quantities, and are in great demand for tanning, being said to contain more tannin in a given bulk of substance than any other vegetable. A tree of this species at Syon,
though under 30 ft. in height, bears acorns annually; which, however, do not always ripen.


The American oaks being generally propagated in Europe by acorns imported from America, we shall here give a comparative view of the acorns of some of the common kinds. Fig. 1566. represents acorns of the natural size,

of all the kinds that were imported by Mr. Charlwood of London, seedsman, in the year 1836; but, that year being unfavourable for the ripening of acorns in America, fewer sorts were imported than usual, and the nuts of these few are under the average size. In this figure, $a$ is the acorn of Quercus álba; $b$, that of Q. macrocárpā, with the cup on; $c$, that of Q. obtusíloba; $d$, Q. Príinus tomentósā; $e$, Q. P. púmíla; $f$, Q. tinctória; $g$, Q. nígra; $h$, Q. Phéllios; and $i$, Q. palústris. Most sorts of the American oak in Messrs. Lod-
diges's collection (the most complete in Europe, unless we except that of M. Vilmorin,) are propagated by grafting on the common oak, close to the ground; and largely earthing up the grafts afterwards, so as to leave only the points of the scions exposed to the air. This earthing up not only preserves a uniform degree of moisture round the graft; but the earth employed being taken from the adjoining surface, and consequently having been heated by the sun, produces an immediate increase of temperature round the graft, which gives an impulse to the rising sap, and so accelerates vegetation. We had the advantage, in August, 1840, of examining all the American oaks in the Bois de Boulogne, in company with M. Michaux, who sowed the acorns in 1822; and we there observed, as we had previously done in the Hackney Arboretum, that much the most rapid, vigorous, and erect growing species was Q. palustris; next Q. coecinea, which resembles Q. palustris, but with leaves on a larger scale; then Q. rubra; and, next to that species, Q. nigra and Q. tinctoria. Q. alba is not in the Bois de Boulogne, the acorns, as M. Michaux informed us, rarely retaining their vitality during the time requisite 20 years ago to bring them to Europe.


Sect. Char. Leaves lobed, and sinuated, not mucronated; broadest at the upper extremity; dying off more or less shaded with a violet colour. Bark white, or whitish brown, cracking and scaling off in thin laminae. Fruetification annual. Cups inimbrate or echinate. Nut oblong, generally large.

 Fuller "Q. A'lbæ 4. Lin. The American white Oak.


Varieties. The elder Michaux gives the two following forms of this species, the leaves of both of which are shown in fig. 1567. copied from Michaux's Histoire des Chênes Amériques:

 Fuller "Q. a. 1 pinnatifida Michx. (Hist. des Chênes Amér., t. 5. f. 1.; and our fig. 1567, a.) Q. alba Ban. Cat. Stripp. Virg.; Q. virginiana Catesb. Carol. 1. p. 21. t. 21.; Q. a. palustris Marsh. p. 120. No. 3. — The usual form of the species, and common from Canada to Florida. Fig. 1568. is a sprig and acorn of Q. alba pinnatifida, taken from Michaux's North American Sylva, vol. 1. t. 1. and the acorn without its calyx is shown in fig. 1566. at a.

 Fuller "Q. a. 2 repanda Michx. (Hist. des Chênes, t. 5. f. 2.; and our fig. 1567, b. — Found wild in the forests of Carolina, and sometimes occurring in seed-beds of Q. alba in Europe. Fig. 1569. is from a sprig
apparently of this variety, grown in the Horticultural Society's Garden, under the name of Q. alba. In Messrs. Loddiges's arboretum is an oak named Q. squamosa, from a specimen of which fig. 1570. was taken. This tree, which is 20 ft. high, has exactly the

appearance, bark, and habit of growth of Q. alba, and as it only differs from it in the shape of the leaves, it is doubtless only a variation of this variety.

The American white oak, according to Michaux, bears most resemblance to Q. pedunculata. The leaves, he says, are regularly and obliquely divided into oblong rounded lobes, destitute of points or bristles; and the indentations are the deepest in the most humid soils. Soon after their unfolding, the leaves are reddish above, and white and downy beneath; when fully grown, they are smooth, and of a light green on the upper surface, and glaucous underneath. In the autumn they change to a bright violet colour. Michaux adds that this is the only American oak that retains some of its withered leaves till spring. The acorns are large, oval, and very sweet; and they are contained in rough, shallow, greyish cups. They are borne singly, or in pairs, on long peduncles, attached, as in all the species with annual fructification, to the shoots of the season. The bark of this species is white (whence the name) and scaly; and on young trees it appears divided into squares, but on old trees into plates laterally attached. The wood is reddish, somewhat resembling that of the British oak, but lighter, and less compact. The rate of growth of this
tree, in British gardens, even where the soil is good and the situation sheltered, may be considered as slower than that of the common oak; but when grafted on the common oak it grows freely, and ripens its shoots, so as soon to form a handsome tree.

\[9.\] **Q. (A.) olivæfo'rmis** Michx. The Olive-shape-fruitied American Oak.


**Synonyme.** The mossy-cup Oak, Amer.

**Engravings.** Michx. Arb., 2. t. 2.; N. Amer. Syl., 1. t. 3.; and our fig. 1571.

**Spec. Char., &c.** Leaves oblong, smooth; glaucous beneath; deeply and unequally pinnatifid. Fruit elliptic-ovate, on short footstalks. Calyx cup-shaped, fringed, and nearly covering the acorn. (Michx.) A deciduous tree on the Hudson, and in Genesee, but rare. Height 60 ft. to 70 ft.; and, according to Michaux, with a spreading head, and an imposing aspect. Introduced 1811.

The bark is white and laminated; but the tree is chiefly remarkable for the form and disposition of its secondary branches, which are slender and flexible, and always inclined towards the earth. The leaves are of a light green above, and whitish beneath; they resemble those of the white oak in colour, but differ from them in form; being larger, and very deeply and irregularly laciniate, with rounded lobes, so different in shape, that it is impossible to find two leaves that are alike. In all probability only a variety of *Q. alba*.

\[10.\] **Q. macroca'rpæ** Willd. The large-fruitied American Oak.


**Synonymæ.** The over-cup white Oak, Bur Oak, Amer.; Chêne à gros Glands, Chêne frisé, Fr.; Fruchtiger Eiche, Ger.

**Engravings.** Michx. Quer., No. 2. t. 2, 3.; N. Amer. Syl., 1. t. 4.; the plate of this tree in Arb. Brit., 1st edit., vol. viii.; and our fig. 1572.

**Spec. Char., &c.** Leaves downy beneath, lyræate, deeply and sinuatione lobed; the lobes obtuse and spreading, and the upper one much dilated. The calyx deep, cup-shaped, scaly, and fringed with bristles. Acorns thick and ovate. (Willd.) A beautiful deciduous tree, laden with dark tufted foliage. Kentucky and Tennessee. Height 60 ft. Introduced in 1800.

The leaves are larger than those of any other American oak, being frequently 15 in. long, and 8 in. broad: they are notched near the summit, and deeply laciniate below. The acorns (fig. 1566. 6), which are also larger than those of any other American species, are oval; and enclosed for two thirds of their length in a thick rugged cup, which is generally bordered along
its upper edge with fine, long, flexible filaments. The bark of the young branches is frequently covered with a yellowish corky substance, like that which is found on the liquidambar and some kinds of elm.

**11. Q. obtusi-loba** Michx. The blunt-lobed-leaved, or Post, Oak.


**Synonymes.** Q. stellata Willd. Sp. Pl. t. 4. p. 452.; Iron Oak, Box white Oak, American Turkey Oak (so called, because the acorns, which are sweet, are eaten by the wild turkeys), upland white Oak, Amer.

**Engravings.** Michx. Quer., No. 1. t. 1.; N. Amer. Syl., 1. t. 9.; the plate of this tree in Arb. Brit., 1st. edit., vol. vii.; and our fig. 1573.

**Spec. Char., &c.** Leaves oblong, slightly pubescent beneath, sharply wedge-shaped at the base: lobes obtuse, the lower ones deeply sinuated, and the upper ones dilated, and slightly bilobed. Calyx hemispherical. Fruit oval, and rather small (Michx.) A deciduous tree. New Jersey and Philadelphia. Height 40 ft., with a trunk not more than 15 in. in diameter. Introduced in 1819.

The branches are bent into elbows at certain distances, which renders the tree easily distinguishable, even when the leaves have fallen. The bark is thin, and of a greyish white. The leaves are coriaceous, and of a dusky green above, and greyish beneath. In autumn, the ribs assume a rose tint, but never that purplish red which is observable in those of the scarlet oak. The acorns (fig. 1566. c), which are produced in abundance, are small, oval, and three parts covered with a slightly rugged greyish cup.

**12. Q. lyra’ta** Walt. The lyrate, or over-cup, Oak.

**Identification.** Walt. Carol., 335.; Pursh, 2. p. 632.; Michx. Quer., No. 3. t. 4.

**Synonymes.** Swamp Post Oak, Water white Oak, Amer.

**Engravings.** Michx. Quer., No. 3. t. 4.; and our figs. 1574. and 1575.

**Spec. Char., &c.** Leaves subsessile, glabrous, lyrate-sinuated; much contracted in the middle, but dilated at the summit, and attenuated at the base: lobes angular; the upper part of the leaf divided into three lobes, which are tricuspidate at their extremities. Calyx globula, rough, and almost covering the acorn. (Michx.) A large deciduous tree. Carolina and other southern states. Height 50 ft. to 80 ft. Introd. 1786.

The leaves are from 6 in. to 8 in. long, smooth, narrow, lyre-shaped, deeply sinuated, and borne on short petioles. The lobes, especially the upper ones, are somewhat truncated. The foliage is thick, and of a light agreeable tint; and the bark is white. The acorns are broad, round, and depressed; and the cups, which are nearly closed over
them, are thin and scaly, each scale being terminated by a short firm point or bristle. The largest American oak that thrives in wet ground. (Michx.)


♀ 13. Q. Prinus L. The Prinus, or Chestnut-leaved, Oak.


Spec. Char., &c. Leaves oblong-oval, more or less pointed, nearly equally toothed. Cup somewhat scaly; nut ovate. (Michx.) Trees deciduous, varying in height from 20 ft. to 90 ft.; and one of the varieties a low shrub. In the climate of London the trees grow freely, and promise to attain a considerable size. In general form, they are as handsome as any of the American oaks; but their foliage dies off with very little colour, what there is being generally of a dirty white or brownish.

Varieties. These are by some authors treated as species; but they are so obviously alike in their leaves and bark from their infancy upwards, that there does not remain a single doubt in our minds of their being only varieties.

♀ Q. P. 1 palustris Michx. Quer. No. 5. t. 6. Q. P. palustris Michx. N. Amer. Syl. i. p. 46. t. 8. (the plate of this tree in Arb. Brit., 1st edit., vol. viii.; and our fig. 1576.; Q. Prinus L. Sp. Pl. 1413.; Q. castaneæfoliis, &c., Pluk. Alm. 309.; the Swamp Chestnut Oak; the Chestnut white Oak: and, near Philadelphia, the white Oak. — Leaves on longish footstalks, obvate. Fruit very large. Cup moderately hollow, distinctly scaly (A. Michx.) A large deciduous tree. Maritime parts of Carolina and other southern states. Height 80 ft. to 90 ft. Introd. 1730. The leaves of Q. P. palustris are of a shining green above, and whitish and somewhat wrinkled underneath; they have rather long footstalks; and are from 8 in. to 9 in. long, and from 4 in. to 5 in. broad; ovate, and terminating in an acute point. They are somewhat wedge-shaped, and are deeply dentated with blunt lobe-like teeth from the summit to the base. The acorns are of a bright clear brown, oval, and larger than those of any other kind of American oak, except Q. macrocarpa; they are borne on very short peduncles, and are contained in shallow scaly cups.

growing in a fertile soil, is owing equally to the symmetry of its form and the luxuriance of its foliage. The bark on old trees is hard, thick, and deeply furrowed; and the outer bark is equally good for tanning as the inner bark. The leaves are 5 or 6 inches long, and 3 or 4 inches broad; oval; and uniformly dentate, with the teeth more regular, but less acute, than those of Q. P. palustris; the leaf terminating in a point. When beginning to unfold in spring, the leaves are covered with a thick white down, and they appear somewhat wrinkled; but, when fully expanded, they are perfectly glabrous, smooth, and of a delicate texture. The petiole, which is rather short, is yellow, and the colour becomes brighter and more conspicuous in autumn. The acorns are long, of an oblong-oval shape: they are produced in pairs, on a short peduncle, and are enveloped for about one third of their length in pear-shaped cups, covered with loose scales.


—Leaves on long footstalks; obtuse at the base. sharply serrated. Fruit of moderate size; cup hemispherical. (Michx.) A fastigiate deciduous tree. Delaware to the Savannah. Height 70 ft. to 80 ft. Introduced in 1822. The bark is whitish, very slightly furrowed, and sometimes divided into plates. The leaves are lanceolate, obtuse at the base, and ending in a sharp point, regularly toothed, of a light green above, and whitish beneath. The acorns are small, roundish-ovate, and contained in shallow slightly scaly cups.

Q. P. 4 pamila Michx. Quer. No. 5. t. 9. f. 1. Q. P. Chinquapin Michx. N. Amer. Syl. i. p. 55. t. 11. (our fig. 1579.); Q. Chinquapin Pursh Fl. Amer. Sept. ii. p. 631.; Q. prinoides Wildl. Sp. Pl. iv. p. 440.; the Chinquapin, or Dwarf Chestnut, Oak. —Leaves on shortish petioles; somewhat lanceolate; glaucous beneath. (Michx.) A low deciduous tree. Northern and middle states. Height 20 ft. to 30 ft. Introd. 1828. The leaves are oval-acuminate, regularly, but not deeply, dentated, of a light green above, and whitish beneath. The acorns (fig. 1566. e) are enclosed, for about one third of their length, in scaly sessile cups— they are of the middle size,
somewhat elongated, similarly rounded at both ends, and very sweet. Highly ornamental when in full bloom, and most prolific in acorns even when only 3 or 4 feet high.

Q. P. 5 × tomentosa Michx. Quer. No. 5. t. 9 f. 2. Q. P. discolor Michx. N. Amer. Syl. i. p. 43. t. 7. (our fig. 1580.); Q. bicolor Willd. Sp. Pl. iv. p. 440.; Q. Michauxi Nutt.; the Swamp white Oak. — Leaves almost sessile, obtusely oval, bluntly toothed; downy beneath. (Michx.) A large deciduous tree. United States generally. Height 60 ft. to 70 ft. Introduced in 1800. The leaves are from 6 in. to 8 in. long, and ½ in. broad; entire towards the base, which is attenuated and wedge-shaped; but dilated and coarsely toothed for two thirds of their length. The tree is distinguished, when full grown, by the remarkable appearance of its leaves; which are on the under side silky and of a silvery whiteness, while the upper side is smooth and of a bright green. The acorns (fig. 1596. d) are long, of a clear chestnut brown, and contained in rather shallow scaly cups, edged with short slender filaments. These cups are more downy within than those of any other oak; and they are borne in pairs, on peduncles of from 1 in. to 2 in. in length. The bark is scaly, as in all the preceding varieties, and of a greenish white.


Sect. Char. Leaves deeply lobed, sinuated, multifid, and mucronated. Bark dark, and not scaling off. Fructification biennial. Nut ovate, with a persistent style. Cup imbricate, large in proportion to the nut. — Trees, varying from 80 or 90 feet to 15 or 20 feet in height; remarkable for the bright red, deep scarlet, or dark purple, of their foliage, when it dies off in autumn. Perhaps most of the kinds in this section might be reduced to two or three species; but, as they come up tolerably true from seed, we have, for the cultivator, considered it more convenient, to treat them as distinct. The hardest and most rapid-growing, and at the same time the most elegant and ornamental, tree of the section is Q. palustris, which, with its spreading drooping branches, and its straight erect trunk and spiry top, is, independently of its lively scarlet, orange, and red colours in spring and autumn, in our opinion the most graceful of all oaks, either European or American.

Q. rubra L. The red, or Champion, Oak.


Synonyms. Q. Escall diviusa, &c., Pluk. Phyt. t. 54. f. 4.


Varieties. Aiton, in the Hortus Kewensis, 2d ed., mentions two forms of this species: Q. rubra latifolia, the champion oak, which is the Q. rubra of Linnaeus; and Q. rubra montana, the mountain red oak.
The bark is comparatively smooth, of a dark colour, very thick; and, though in old trees it cracks, yet it never scales off as in the sections Albae and Prinus. The wood is reddish and coarse-grained; and its pores are often so large as to admit the entrance of a hair. The leaves, when they first come out in spring, are of a fine sulphur colour; when fully expanded, they are smooth and shining on both sides, large, deeply laciniate, and sometimes slightly rounded at the base, especially on old trees; and, before they fall, they turn of a deep purplish red. According to the younger Michaux, the leaves on old trees often nearly resemble those of Q. falcatá. The leaves of Q. falcatá are, however, always downy beneath; while those of Q. ribra are smooth. The leaves of Q. rubra die off of a more purplish red than those of most of the other kinds in this section; but they often become yellow before they fall. They vary much in shape, from the age of the plant, or the soil and situation in which it has grown. Fig. 1581, copied from the elder Michaux’s Histoire des Chénes, shows the leaves of a seedling a year old; fig. 1582, from the same work, those of a tree bearing acorns.

† 15. Q. cocý'nea Willd. The scarlet Oak.


Synonyme. Q. rubra B. Ait. ed. 1. 3. p. 357.


Spec. Char., &c. Leaves smooth, oblong, deeply and widely sinuated, on long stalks; lobes divaricated, acute, sharply toothed, bristle-pointed. Calyx of the fruit turbinate, half as long as the nut. (Willd.) A large deciduous tree. Pennsylvania to Georgia. Height 80 ft. Introduced in 1691.

The leaves, which are chiefly distinguished from those of Q. rubra by having longer petioles, are of a beautiful green, shining on both sides; and, on old trees, laciniate in a very remarkable manner, having usually four deep sinuses on each side, very broad at bottom. The leaves begin to change with the first cold; and, after several successive frosts, turn to a brilliant scarlet, instead of the dull red of those of Q. rubra. These leaves differ very greatly in shape at different stages in the growth of the tree. When quite young, they are scarcely lobed at all, as may be seen by fig. 1583., which is taken from Michaux’s Histoire des Chénes, and represents a seedling a year old; and fig. 1584., a sprig and acorn from an old tree, copied from Michaux. Amidst all the varieties, however, in the shape of the leaf of the scarlet oak, it may always be distinguished from that of Q. rubra by the different hue which it assumes in autumn; the colour of Q. cocýnea being always a bright scarlet, or yellowish red, of more or less intensity; and that of Q. rubra a dull 3 x 5
crimson, or purplish red. The leaf also bears a greater resemblance to that of _Q. palustris_ than any other species.

♀ 16. _Q. ambi'igua_ Willd. The ambiguous, or grey, Oak.


_Spec. Char., &c._ Leaves sinuated, glabrous, acute at the base; sinuses somewhat acute. Cup somewhat shield-shaped. Nut roundish-ovate. (_Michx.)

A large deciduous tree. Nova Scotia to Lake Champlain. Height 40 ft. to 60 ft. Introduced in 1800.

This species bears a close analogy to the red oak in its foliage, and to the scarlet oak in its fruit. It has also another peculiarity in blossoming every year, though it takes two, three, and in very cold climates four, years to mature its fruit. The leaves are large, smooth, and deeply sinuated; the indentations being sharper and more angular than those of the leaves of _Q. coccinea_. The acorns are of the middle size, rounded at the end, and contained in scaly top-shaped cups. The grey oak is found farther north than any other American species, and it therefore would seem to be the best adapted for being cultivated in Britain as a useful tree. The wood is as coarse and open in its pores as that of the red oak; but it is stronger and more durable.

♀ 17. _Q. falça'ta_ Michx. The Sickle-shaped, or Spanish, Oak.


_Engravings._ Michx. Quer., t. 28.; N. Amer. Syl., 1. t. 23.; and our figs. 1586. and 1587.

_Spec. Char., &c._ Leaves downy beneath, sinuated with three or more somewhat falcate bristle-pointed lobes; the terminal one elongated and jagged. Calyx hemispherical. (_Willd._) A large deciduous tree. Canada to Georgia. Height 30 ft. to 80 ft. Introduced in 1763.

This oak is a very remarkable one, from the great difference which exists in

[Diagram of _Q. coccinea_]

1583. _Q. coccinea_.

[Diagram of _Q. ambigu'a_]

1584. _Q. coccinea_.

1585. _Q. ambigu'a_.

[Diagram of _Q. falcata_]

1586. _Q. falcata_.
its leaves and general appearance in different climates. This difference is so extraordinary, that nearly all the botanists who have written on the American oaks have supposed it to be two species. In the Southern States, it forms a noble tree, 80 ft. high, with a trunk 4 or 5 feet in diameter; while in New Jersey the tree is never above 30 ft. high, with a trunk only 4 or 5 inches thick. The bark is thick, black, and deeply furrowed; and the wood is reddish and coarse-grained, with open pores, like that of the red oak. The leaves are also extremely different; on the trees in the south, they are falcate, like those in fig. 1586., copied from the plate of this tree in the North American Sylva, t. 1. t. 23.; in

1586. Q. falcata.

New Jersey, the leaves are three-lobed (like those shown in fig. 1587. b, from the Histoire des Chênes), except a few on the summit, which are slightly falcate. Generally the lower branches of all trees of this species, growing in moist and shaded situations, have their leaves trilobed; while those on the upper branches are falcate, with their lobes even more arched than those in fig. 1586. This remarkable difference led the elder Michaux to describe the specimens which he had found growing in very cold bad land as Q. triloba; and on the young shoots of these specimens he frequently found leaves deeply denticulated or lobed, like those of Q. rubra or Q. coccinea, as represented at a in fig. 1587. The acorns are small, round, brown, and contained in slightly scaly, shallow, top-shaped cups, supported on short peduncles: they resemble those of Q. Banisteri, and, like them, preserve the power of germination for a long time.

**18. Q. TINCTORIA** Willd. The Quercitron, or Dyer’s, Oak.


*Varieties.* Michaux, in his Chênes de l’Amérique, gives the following two forms of this species:—

Champlain, in Pennsylvania, and high mountains in Carolina and Georgia.

* Q. t. 2 sinuosa Michx. Quer. t. 25.—Leaves deeply sinuated. Cup flat and turbinated. Nut ovate. Native of South Carolina and Georgia.

The trunk is straight, and is covered with a deeply furrowed bark of middling thickness, but always black, or of a very deep brown colour; whence probably the tree derives its common name in America, viz. the black oak. The dark hue of the bark easily distinguishes this tree from *Q. rubra*, *Q. cocinea*, and *Q. ambigua*, in the northern provinces; but, in the southern ones, *Q. falcata* having bark of the same colour, *Q. tinctoria* can only be distinguished by its buds, which are longer, more acuminate, and more scaly, than those of the former species. The inner bark of *Q. tinctoria*, if chewed, is very bitter, and gives a yellow tinge to the saliva, which is not the case with the bark of *Q. falcata*. The wood is reddish, coarse-grained, and porous, like that of all the red oaks. The leaves are large, deeply laciniated, and resemble those of *Q. cocinea*, but they have fewer lobes, never exceeding four or five; while the leaves of the old trees of *Q. cocinea* have from five to seven: they are also less openly and roundly sinuated, less shining, and of a duller green; and, during a part of the summer, have their surfaces roughened with small glands, which are visible to the eye and sensible to the touch, and which are also found on the young shoots. In autumn, the leaves of young trees turn to a dull red; but those on old trees become yellow, or of a yellowish brown, beginning with the petiole. The wood is used as a substitute for the white oak, and the bark for tanning, and for dyeing leather a brilliant yellow.

* Q. palustris Willd. The Marsh, or Pia, Oak.


**Synonymes.** *Q. montana* Lodd. Cat. ed. 1839; *Q. Banisteri* Lodd. Cat. ed. 1839.

**Engravings.** Michx. Quer., t. 33, 34.; N. Amer. Syl., 1. t. 27.; the plate of this tree in Arb. Brit., 1st edit., vol. viii.; and our fig. 1589.


The tree, when young, assumes an agreeable pyramidal shape; and its far-extending drooping branches, and light and elegant foliage, render it, in our opinion, the most graceful of all oaks. The bark on the oldest trees of *Q. palustris* is scarcely ever cracked; on young trees it is perfectly smooth.
The wood is coarse-grained, and resembles that of the red oak. In the climate of London, the tree is remarkably hardy, and its rate of growth is much more rapid than that of every other American oak, unless we except Q. ambigua, which is very rarely to be met with. This may be rendered obvious at a glance, by inspecting the line of oaks at Messrs. Loddiges's, where there are three trees, marked Q. palustris, Q. Banisteri, and Q. montana, (all of which are the Q. palustris of Michaux,) which are above 30 ft. high, which is several feet higher than any of the others, with the single exception of Q. ambigua. The same result as already mentioned (p. 862.) is observable in the Bois de Boulogne. The leaves are much smaller than those of the other species of this section: they are smooth, of a pleasing green, supported on very long petioles, and, on old trees, are very deeply laciniated. On young trees, they are much less so, as will be seen by fig. 1559., copied from Michaux's *Histoire des Chênes*, in which a is a seedling of one year old, and b a leaf from a tree two years old. The acorns (fig. 1566.) are small, round, and contained in flat shallow cups.

*20. Q. Catesbaei* Willd. The *Barren Scrub*, or Catesby's, Oak.


The general appearance of this tree is stunted: its trunk is crooked, dividing into branches at 2 or 3 feet from the ground, and covered with a thick, blackish, deeply furrowed bark. The foliage is open, and its leaves are large, smooth, thick, and coriaceous towards the close of summer, deeply and irregularly laciniated, and supported on short petioles. With the first frost, they change to a dull red, and fall the ensuing month. The acorns are
pretty large, of a blackish colour, and partly covered with a fine grey dust, which is easily rubbed off between the fingers: they are contained in thick cups, swollen towards the edge, with the upper scales bent inwards. The leaves vary very little, as will be seen by fig. 1592, in which $a$ represents a seedling of one year's growth, and $b$ a leaf from a plant two years old.


Sect. Char., &c. Leaves wedge-shaped, or imperfectly lobed; mucronated, but the mucros generally dropping off when the leaves have attained their full size. Leaves dying off of a blackish green, and in America frequently persistent. Bark black, and not scaling off. Fructification biennial. Nut ovate, with a persistent style, and sometimes marked with dark lines.—Trees from 20 ft. to 40 ft. high; and one of them, a miniature tree, often not exceeding 3 ft. in height. Rate of growth less rapid than in the preceding sections.

† 21. Q. nigra L. The Black Jack Oak.


Synonymy. Q. marylandica, &c. BAIL; Q. terruginea Michx. N. Amer. Syl. 1, p. 72, t. 20; Q. aquatica Lodg. Cat. ed. 1836; Barrens Oak, Amer.

Engravings. Michx. Quer., t. 22, 23; and our fig. 1593.

Spec, Char., &c. Leaves wedge-shaped, somewhat heart-shaped at the base; dilated, abrupt, and very slightly 3-lobed at the end; the middle lobe shortest, smooth above, rusty beneath. Calyx hemispherical, with membranous scales. Nut roundish ovate. (Willd.) A low deciduous tree. New Jersey, Maryland, and Virginia. Height 20 ft. to 30 ft. Introduced before 1739.

The Black Jack Oak, according to Michaux, is sometimes 30 ft. high, and 8 or 10 in. in diameter, but commonly does not exceed half these dimensions. Its trunk is generally crooked; and it is covered with a very hard, thick, and deeply furrowed bark, which is black on the outside, though the inner bark is of a dull red. The head of the tree is broad and spreading, even in the
midst of the woods. The leaves are of a very remarkable shape, being dilated towards the summit, like a pear, and armed, when young, with 3 or 5 bristle-like points, which fall off when the leaf has attained its full size. Fig. 1594., from Michaux's Histoire des Chênes, shows these mucros on seedlings of one year's and two years' growth. The leaves are yellowish, and somewhat downy at their first unfolding in spring; but, when fully expanded, they become of a dark green above, and rusty beneath: they are also thick and leathery in their texture. In autumn, they turn of a blackish red, and fall with the first frost.

The acorns (fig. 1596, g) are large, and half-covered with very scaly cups. The specific name of nigra was given to this oak, by Linnaeus, on account of the blackness of its bark, and its general dark appearance.

† 22. Q. aqua'tica Soland. The Water Oak.


Engravings. Michx. Quer., t. 19, 20, and 21.; and our fig. 1595.


Varieties.


Other Varieties. There is no American oak, not even Q. falcata, of which the foliage is so variable as of this tree. On full-grown trees, the leaves
are smooth, shining, and heart-shaped, or broad and rounded at the summit, and terminating in a point at the base, as in fig. 1595.; and on young trees, or on shoots from the roots of old trees, the leaves are oval, toothed, oblong, and, in short, of all the different forms shown in fig. 1563., taken from the Histoire des Chênes. In the Hortus Kewensis, five varieties are enumerated, only differing in the shape of the leaves; but the elder Michaux asserts that they cannot be propagated with certainty even by grafting; and that all the different kinds may be found on one tree. Even the two we have given under distinct names, though they are made species by some authors, are rather variations than varieties.

The bark, on the oldest trees, is smooth, or very slightly furrowed. The acorns, which are of a dark brown, and are small and extremely bitter, are contained in shallow slightly scaly cups. The wood is tough; but it decays so soon, that it is never used in America, even for fuel.

§ 23. Q. (A.) Ilicifo'lia Wang. The Holly-leaved, or Bear, Oak.

Engravings. Wang, Amer., t. 6. f. 17.; N. Amer. Syl., t. 21.; and our fig. 1597.


This very remarkable little tree is generally found about 3 or 4 feet high; but, in favourable situations, it is sometimes found to reach the height of 8 or 10 feet. The trunk is covered, like the branches, with a polished bark. The leaves are of a dark green on the upper surface, whitish beneath, and regularly divided into 3 or 5 lobes. The acorns are small, blackish, and longitudinally marked with a few reddish lines, and they are so abundant as sometimes to cover the branches.


Sect. Char., &c. Leaves quite entire and lanceolate, dying off without much change of colour, in England; but, in America, sometimes persistent for two or three years. Young shoots straight, spreading, and wand-like. Bark very smooth, black, and never cracked. Fructification biennial. Cup imbricate. Nut roundish and very small.—Large trees and shrubs, the least beautiful in their foliage of the oak family.

§ 24. Q. Phéllos L. The Willow Oak.


Spec. Char., &c. Leaves membranaceous, linear lanceolate, tapering at each end, entire, smooth, with a small point. Nut roundish. (Smith.) A deciduous tree. Philadelphia to Georgia. Height 60 ft. to 70 ft., in some
soils and situations; and in others a shrub of diminutive growth. Introduced in 1723.

Varieties.

Q. P. 1 sylvaticus Michx. Hist. des Chênes, No. vii. t. 12. (Our fig. 1602.) — The leaves are long and narrow on old trees, and trilobed on seedlings, as in fig. 1598.; and persistent, or deciduous, according to soil and situation.

Q. P. 2 latifolius Lodd. Cat. ed. 1836. (The plate of this tree in Arb. Brit., 1st edit., vol. viii.; and our fig. 1599.) — A tree, with the leaves rather broader than those of the preceding form.


both in height and general appearance, that individual plants have
frequently been taken for distinct species. It is only found in the
maritime parts of the Southern States, where it is rare, in compa-
rison with many other species.

p. 424. — A low shrubby plant, from 3 ft. to 8 ft. high, according
to Pursh; a native of the sea coast of Virginia and Carolina. The leaves
are shorter than those of the species, and are persistent. It is sometimes
called the evergreen willow oak.

The leaves of this species are 2 or 3 inches long, of a light green, smooth, narrow, entire,
and very similar to those of the willow; whence the name of the willow oak, by which this
species is known throughout the greater part of America. The shoots are straight, long,
slender, wand-like, and not crossing one another so much as in most of the other
kinds of oaks; so that the tree is almost as much like the willow in its shoots as its
leaves. The acorns (fig. 1566.h) are small, round, bitter, and of a dark brown colour:
they are contained in shallow cups, slightly coated with scales ; and, if kept in a cool place,
they will preserve the power of germination for several months. Large trees of this species
are not unfrequent in British gardens.

Q. (P.) LAURIFOLIA Wild. The Laurel-leaved Oak.

Quer., No. 16.

Synonyms. The Laurel Oak, Swamp Willow Oak.


Spec. Char., s&c. Leaves obovate, entire, smooth, nearly sessile; tapering at
the base. Nut roundish, even. (Smith.) A deciduous tree. South Caro-
lina and Georgia. Height 50 or 60 feet. Introduced in 1786.

Variety.

Q. (P.) l. 2 hybrida Michx. Quer. No. 10. t. 18. Q. l. 2 obtusa Ait.
LXX. CORYLA CÆ: QUEÆCUS.

1603. Q. (P.) C. hybridia.

(Our fig. 1603.)—Rather more obtuse leaves than the species.

The whole of the American oaks belonging to the section Phellos are remarkable for retaining their leaves, in particular soils and situations, for two, three, and in some cases even four, years, without their changing colour; differing in this respect, both from evergreens, which change their leaves in the spring of every year; and from those deciduous trees which retain their leaves in a withered state during winter.

* 26. Q. imbricaria Willd. The Shingle Oak.


Synonyms. Q. latifolia Hort.; Laurel Oak, Filed-Cup Oak, Jack Oak, Black Jack Oak, Amer.; Chêne à Lattes, Fr.

Engravings. Michx. Quer., t. 15, 16.; N. Amer. Syl., 1. t. 15.; and our fig. 1605.

Spec. Char., &c. Leaves elliptic-oblong, acute at each end, entire, almost sessile; downy beneath. Nut nearly globose. (Smith.) A deciduous tree. Alleghanies, but rare. Height 40 or 50 feet. Introduced in 1786.

The leaves are long, lanceolate, entire, and of a shining green. The trunk is branching, and often crooked; and the wood, though hard and heavy, has open pores like that of Q. rubra.

* 27. Q. heterophylla Michx. The various-leaved, or Bartram’s, Oak.


Engravings. Michx. Amer. Syl., t. 18.; and our fig. 1606.

Spec. Char., &c. Leaves on long footstalks, ovate-lanceolate or oblong, entire or unequally toothed. Cup hemispherical. Nut roundish. (Michx.) A deciduous tree, 30ft. high, of which only one individual has been found. Banks of the Schuylkill, four miles from Philadelphia. Introduced 1820. Horticultural Society’s Garden; and at Verrières, the villa of M. Vilmorin, near Paris.

Q. agrifolia Willd. (described in Arb. Brit., 1st edit., p. 1894., after Pursh and others) appears to be nothing more than Q. coccifera.
B. Leaves evergreen.

\[\text{A. Natives of Europe.}\]

\[\text{Spec. Char.} \quad \text{Leaves ovate or oval, sometimes lanceolate, entire or serrated; with or without prickly mucros; downy beneath. Bark smooth and black, or rough and corky. Fructification biennial. Cups imbricate. Nut ovate, acuminate; sometimes very long in proportion to the cup. — Low trees or shrubs, of great commercial interest, from including the oaks which produce cork, the kerns insect, and edible acorns.}\]

\[\text{Species Char., &c.} \quad \text{Leaves ovate-oblong, acute, coriaceous, entire or serrated; hoary beneath. Bark even. Nut ovate. (Willd.) A middle-sized evergreen tree, or large shrub. South of Europe, North of Africa, Cochin-China and other parts of Asia. Height 15 ft. to 30 ft. rarely 60 ft. In cultivation in British gardens from a very remote period. Flowers greenish white; May. Acorns brown; ripening the second year.}\]

\[\text{Varieties. These are very numerous, and frequently very distinct; and, as in the case of every species of oak, they might be greatly increased by selecting from beds of seedling plants.}\]

\[\text{① Q. I. 1 integrifolia Lodd. Cat. ed. 1836. — Leaves lanceolate, entire.}\]

\[\text{② Q. I. 2 serratifolia Lodd. Cat. ed. 1836. (Our fig. 1607.) — Leaves lanceolate, serrated.}\]

\[\text{③ Q. I. 3 latifolia Lodd. Cat. ed. 1836. Phellodrys Matth. Valgr. i. p. 189.; Fl. No. 3. Du Ham. Arb. i. t. 224. (Our fig. 1608.) — Leaves broader and less rigid, more or less undulated, and sometimes slightly serrated.}\]

\[\text{④ Q. I. 4 crispa Lodd. Cat. ed. 1836. — Leaves wrinkled at the edges.}\]

\[\text{⑤ Q. I. 5 latifolia Lodd. Cat. ed. 1836. Q. I. oblonga Hort. (The plate of this variety in Arb. Brit., 1st edit., vol. viii.; and our figs. 1609. and 1610.) — Leaves broad, nearly entire.}\]

\[\text{⑥ Q. I. 6 longifolia Lodd. Cat. ed. 1836. Q. I. salicifolia Hort. — Leaves long and very narrow.}\]

\[\text{⑦ Q. I. 7 variegata Hort. — Leaves variegated with white.}\]
In favourable situations, in the South of France, Spain, and Italy, and also in the warmest parts of England and Ireland, the *Q. flex* forms a bushy evergreen tree, exceeding the middle size. The trunk is generally furnished with branches from the ground upwards; and, being concealed by the dense mass of foliage borne by these branches, the general character of the species, even when fully grown, is that of an immense bush, rather than that of a timber tree. When judiciously pruned, or drawn up by other trees, however, it forms a handsome well-balanced head, on a straight trunk, and with graceful pendent branches. The roots descend to a very great depth, altogether disproportionate to the height of the trunk; for which reason this oak is never found indigenous to soil with a wet bottom. The bark is black, thin, hard, and even; sometimes slightly furrowed, but never corky. The leaves vary exceedingly in shape and size, from 5 in. in length and nearly 3 in. in breadth (as in *Q. I. latifolia* and *Q. I. fagifolia*), to 1 in. in length and ½ in. in breadth (as in *Q. I. crispa*), or ½ in. in breadth and 3 in. in length (as in *Q. I. salicifolia*). In some plants, the leaves are prickly, like those of the holly; and, when this is the case, the most prickly are nearest the ground; a circumstance beautifully exemplified in a fine tree at Purser's Cross. The colour of the leaves is a dark green; and, being convex above, and quite smooth, they have a fine shining appearance. In the climate of London, seedling plants grow with considerable rapidity; attaining, in good loamy soil, from 15 ft. to 20 ft. in height in 10 years from the acorn. As they become larger, they grow slower; and, after they have attained the height of 30 or 40 feet, they increase in width nearly as much as in height. The tree attains a great age, remaining in a growing state for several centuries. The sap wood is whitish; but the heart, or perfect wood, is of a brown colour, very close-grained, heavy, and very hard. It weighs 70 lb. to the cubic foot, and takes a fine polish; but twists and splits a great deal in drying, like most other hard and heavy woods. It is of great duration, and
also of considerable flexibility. Boutcher recommends the tree for making
warm and lofty hedges, 40 or 50 feet high, in a short time. A dry deep soil,
calcareous or sandy rather than clayey, and a situation low rather than
elevated, best suit the ilex. It is exceedingly difficult to propagate, other-
wise than by the acorn; and no tree is more difficult to transplant, "as the
roots of it, when not interrupted, run as straight down into the earth as a
carrot;" and hence the best mode is to have the plants raised in small pots,
one in a pot, as is generally practised in the London nurseries.

29. Q. (I.) BALLO'TA Desf. The sweet Acorn Oak.


Synonymes. ? P. flex major Clus. Hist. 1. t. 23.; Chêne à Glands doux, Chêne Ballote, Fr.

Derivation. The term Ballota seems to be a modification of the Spanish word bellota, which means
acorns generally.

Engravings. Our figs. 1612. and 1613., the latter being a sprig, and the former a leaf of the natural
size, both taken from a specimen of the original tree, planted by Desfontaines in the Jardin des
Plantes, at Paris.

Spec. Char., &c. Leaves elliptical, coriaceous, denticulated or entire; downy
beneath. Bark even. Nut cylindrical, elongated. (Desf.) An
evergreen tree or large bush. Barbary, in Algiers and Morocco.
Height 20 or 30 feet, with a trunk from 3 ft. to 6 ft. in circumference.
Introduced in 1696.

Obviously a variety of Q. I'lex; from which, however, it differs in its
leaves being more rounded at the ends, and also more white and cottony
beneath, and of a more coriaceous texture; and in its acorn being of
double the length of that of Q. I'lex, and in having a mild and
agreeable taste.


Synonymes. ? P. flexollis rotundifolius, &c., Magn. Monsp. 140.; Chêne de Grammont, Fr.; Wei-
lenkättrige Eiche, Ger.; Encina dulce, and Gouetta, Span. Captain S. E. Cook suggests that
Q. hispanica would be the most suitable name for this species, which may be considered as forming
the natural oak of Spain; whereas the term gramuntia was applied to it by Linnaeus, from its
having been found in the remnant of a wood on the estate of Grammont, near Montpelier, where,
according to De-Candolle, the species no longer exists.

Engravings. Our fig. 1614., from the tree at Purser's Cross; fig. 1615., an acorn of the natural size,
traced from one that was sent to us by Captain Cook; and the plate of the tree at Purser's Cross,

Spec. Char., &c. Leaves roundish-elliptical, nearly
sessile, undulated, with deep, spinous, divaricated
teeth; densely downy beneath; heart-shaped at the base. An evergreen
tree or large bush. Grammont, near Montpelier; and throughout Spain.
Introduced in 1730. Flowers greenish white; June. Nut brown; ripe in the autumn of the following year. Apparently nothing more than a variety of Q. Ballota.

Variety.

1. Q. (I. B.) g. 2 Coccikii. Q. Coökii Arb. Brit. 1st ed. p. 1926. (Our fig. 1616.)—Either identical with the species, or a slight variety of it.

A straggling tree, with numerous round grey branches, downy when young. Leaves scarcely 1 in. long, rigid, broadly elliptical, often nearly orbicular; very much undulated at the margin, their deep, broad, spinous teeth pointing every way, like those of the holly; the upper surface dark green, rather glaucous, besprinkled with minute starry hairs; the under surface densely clothed with white entangled down. In the Nouveau Du Hamel, great doubts are expressed as to whether this species is identical with the Q. rotundifolia of Lamarck; and whether both sorts may not be merely varieties of Q. Ilex, which we believe to be the case.

31. Q. coccifera L. The Kermes, or Berry-bearing, Oak.


The whole plant resembles a holly in miniature; but the leaves are of a paler green, and they vary exceedingly in magnitude. This oak is well known as producing the kermes, or scarlet grain, of commerce. The fruit is but of a very small size the first year, and does not attain maturity till the end of the second. The nuts are oval, and are enveloped for half their length in a cup furnished with rough scales terminating in rough points, which are almost woody, spreading, and a little recurved. Propagated from the acorns, which are received from the Continental nurserymen.

32. Q. pseudo-coccifera Desf. The false Kermes, or Berry-bearing, Oak.


Synonymes. Chêne à faux Kermes, Fr.; Stechernde Eiche, Ger.

Engravings. N. Du Ham., t. 48. f. 1.; and our fig. 1619.

and about Mount Atlas," where it forms a tree from 15 ft. to 20 ft. high, with round branches, clothed with rusty down when young. The leaves are twice or thrice as long as those of Q. cocifera, thicker, and less wavy, with much smaller and shorter spinous serrations, rather than teeth. Introduced ? 1820. Horticultural Society's Garden in 1834.

2 33. Q. Suëber L. The Cork Tree.


Varieties. These, we have no doubt, are as numerous as the varieties of Q. Ilex; in countries where the tree is indigenous. None are in cultivation in British gardens under any particular name: but, the cork trees having been all raised from seed, their leaves will be found to vary in magnitude, in different places, in length relatively to breadth, and in the character of their margins, which are wavy, serrate, or dentate.


† Q. S. 3 angustifolium. Suëber angustifolium Bauh. Pin. 424., Du Ham. Arb. 2. p. 291. t. 81. —The figure in 1620. Q. S. latifolium. Dend. Brit. t. 89. (our fig. 1621.) may be considered as this variety.

† Q. S. 4 dentatum. Q. Pseudo-Suëber Hort. —Leaves large, and variously dentate, as in fig. 1622.

The cork tree bears a general resemblance to the broad-leaved kinds of Q. Ilex; of which species some authors consider it only a variety: but, when full grown, it forms a much handsomer tree; and its bark alone seems to justify its being made a species. The outer bark, the great thickness and elasticity of which are owing to an extraordinary development of the cellular tissue, forms the cork; which, after the tree is full grown, cracks and separates from it of its own accord. The inner bark remains attached to the tree, and, when removed in its young state, is only fit for tanning. The wood of the cork tree, which weighs 84 lb. per cubic foot, is used for the same purposes as that of Q. Ilex; but it is never found of sufficient size to be of much
consequence. By far the most important product which this tree yields, is its outer bark, which forms the cork of commerce. The bark is separated by first making a circular cut round the trunk, immediately under the main branches, and another at a few inches above the surface of the ground. The portion of bark intervening between the two cuts is then split down in three or four places; care being taken, both in making the circular cuts, and also the longitudinal ones, not to penetrate the inner bark. This operation is commonly performed in July, or in the beginning of August, when the second sap flows plentifully. The tree is now left for 8 or 10 years, when it is again disbarked as before. In British gardens Q. Säber is propagated by imported acorns, or by inarching on Q. I'lex.

**34. Q. Pseudo-Säber Desf.** The False-Cork Oak.


*Synonyms.* Chêne faux Liège, Chêne de Gibraltar, Fr.; Unächte Kork-Eiche, Ger. Bose states that he possesses a leaf of Q. Tümeri, which was brought to him from Kew by L'Heritier; and that it is identical with Q. Pseudo-Säber; but the leaves of Q. Tümeri are not in the slightest degree hoary or glaucous beneath, nor has it a corky bark. See No. 35.


*Spec. Char., &c.* Leaves ovate-oblong or lanceolate; sinuated, dentated, or serrated; hoary beneath. Bark fungous, cracked. Nut ovate. Calyx muri-cated, with lax, recurved, linear scales. (Desf.) A sub-evergreen tree. Mountains of Tuscany, Spain, and Barbary, Mount Atlas, and near Tangier. Height 50 or 60 ft. Introduced in 1824.

*Variety.*

† Q. P. 2 Fontanèsii. Q. Fontanèsii Guss., Arb. Brit. 1st edit. p. 1925. (Our fig. 1624.) — Either identical with this species, or a very slight variety of it.

The bark is corky, though less so than that of Q. Säber. Young branches downy or hoary; sometimes smooth, striated. Desfontaines describes the bark as fungous, as very thick, and as being, without doubt, capable of replacing the cork of Europe. The leaves are oval-oblong, dentated or serrated; smooth above, and pubescent beneath, remaining green a part of the winter; so that the tree may be considered as forming the connecting link between the evergreen oaks and the deciduous ones. Q. Säber angustifolium and Q. Säber dentatum (p. 884.) may possibly be forms of this species.

**35. Q. Tümeri Wildl.** Turner's Oak.


*Synonyms.* Q. híbrída Hort.; Chêne de Turner, Fr.; Tümersche Eiche, Ger.

*Engravings.* Wildl. Baumz., t. 3. f. 2.; and our fig. 1626, from a living specimen.

*Spec. Char., &c.* Leaves oblong, mucronate, dentate; glabrous on both sides; somewhat wedge-shaped at the base. Branchlets hairy. (Wildl.) A sub-evergreen, or nearly evergreen tree, apparently a hybrid between Q. pedunculata and Q. I'lex, having been found in a bed of seedlings of the former species, in 1795 or before, in Turner's Nursery, at Holloway Down, Essex. Height 40 ft. to 50 ft.
Flowers and acorns have been produced in the Mile End Nursery. The leaves vary considerably in size, but not much in form, or in the character of their margins. Readily propagated by grafting on the common oak, from which, in summer, it can scarcely be distinguished at a distance, as its branches and leaves are so similar; but, in winter, its thick, glossy, and strictly evergreen foliage has a fine effect. On the whole, it is an exceedingly distinct and very handsome tree, by no means liable to vary in the form of its foliage, like what may be called the natural species of European and American oaks. It is rather more tender than Q. Cebris Lucombeana, but, nevertheless, it retains its foliage nearly as long as that species.

**SPEC. 36. Q. HYBRIDA NA'NA.** The dwarf hybrid Oak.

**Synonymes.** Q. hybrida Lodd. Cat. 1836; Q. "a hybrid between Q. pedunculata and Q. T. hex, in the Horticultural Society's Garden"; Q. sumillis Hort.; Q. nana Hort.

**Engravings.** Our figs. 1627, and 1628.

**Spec. Char., &c.** Leaves ovate or oblong, obtusely dentate, smooth, and of the same colour on both sides. Footstalks short. A sub-evergreen bush. Found, about 1825, in a bed of seedling oaks in the Bristol Nursery, where the original plant, in May, 1837, was between 8 ft. and 9 ft. high, with a trunk 8 in. in circumference at 1 ft. from the ground. Flowers?.

In summer, the leaves, at a distance, bear a considerable resemblance to those of the common oak; but, on a nearer inspection, they appear as in fig. 1627, or in fig. 1628: the first from the specimen tree in the Hackney arbor, and the second from the arbor at Milford. Towards the autumn, those shoots which have continued growing exhibit leaves on their extremities so exactly like those of Q. T. Turneri, that it is altogether impossible to make any distinction between them. Propagated by grafting on the common oak. Fig. 1629. exhibits leaves (a, b) taken from the extremities of the shoots, in different parts of the same plant.

**B. NATIVES OF NORTH AMERICA.**

**9. VIRÉNTE.** Live Oaks.

**Sect. Char.** Leaves oblong-lanceolate; dentate, and variously cut when young; but, on full-grown trees, quite entire. Bark smooth, black. Fructification biennial. Cup imbricate. Nut long. Low trees or shrubs; rather tender in Britain, and not attaining a timber-like size north of London.

**SPEC. 37. Q. VIRÉNS Ait.** The green, or Live, Oak.


**Spec. Char., &c.** Leaves coriaceous, elliptic-oblong, revolute, entire, pointless; obtuse at the base; clothed with starry down beneath. Fruit stalked. Nut oblong. (Willd.) An evergreen tree. North America, in the maritime
parts of the Southern States. Height 30 ft. to 40 ft. Introduced in 1739. Flowers and fruit rarely produced in England.

The leaves are oval, coriaceous, of a dark green above, and whitish beneath: they persist during several years, but are partially renewed every spring. On old trees, growing wild in the forests, they are always entire, as shown in fig. 1631; but, on seedlings of 2 or 3 years old, they are very distinctly toothed, as in fig. 1632. On trees growing in cool soils, or reared in plantations, they are one half larger than those on the trees usually found in a wild state, and are often denticulated even on old trees. The acorns are of an elongated oval form, nearly black, and are contained in greyish pedunculated cups. In British gardens, this tree is seldom found higher than a large shrub, it requiring rather a warmer climate to attain a timber-like size.

Leaves coriaceous, oblong, entire, smooth, acute at each end. Carolina. See fig. 2103. in p. 1110. It is described in our first edition, p. 1920.
c. Natives of Nepal.

§ x. *Lanatæ*. Woolly or downy-leaved Oaks.

**Sect. Char.** Leaves oval-oblong or lanceolate, serrated or dentated, but not sinuated or lobed; woolly beneath. Trees evergreen, natives of Nepal; and only half-hardy in the climate of London. They may be propagated by cuttings, which root without much difficulty; and the plants require the protection of a wall.


*Identification.* Smith in Rees's Cyc., No. 27.


*Engraving.* Our fig. 1633. from the tree at Kew.


In its native country this is a tree of vast dimensions, with a scaly bark, and rigid, brown, warty branches, clothed, when young, with dense white down; but in England it has not yet been seen above 10 ft. high, and it requires to attain this height the protection of a wall. In the Hackney arboretum, and in that at Flitwick, plants of this species have stood out, without any protection, in the open garden for several years, but they are annually killed down within a short distance of the ground; nevertheless, in Messrs. Loddiges's nursery, plants in pots have borne acorns.

† 40. *Q. annulata* Smith. The ring-cupped Oak.

*Identification.* Smith in Rees's Cyc., No. 22.


*Engraving.* Our fig. 1634. from a living specimen.


Leaves evergreen, rigid, somewhat silky beneath, the young ones very silky. Stipules linear, hairy, longer than the footstalks, deciduous. Male flowers in pendulous, hairy, yellowish, shortish spikes, springing from the buds below the leaves. There are specimens of this tree in the Botanic Garden at Kew, which are found to be decidedly hardier than the plants of *Q. lanata* in the same garden.
App. i. European Kinds of Oaks not yet introduced.

Q. faginea Lam. Q. cegilotopifolia Willd. (our fig. 1635. from specimen in the Linnaean herbarium.) — Leaves on short downy footstalks, obovate, with numerous uniform shallow lobes; downy beneath; somewhat heart-shaped and unequal at the base. Fruit sessile. (Smith.) Natives of Spain and the south of France. Introd. 1840.

Q. agilopifolia Pers. Syn. 2. p. 570., Q. hispánica Lam., has oval, sinuated, and dentated leaves, the teeth of which are close together and almost obtuse; green above, and downy beneath. The acorns are pedunculated, and half-enclosed in a smooth cup. The bark is cracked, but not corky. Native of Spain.

Q. Brôssa Bosc, Mém. sur les Chênes, p. 319. (Chêne Brosse aat Nantes; Chêne nain Bonami) bears so great an analogy to Q. pyrenaica (see p. 853.), that, according to Bosc, it may possibly be only a variety of that species.

Q. viminâlis Bosc, Mém. sur les Chênes, p. 316. (Chêne Saule, Chêne Osier, Chêne de Hai, Fr.) is found in the departments in the East of France. It is common on the Jura, and on the mountains of the Vosges. It seldom grows higher than 6 or 8 feet; with a grey bark; leaves resembling those of Q. pendulâtât, but much smaller, of a brighter green, and always very smooth.

Q. âspera Bosc, Mém. sur les Chênes, p. 328. (le Chêne âpre, Fr.) has the leaves petiolated, coriaceous, of a medium size, elongated irregularly, but not deeply lobed; the lobes broad, pointed, and mucronated. The upper surface of the leaf is studded with small tubercles, beset with stiff bristle-like hairs disposed in stars, which are very rough to the touch; the under surface is downy. This species does not attain any great height.

Chêne Lézernien Bosc, Mém. sur les Chênes, p. 328., is described as nearly allied to the preceding kind.

Chêne Castillan Bosc, Mém. sur les Chênes, p. 328., has the leaves oval, pointed, slightly tomentose beneath, with unequal teeth, each terminated by a sharp turned up point. The acorns are borne three or four together on short peduncles. Abundant on the sandy mountains of Old Castile.

Q. lusitânica Lamb. (our fig. 1636.), Q. prásina Pers. (our fig. 1637.), Q. calycina Poir., Q. expânsa Poir., Q. rotundifolia Lam., and Q. hûmilis Lam., are described in our first edition.
App. ii. Oaks of Africa, Asia Minor, and Persia, only partially introduced.


The leaves are about 1 or 1½ inches long, bright green, smooth on both sides, but paler beneath; their serratures are deep and broad, not acutely pointed. Fruit solitary, nearly sessile. Cup slightly downy; its scales not very distinct. Acorn two or three times longer than the cup, smooth, nearly cylindrical. Olivier observes that this plant, besides producing the galls of commerce, bears a number of different kinds of this excrescence, which are neglected as useless. The description and figures of these galls, and of the insects which cause their production, are in our first edition.

Q. Libani Oliv. t. 49. f. 2. (our fig. 1640.), Q. rigida Willd. (fig. 2104. in p. 1110.), Q. iberica Stev., Q. castaneæfolia C. A. Meyer (Plantæ Caspico-Caucasicae, 1. p. 9. t. 1.; and our fig. 1641.), and Q. mongolica Fisch. are described in our first edition.

Q. mannifera Lindl. Bot. Reg. Chron., 1840, No. 72., and also Q. mongolica, appear to be nothing more than varieties of Q. sessiliflora. The latter produces the Koor-distan manna, a sweet glutinous substance, which oozes from the upper surface of the leaves during the hottest months of the year. (See Penny Cyc., art. Quercus, p. 215.; and Q. sessiliflora, in our p. 851.)
Q. régiæ Lindl. Bot. Reg. Chron. 1840, No. 73., has the general appearance of a sweet chestnut; but, being described from imperfect specimens, very little can be said about it with certainty. Native of Koordistan.

Q. Brántii Lindl. Bot. Reg. Chron. 1840, No. 74., appears to be nearly allied to Q. l'ïlex. Named after Mr. Brant, the discoverer, and it is hoped that acorns will soon be introduced.

**App. iii. Himalayan Oaks only partially introduced.**

It is observed by Dr. Royle, that the Himalayan oaks vary much in appearance, and that, in all probability, the number of kinds at present enumerated as species will hereafter undergo "some reduction." It has also been suggested to us by Professor Don, that several of the Nepal and Japan oaks described by authors under different names are probably the same. As seeds of every kind are constantly received from the Himalayas, some of these kinds may be already in the country, and probably the whole will be soon obtained.


---

*fig. 1642.* — Leaves elliptic-lanceolate, quite entire, very sharply pointed; acute at the base, sometimes obtuse; smooth. One of the largest, as well as the commonest, sorts of oak in Nepal, where it attains the most gigantic size. The wood is exceedingly like the English oak in colour, and most probably
equals it in other respects; but the mountaineers do not esteem it much, owing, as they say, to its speedy decay; a circumstance attributable no doubt to their employing it in its green state. A similar prejudice prevails in that country against the other species. Female flowers on a separate tree [probably accidentally], crowded 3 together in sessile groups along the spikes. Acorns eatable, but not very good; the size and shape of a large filbert, even-pointed, dark brown; their cups short, scaly. (Smith.)

Q. obtusiölia D. Don, Q. grandiölia D. Don (Lamb. Gen. Pin., 2. t. 8.; and our fig. 1643.), and Q. velutina Lindl. (Wall. Pl. As. Rar., t. 150.; and our fig. 1645.) are described in our first edition.

Q. lamelloša Smith.
Q. imbricätà Ham. MSS., D. Don Prod. Fl. Nep. p. 57. (Wall. Pl. As. Rar., t. 149.; our fig. 1644.)—Leaves elliptic or ovate, serrated, flat, glabrous, acute, on long foot-stalks; obtuse at the base; glaucous beneath; the veins continued to the serratures; veinlets raised. Cups solitary, sessile, depressed, and downy; composed of scales forming loosely imbricated, undulated, concentric layers, which surround the nut. Nut tomentose, bossed, depressed, shorter than the cup. (Lindl., MSS., as quoted by Wallich.) A native of the mountains of Nepal; ripening its fruit towards the end of the year.
LXX. CORYLANÆÆ: QUERUS.

Q. *semecarpifolia* Smith (Wall. Pl. As. Rar., t. 174.; and our fig. 1646.) is described in our first edition.

**App. iv. Oaks of Japan, Cochin-China, and China, most of which have not yet been introduced.**

Q. *glabra* Thunb.—Sieboldt states that this oak bears clipping, on which account it is very commonly found round places of worship and in gardens, where it is cut into the form of pyramids, globes, and other figures. In garden scenery, in Japan, where the geometrical style is imitated, this oak is used as the beech and the hawthorn are in Europe; but it has the advantage of these trees in being evergreen. Introduced to the Leyden Botanic Garden in 1830, and found there quite hardy. (Sieb. Fl. Jap., p. 9.)

Q. *concéntrica* Lour.; Q. *acuta* Thunb.; Q. *serrata* Thunb., introd. 1837; Q. *glauca* Thunb.; Q. *cuspídáta* Thunb. (Sieb. Fl. Jap., t. 2; and our fig. 1647.); Q. *dentáta* Thunb., hills of Japan; Q. *obovata* Bunge, and Q. *chinénsis* Bunge, are described in our first ed.

Bunge observed a third species on the mountains of Pan-Schan, very similar to Q. *mongólica* Fisch.

**App. v. Oaks of Java, Sumatra, and the Molucca Isles, not yet introduced.**

Q. *sundàica* Blume Fl. Jav. t. 2. and 3., and our figs. 1648. and 1649.
Sunda Oak.—Leaves elliptic, acuminate; narrowed towards the base; glabrous above, somewhat glaucous beneath; veins covered with down. Catkins solitary. A tree, attaining the height of 80 ft. and upwards, with smooth bark. It is not unfrequent in the woods of Western Java, in low grounds, and on the banks of rivers.

*Q. pruinosa* Blume Fl. Jav. t. 1.; and our fig. 1650. The frosty Oak.—Leaves ovate or oval-oblong, acuminate; roundish at the base. Branchlets and leaves covered beneath with small yellowish scales. Fruit aggregate, in short spikes. Cup concave, covered with small scales. Nuts roundish-ovate. A beautiful tree, from 50 ft. to 60 ft. high, with a thick bark.

*Q. angustata* Blume Fl. Jav. t. 7.; and our fig. 1651. The narrow-leaved Oak.—Leaves oblong, lanceolate; acute at each end; shining above, glaucous beneath. Catkins axillary, terminal, elongated. Cups flattish, rough with small scales. Nuts roundish-ovate. A large spreading tree, 80 ft. high, with compact wood. Common in the mountains of Gedé, at elevations of 4000 and 5000 feet. (*Blume.*)
Q. pallida Blume Fl. Jav. t. 4. and 5.; and our figs. 1652. and 1653. The pale Oak.—Leaves oval-oblong, very much pointed; acute at the base, quite entire; glabrous; pale-coloured beneath. Catkins terminal, dioecious; the male catkins branched, fastigate; the female ones simple. A tree, from 50 ft. to 60 ft. high; flowering in June and July. Found near the sources of the river Tjibarrum, in the mountains of Gedé. (Blume.)

Q. costata Blume Fl. Jav. t. 13, 14.; and our figs. 1654. and 1658. d, e. The ribbed-cupped Oak.—Leaves oblong, acuminate; acute at the base; glabrous; glaucous beneath. Catkins branched. Fruit peduncled. Nuts flat above, round beneath, immersed in the cup. Cups without teeth, surrounded by circular ribs. A tree, 70 ft. high, found in mountainous places. It is easily distinguished from all the others by the singular form of its cup.

Q. rotundata Blume Fl. Jav. t. 11.; and our fig. 1655. The round-fruited Oak.—Leaves oblong, acuminate; attenuated at the base; glabrous; glaucous beneath. Fruit in short one-sided spikes. Cups hemispherical, scaly at the
margin, but without teeth at the base. Nuts plano-convex on their upper part, rounded beneath. A tree, 70 ft. high, with compact heavy wood. It is found on high mountains, and flowers in August. (Blume.)

Q. elegans Blume Fl. Jav. t. 10; and our fig. 1656. The elegant Oak.—Leaves obovate, or oval-oblong, bluntly acuminate, narrowed in the petiole, glabrous. Fruit in long spikes. A magnificent tree, with a thick trunk, frequently attaining the height of 60 ft. A native of the woods of the province of Bantam, and in mountainous places. (Blume.)

Q. placenta-cuppa Blume Fl. Jav. t. 9; and our fig. 1657. a, b, c. The placenta-cupped Oak.—Leaves ovate-oblong, bluntly acuminate; roundish at the base; coriaceous, glabrous. Fruit in clusters. Cup covered with small tubercles. Nuts roundish, depressed. A tree, about 40 ft. high, found on the volcanic mountain of Gedé, at an elevation of 6000 ft. The wood is rarely used, although very hard, and capable of taking a fine polish. (Blume.)

Q. glaberrima Blume Fl. Jav. t. 8; and our fig. 1659.—Introduced in 1837.

Q. platycarpa Blume Fl. Jav. t. 15; and our fig. 1660. The broad-fruited
Oak. — Leaves oval-oblong, acute; somewhat wedge-shaped at the base; glabrous; shining above, glaucous beneath. Fruit peduncled, in short spikes. Cups surrounded beneath by hollow rings. Nuts round, depressed. A large tree, a native of the woods in the south of the province of Bantam, (Blume.) *Q. daphnoides* Blume Fl. Jav. t. 16.; and our fig. 1660. The Daphne-
like Oak.—Leaves oblong-lanceolate; sharp at both ends, quite entire, smooth; somewhat glaucous beneath. Fruit in long slender catkins, almost solitary. Cups surrounded by concentric rows of tubercles. Nuts ovate, sharp-pointed. A tall tree, a native of Bantam. (Blume.)

Q. racemosa Hook. in Comp. B. Mag., Q. gemelliflora Blume Fl. Jav. t. 17. (our fig. 1662.), Q. indita Blume Fl. Jav. t. 12. (our fig. 1663.), Q. urceolâris Hook., and Q. Pseûdo-molûca Blume Fl. Jav. t. 6. (our fig. 1664.), are described in our first edition.

The Molucca Oak.—Leaves elliptic-lanceolate, entire, acute at each end, smooth. Nut roundish, furrowed. (Smith.)

Q. turbinâta Blume Fl. Jav. t. 18.; and our fig. 1665. The top-shaped-capped Oak.—Leaves oblong-lanceolate, sharp at both ends, sharply serrated towards the apex, glabrous. Cups top-shaped. A handsome tree, from 40 ft. to 50 ft. high; found on the mountain of Salak. It is nearly allied to Q. glauca Thumb.; but the leaves are broader, less acute at the base, and not glaucous beneath. (Blume.) The acorns are of a very singular shape, and are enclosed in the cup.

Q. lineâta Blume Fl. Jav. t. 19.; and our fig. 1666. The parallel-veined Oak.—Leaves oblong-lanceolate, sharp at both ends, serrated or entire; glabrous above, glaucous and downy beneath. Nuts small, scarcely reaching a line above the cup; crowned at the tip by a long umbo. A large tree, attaining the height of 80 ft. and upwards. A native of the west of Java, in woods, at elevations of 5000 ft. to 6000 ft. (Blume.)

Many of the above species would doubtless prove hardy in the climate of London.

App vi. Mexican Oaks only partially introduced.

Acorns of many kinds of Mexican oaks have lately been sent home by Hartweg, and other botanical collectors, so that there can be no doubt that several of the species enumerated above are already in the country.

Q. glaucoscens Humb. et Bonp. Pl. Æquin. t. 78., and our fig. 1668., Michx. N. Amer. Syl. p. 111. — Leaves on short footstalks, wedge-shaped, obovate; entire at the base; slightly repand and toothed towards the top; glaucous, and quite glabrous. Fruit racemose. (Humb. et Bonp.) A very tall straight tree, quite glabrous; younger branches angular. Introduced in 1839. Horticultural Society's Garden.

Q. obtusata Humb. et Bonp. Pl. Æquin. t. 76., and our fig. 1669., Michx. N. Amer. Syl. 1. p. 112. — Leaves oblong; blunt at each end, unequal at the base, wavy at the margin, very veiny beneath, and somewhat downy. Fruit racemose. (Humb. et Bonp.) A native of New Spain, near Ario, at an elevation of about 6000 ft. (994 toises). A lofty tree, with a trunk from 3 ft. to 4 ft. in diameter, covered with a very thick deeply cracked bark.

Q. panduratea Humb. et Bonp. Pl. Æquin. t. 77., and our figs. 1670. and 3 m 2
and 1671. Michx. N. Amer. Syl. 1. p. 111. — Leaves oval-oblong, somewhat fiddle-shaped; acute at the point, unequally cordate at the base, wavy and slightly sinuate on the margin, downy beneath. Fruit racemose. (Humb. et Bonp.) Found in the same habitat as the preceding. A tree, from 18 ft. to 24 ft. high.

**Q. repánda** Humb. et Bonp. Pl. Æquin. t. 79., and our fig. 1672., Michx. N. Amer. Syl. 1. p. 108. — Leaves oblong-oval, on short footstalks; downy beneath, glabrous above; slightly repand, recurved at the margin. Fruit racemose. (Humb. et Bonp.) A shrub, 2 ft. high, branched from the very base, procumbent or erect. A native of New Spain, in moist shady places, between Real del Monte and Moran, at an elevation of above 7700 ft. (1291 toises).

Q. *laurína* Humb. et Bonp. Pl. Æquin. t. 80., and our fig. 1673., Michx. N. Amer. Syl. 1. p. 108. — Leaves oval-lanceolate, sharply acuminated, quite glabrous; some are a little 3-pointed at the tip. Fruit axillary, almost sessile. (Humb. et Bonp.) A tall tree, with the habit of *Laurus níbulis*.


Q. *crassipes angustifolia* Humb. et Bonp. Pl. *Æquin.* t. 84., and our fig. 1677., differs from Q. *crassipes* in the leaves being narrowed, and more diminished towards the point. Found, along with Q. *crassipes*, near Ario.

Q. *lanceolata* Humb. et Bonp. Pl. *Æquin.* t. 81., and our fig. 1678., Michx. N. Amer. Syl. 1. p. 107. — Leaves lanceolate, quite entire, wavy; the axils of the veins bearded beneath;
shining above. Fruit sessile. Scales of the cup turned backwards. (Humb. et Bonp.) A tree, from 30 ft. to 40 ft. high.


Q. chrysophylla Humb. et Bonp. Pl. Æquin. t. 87., and our fig. 1680., Michx. N. Amer. Syl. 1. p. 108. — Leaves oblong; obtuse at the base, 3-5-pointed at the apex; yellow beneath. Female flowers in many-flowered pedunculated clusters. (Humb. et Bonp.) A tall tree; younger branches furrowed, as if with a powdery down.

Q. pulchella Humb. et Bonp. Pl. Æquin. t. 88., and our fig. 1681., Michx. N. Amer. Syl. 1. p. 110. — Leaves oblong, obtuse; emarginate at the base; covered with white down beneath; teeth short, mucronate. Fruit sessile, almost solitary (Humb. et Bonp.)

Q. spicata Humb. et Bonp. Pl. Æquin. t. 89., and our fig. 1683. — Introduced in 1839. H. S. Gard.

Q. stipuláris Humb. et Bonp. Pl. Æquin. t. 90., and our fig. 1682., Michx. N. Amer. Syl. 1. p. 109. — Leaves obovate, sharply toothed towards the
point; teeth terminated by mucros; covered on the under surface with woolly tomentum. Stipules persistent. Fruit sessile, almost solitary. (Humb. et Bonp.) A tree, about 50 ft. high. A native of the mountains of Mexico, near Actopan; forming entire forests, at an elevation of 7000 ft. (1330 toises).


Q. ambigua Humb. et Bonp. Pl. Æquin. t. 93., and our fig. 1686., Michx. N. Amer. Syl. 1. p. 111.—Leaves oblong-obovate, wavy; obtuse at the base; reticulately veined beneath, somewhat hairy. Female spike pedunculated. (Humb. et Bonp.) A tree, 40 ft. high.

Q. *tridens* Humb. et Bonp. Pl. Æquin. t. 96., and our fig. 1689., Michx. N. Amer. Syl. 1. p. 107.—Leaves oblong, reteuse at the base, generally broader towards the apex, 3-dentate; teeth terminated by bristly points; downy beneath. Spikes of female flowers almost sessile. (Humb. et Bonp.) A shrub, about 10 ft. high, with round smooth branches. A native of New Spain, and common in the vicinity of Moran.


Genus II.


Synonyms. According to Banfield, the Fagus of the Romans, and the Oxan of the Greeks; Castánea Tomn. 332; Hêtre, Fr.; Buch, Ger.; Beuken, Dutch; Bog, Dan.; Bok, Swed.; Bus, Russ. and Pol.; Faggio, Ital.; Haya, Span.; Faya, Port.

Derivation. From phaýgo, to eat; because the nuts were used as food in the early ages.

Gen. Char., &c. Male flowers in stalked drooping heads or capitate catkins, 3 or 4 in each, attended by minute deciduous bracteas. Each flower consists of a 5—6-cleft bell-shaped calyx, and 8—12 stamens, that arise from the bottom of the calyx, and extend beyond it. — Female flowers borne 2—6 together, within a pitcher-shaped indistinctly 4-lobed involucr, constituted of numerous unequal bracteal scales, and interior scales, grown together. Each flower consists of a calyx, lengthened into a lanciniate limb, and investing the ovary. Fruit nuts. (G. Don.)

Leaves simple, alternate, stipulate, deciduous, rarely evergreen; entire or serrated, feather-veined, plaited in the bud. Flowers whitish yellow. Fruit covered with a hairy calyx. — Trees large, deciduous, handsome, and some evergreen shrubs; natives of the colder parts of Europe, North and South America, and Australia.

A. Capule muricate, capsuliform. Ovaries included. Young leaves plicate.

Natives of Europe, and of North and South America.

a. Species in Cultivation in British Gardens.

♀ 1. F. sylva'tica L. The Wood, or common, Beech.


Engravings. Eng. Bot., t. 1846; N. Du Ham., t. 24; the plate of this tree in Arb. Brit. 1st edit. vol. viii. and our fig. 1086.

Spec. Char., &c. Leaves ovate, glabrous, obsolutely dentate; ciliate on their margins. (Willd.) A large deciduous tree. Various parts of Europe; and one variety in North America. Height 60 ft. to 100 ft. Flowers brownish; May. Nut brown; ripe in October.

Varieties.

♀ F. s. 2 purpur'a Ait. Hort. Kew. v. p. 297. F. s. 2 átro-rúbens Du Roi; Hêtre noir, Fr.; the purple Beech. — The buds and young shoots are of a rose colour: the leaves, when half-developed, of a cherry red; and, when fully matured, at mid-summer, of so dark a purple as to appear almost black. The bark, not only of the young shoots, but even of the old wood and of the trunk of the tree, partakes strongly of the same dark colour as the leaves.

♀ F. s. 3 cuprea Lodd. Cat. ed. 1836. The copper-coloured Beech. — A sub-variety of F. s. purpurea. Young shoots and leaves of a paler colour than those of the purple beech. It makes a splendid appearance in the sunshine, and when the leaves are gently ruffled with the wind; but, in a state of repose, and on a dark cloudy day, it can hardly be distinguished from the common green-leaved beech.

♀ F. s. 4 fólis variegátis Lodd. Cat. ed. 1836. — The leaves variegated with white and yellow, interspersed with some streaks of red and purple. This variety is handsome in spring, when the leaves first make their appearance; but, in the course of the summer, their variegation is in a great measure lost, and the leaves assume a dirz
unhealthy aspect. There are also varieties with the leaves striped or blotched with white only, and others with only golden-striped leaves.

* F. s. 5 heterophylla. F. s. laciniata Lodd. Cat. ed. 1836; F. s. asplenifolia Lodd. Cat. ed. 1836; F. s. incisa Hort.; F. s. salicifolia Hort.; Hêtre à Feuilles de Saule, Fr.; the various, or cut, leaved Beech. — The leaves variously cut, as in fig. 1692.; sometimes in narrow shreds, so as to resemble a fern, as in fig. 1693.; and, at other times, in shreds of greater breadth, like the leaves of a willow. This variety, which may be designated as more curious than beautiful, is very apt to return to the normal form.

* F. s. 6 cristata Lodd. Cat. ed. 1836. F. s. crispa Hort.; Hêtre Crête de Coq. Fr.; the crested, or curled-leaved Beech. (The plate of this tree in Arb. Brit., 1st edit., vol. viii.; and our fig. 1694.) — This variety is a monstrosity, with the leaves small, and almost sessile, and crowded into small dense tufts, which occur at intervals along the branches. The tree never attains a large size, as may be expected from its deficiency in foliage.

* F. s. 7 pendula Lodd. Cat. ed. 1836. Hêtre Parasol, Fr.; the weeping Beech.—When this variety is grafted standard high, it forms a very singular and highly beautiful object, well deserving a place in collections of weeping trees. There is a splendid natural specimen in one of the plantations bordering Milton Park, in Northamptonshire, of which a plate is given in Arb. Brit., 1st edit., vol. viii.
The European beech is a handsome umbrageous tree, combining magnificence with beauty; and being, as Mathews observes, at once the Hercules and Adonis of our sylva. The roots do not descend deeply into the soil, but extend to a considerable distance close under the surface. The rootlets and fibres are not nearly so numerous as in the ash and the elm. The plants, under nursery culture, do not grow so rapidly as those of the ash and the elm; but, under favourable circumstances, they will attain the height of 10 ft. in 5 years, and 20 or 25 feet in 10 years. In general, the tree attains its full growth, in England, in 60 or 80 years, when it is fit to be cut down for timber purposes; and, on good soils, it is more than doubtful whether it will live much more than 100 or 150 years. The wood, which, when green, is harder than that of any of our British timber trees, weighs, when in this state, 65 lb. 13 oz. per cubic foot; half-dry, it weighs 36 lb. 6 oz.; and quite dry, 50 lb. 3 oz. The wood, when the tree has grown in good soil, and on plains, has a somewhat reddish tinge; but in poor soils, and on mountains, it is whitish. The durability of the wood is said to be increased by steeping it in water; and, according to some, by disbarking the tree while standing. In England, at the present time, the beech is principally employed in making bedsteads and chairs; and it is also in great demand for panels for carriages, and for various purposes in joinery, cabinet-making, and turnery. Screws, wooden shovels, peels for bakers' ovens, and rims for sieves, are also made of it, and in France sabots. As fuel, the wood of the beech is superior to that of most other trees, and the green wood is generally preferred to that which is dry, because it burns slower, though it does not give out so much heat; and hence, in many places in France, the tree is frequently cut down in the summer season. The beech, burnt green, produces heat and light relatively to the beech burnt dry, as 1181 is to 1540. For useful plantations, the beech is not highly prized; the tree not being of much value when young, nor forming a permanent coppice wood, and the bark being of little value. Beech of small size, or of short and crooked stem, is the least valuable of all timber. On dry chalky soils, it may be planted as a timber tree; but here, as in many other cases where a straight clean trunk is wanted, the plants require to be drawn up, either by other trees of their own species, or by trees of a different species, which advance at nearly the same rate of growth; such, for example, as the sweet chestnut. The beech succeeds best in plantations by itself; and, perhaps, there is no membranaceous-leaved tree which, in a wild state in forests, is found so little intermixed with other species. It is one of the worst of all trees for hedgerows, not only injuring the fence and the adjoining crops by the density of its shade, but its trunk, when grown in this situation, being neither long, clean, nor straight, is of little value except for fuel. As undergrowth, the beech is not of long duration, seldom pushing from the stools after 40 or 50 years. For hedgerows for shelter, and especially for those lofty narrow hedges which were formerly much in use for enclosing and
sheltering gardens, orchards, and small fields for affording early grass, the beech has no equal among deciduous trees; for, as Boutcher observes, by retaining its withered leaves all the winter, it affords the same protection as an evergreen. The beech will grow on dry soils, including sand, gravel, and chalk, more freely than most other trees; though it is found in the greatest perfection in sandy calcareous loam, or in fresh sandy loam on clay or rock. The most magnificent beeches in France are in Normandy, on the private estate of the king, Louis Philippe, where the soil is a loam on chalk rock. The species is always raised from the seeds or nuts, which are commonly called mast. These begin to drop from the husks in the months of October and November; and this process may be accelerated by shaking the tree. The nuts may then be gathered up, and dried in the sun, or in an airy shed or loft; after which, they may be mixed with sand that is perfectly dry, at the rate of three bushels of sand to one of mast. By some, the mast is spread in a thin stratum on a loft floor, without any sand; where it remains till the following spring, being occasionally turned over, and being covered with straw to exclude the frost. The mast, from which an oil is made in France, retains its vital properties for one year only; and, therefore, it must be sown, at the latest, during the following spring. The common time is from the beginning of March till the beginning of April. Autumn might be adopted for sowing, were it not that the nuts are greedily sought after, through the winter, by mice and other vermin. The soil in which the nuts are sown ought always to be light, and more or less rich, as the plants are rather tender when young. They may either be sown in beds or in drills, with the usual covering of soil, being about 1 in. The seeds should not lie nearer to one another, when sown, than 1 in. Mast, sown in the autumn, will come up in April; and that sown in spring, seldom later than the beginning of May. The varieties are propagated by layers, inarching, or...
grafting. When the latter practice is adopted, it is found to be more successful when the scions are of two years' growth, and when the graft is earthed up in the manner practised with the grafts of American oaks. (See p. 862.)


L. 36.; and our fig. 1698.

Spec. Char., &c. Leaves ovate, acuminate, thickly toothed; downy beneath; ciliate on the margin. (W. l.) A deciduous tree, so much resembling the common European beech, as by some to be considered only a variety of it. North America. Height 40 ft. to 60 ft. Introduced in 1766, and not unfrequent in collections.

Varieties.
♀ F. f. 2 caroliinae. F. caroliinae Lodd. Cat. ed. 1836. (Our fig. 1697.)—Leaves somewhat cordate at the base, ovate, slightly acuminate, obsoletely dentate, and somewhat mucronate. The colour is a very dark green, somewhat tinged with purple when fully mature. The veins of the under side of the leaf are somewhat hoary. Not common in collections.
♀ F. f. 3 latifolia. F. latifolia of Lee's Nursery. (Our fig. 1699.)—Leaves lanceolate, acuminate; tapering at the base, feather-nerved, much longer than those of the preceding variety in proportion to their breadth, and of a lighter green.

The American beech is easily known from the European one by its much shorter obtusely pointed buds, with short, roundish, convex scales, which terminate almost abruptly, and are enclosed in numerous, short, loose scales. Its leaves are equally brilliant with those of the white or European beech, a little larger and thicker, and more deeply serrated. Its fruit is of the same form, but only half as large; while the prickles of its calyx are less numerous, but firmer. The wood is somewhat red, or of a rusty hue, when mature; whence the name. Propagated by layers and grafting.
b. Species not yet introduced.

2. 3. **F. obliqua** Mirb. The oblique-leaved Beech.


**Engravings.** Méém. Mus., 14. t. 23.; and our fig. 1700.

**Spec. Char., &c.** Leaves ovate-oblong, oblique, somewhat rhomboid; blunt, doubly serrated, entire at the base; attenuated into the petiole, and somewhat downy. Perianth of the male flowers solitary, hemispherical, sinuated. Anthers 30—40. Cupules capsuliform, muricate, 4-partite; segments ovate, obtuse. Ovaries included, 3-sided; angles winged. (Mirbel.) A tall tree. Chili, near Conception; flowering in September.

B. Cupule involucriform; Segments narrow, laciniate. Ovaries laterally inserted. Young leaves not plicate. Natives of South America and Australia.

a. Species introduced into Britain.

2. 4. **F. betuloides** Mirb. The Birch-like, or evergreen, Beech.


**Engravings.** Méém. Mus., 14. t. 25.; and our fig. 1701.

**Spec. Char., &c.** Leaves ovate-elliptic, obtuse, crenulate, leathery, shining, glabrous; round at the base, on short foot-stalks. Perianth of the male flowers solitary, turbinate, 5—7-lobed. Anthers 10—16. Cupules involucriform, smooth, 4-partite; segments nearly linear, laciniate. Ovaries 3-sided, laterally exserted; angles marginate. (Mirbel.) An evergreen tree. Terra del Fuego, where it forms vast forests. This beech is also a native of Van Die- man’s Land, where it is called the myrtle tree by the colonists. It generally grows in the western part of the island, where an esculent fungus is found in clusters around the swollen parts of its branches. Said to have been introduced in 1850.

2. 5. **F. antarctica** Forst. The antarctic Beech.


**Engravings.** Our fig. 1702, from a specimen in Sir W. J. Hooker’s herbarium; and fig. 1703, from the British Museum.

**Spec. Char., &c.** Leaves ovate, blunt, glabrous; attenuated at the base; doubly dentate; their margins naked. (Willd.) A tree or shrub, a native of Terra del Fuego. Branches rugged, tortuous. Leaves alternate, petiolate, 1½ in. long; plicate; veins on the under side somewhat downy; the teeth roundish, blunt. Said to have been introduced in 1850.
b. *Species not yet introduced into British Gardens.*

2. 6. *F. Dombeyi* Mirb. Dombey’s, or the Myrtle-leaved, Beech.


**Engravings.** Mém. Mus., 14. t. 24.; and our fig. 1704.

**Spec. Char., &c.** Leaves ovate-lanceolate, somewhat rhomboid, pointed; serrated, coriaceous, shining, glabrous; wedge-shaped, and oblique at the base, on very short footstalks. Perianth of the male ternate, campanulate, 4—5-lobed. Anthers 8—10. Cupules involucriform, smooth, 4-partite; segments almost linear, laciniate. Ovaries laterally exserted, 3-sided; angles marginate. (Mirb.) A tall tree, a native of Chili, where it was found, along with *F. obliqua*, by the botanist after whom it had been named. Whether it is deciduous or evergreen we are uncertain; there being no living plants of it either in France or England.


**Identification.** Mém. Mus., 14. t. 25.

**Engravings.** Mém. Mus., 14. t. 25.; and our fig. 1705.

**Spec. Char., &c.** Leaves ovate, bluntest, doubly serrate, coriaceous, shining, glabrous, round at the base, on short footstalks. Perianth of the male solitary, turbinate, 5—7-lobed. Anthers 10—16. (Mirb.) A South American tree, not introduced.

Probably nothing more than a variety of *F. betuloides*. The branches are smoother and more elongated; the leaves larger, oval, and not elliptic; and dentate, not crenulate; all which differences may be the result of a more vigorous growth. The dried specimen, in other respects, perfectly resembles that of *F. betuloides*; and Commerson, who gathered it at the Straits of Magellan, had placed it along with that species, under the name of *Bétula antárctica*. As Mirbel had not seen the female flower, he thought it better not to confound it with *F. betuloides*.

**Genus III.**


**Synonyms.** *Fagus Lin.* and others; Châtaignier, Fr.; Kastanie, Ger.; *Castagno*, Ital.; Castano, Span.; *Castanieiro*, Port.; *Castanetra*, Sweed. and Dan.; Keschten, Russ.

**Derivation.** From *Castanea*, a town in Thessaly, or from another town of that name in Pontus.

**Gen. Char.** Male flowers each consisting of a 6-parted calyx, and 10—15 stamens, affixed to its bottom, and extended beyond its mouth. Flowers sessile, and disposed in groups along axillary stalks: each group consists of many flowers, and is involucrated by a bractea and a bracteole.—Female flowers consisting each of an ovary taper to the tip, clothed with a calyx, and crowned by its 6—7—8-cleft limb, and bearing as many styles, and having as many cells, with two pendulous ovules in each. The flowers are
disposed 2—3 or more together, within a bell-shaped, and externally bristly involucre. Fruit 2—3 nuts, included in a 4-valved involucre. (G. Don.)

Leaves simple, alternate, stipulate, deciduous; serrated or entire, feather-nerved, plaited in the bud. Flowers yellowish, conspicuous from the abundance and length of the male catkins. Fruit with a hairy calyx like that of the beech.—Trees deciduous, large, spreading; natives of Europe and North America, requiring a good soil to attain a large size.

There is only one European species, which is chiefly valuable as a fruit tree, and as coppice-wood; the timber of full-grown trees being brittle, and of short duration. The foliage is large and ornamental; and, in this and its fruit, it bears a close analogy to the beech.

† 1. C. ve'sca Gærtn. The eatable, sweet, or Spanish, Chestnut.


Derivation. The term Sweet Chestnut is applied with reference to the fruit, in contradistinction to the fruit of the horsechestnut, which is bitter. It is called the Spanish chestnut, because the best chestnuts for the table, sold in the London markets, are imported from Spain.


Spec. Char., Sc. Leaves oblong-lanceolate, acuminate, mucronately serrated; glabrous on each side. (Willd.) A stately deciduous tree, rivalling the oak in size and longevity; but, in regard to its timber, comparatively worthless. Asia Minor. Height 50 ft. to 70 ft. Cultivated in the temperate parts of Europe from time immemorial. Flowers yellowish; May. Fruit greenish, enclosing a brown nut; ripe in October.

Varieties. These may be arranged in two classes; those which are considered botanical varieties, and those which are cultivated on account of their fruit.

A. Botanical Varieties.

† C. v. 2 asplenifolia Lodd. Cat. 1836. C. heterophylla Hort.; C. laciniata Hort.; C. salzicifolia Hort.—The leaves cut into shreds, regularly or irregularly, and sometimes so as to appear like linear-lanceolate leaves; and hence the epithet of salzicifolia.

† C. v. 3 cochleata Lodd. Cat. 1836.—The leaves cuculate, or hooded, with a diseased stunted appearance.

† C. v. 4 glabra Lodd. Cat. 1836. C. v. foliis lucidis Hort.—The leaves rather thin, and more shining than those of the species.

† C. v. 5 glauca. C. glauca Hort.—The leaves somewhat glaucous.

† C. v. 6 variegata. C. v. foliis aureis Lodd. Cat. 1836.—The leaves variegated with yellow, with some streaks of white; and the tree, when of a larger size, makes a splendid appearance in spring, and is admirably adapted for planting among evergreen shrubs, along with the balsam poplar; the colour of which, when the leaves first expand, has all the rich yellow of this variety.

† C. v. 7 americana. C. ve'sca Michx. N. Amer. Syl. iii. p. 9.—This variety has broader leaves than the European chestnut.

B. Fruit-bearing Varieties.

There are upwards of 20 sorts cultivated in the London Horticultural Society's Garden, of which Mr. Thompson considers the four following as deserving the preference for ornamental cultivation: — Châtaignier prime, C. Rallue, the Downton Chestnut, and Prolific Chestnut.

Besides these there are the following English sorts: — Devonshire, Lewis's, Lisbon, Masters's Canterbury, Knight's Prolific, and the New Prolific. The varieties cultivated in France for the table are divided into two kinds, viz. les châtaignes and les marrons; the former being to the latter what the crab is to the apple. The best marrons sold in Paris are the marrons de Lyons; and the best kinds of the common chestnut are: — La Châtaigne de
The sweet chestnut differs essentially from the oak, in its timber not increasing in value as it increases in age. The trunk, in deep free soils, and in situations sheltered rather than exposed, rises erect, and forms a massive column of wood; but, in unsuitable soils, and in elevated exposed situations, and in cold climates, it ramifies at the height of 10 or 12 feet, and the tree assumes the character of a large pollard. The root descends perpendicularly, like that of the oak, but not, as it is alleged, to quite so great a depth. The rate of growth of young trees, in the neighbourhood of London, averages from 2 ft. to 3 ft. a year for the first 10 or 12 years. The tree will attain the height of from 60 ft. to 80 ft. in from 50 to 60 years; before which period its timber is generally in the highest degree of perfection; but the tree will live for several centuries afterwards, and produce abundance of fruit; its timber, in the mean while, beginning to decay at the heart, or become brittle, and fit only for fuel. The wood of the chestnut has the remarkable property of being more durable when it is young than when it is old; the sap or outer wood very soon changing into heart wood; and hence the great value of this tree for posts, fencing-poles, stakes, trelliswork, hoops, &c. The wood, when green, weighs 68 lb. 9 oz. per cubic foot; and when dry, 41 lb. 2 oz. The wood is easily distinguished from that of the oak, by the transverse fibres being more confused, and much less evident to the naked eye, more especially in a section newly cut; so that, to ascertain whether a plank of timber is oak or chestnut, it is only necessary to saw off a thin slice at one of its extremities. The bark, especially of young trees, is used for tanning; but it only sells for half the price of that of oak. As a tree for useful plantations, the chestnut is chiefly

---

Image of a sweet chestnut tree.
valuable as underwood, and for its fruit. As underwood, it is grown in England for hop-poles, fence-wood, and hoops. The poles last as long as those of the ash, and longer; but they do not grow so fast, and they are apt to send out stout side shoots, which, if not checked, either by pruning or by the closeness of the plantation, cause the upper part of the pole to diminish in size too rapidly. The chestnut, like the beech, prefers a deep sandy loam. It will not thrive in stiff tenacious soil; and, in a rich loam, its timber, and even its poles and hoops, are brittle, and good for nothing. The species is propagated by the nut, which may be treated exactly in the same manner as the acorn; and the varieties are perpetuated by grafting.

**C. pumila** Willd. The Dwarf Chestnut, or Chincapin.


*Engravings.* Wang. Amer. 57. t. 19. f. 44.; Michx. N. Amer. Syl., 8. t. 105.; our fig. 1707. from Michaux; and fig. 1708. from the tree in the Horticultural Society's Garden.

*Spec. Char., &c.* Leaves oblong, acute, mucronately serrate; covered with white tomentum beneath. (Willd.) A deciduous shrub. North America, New Jersey, Delaware, Maryland, South Carolina, Georgia, and Lower Louisiana. Height 8 ft. to 40 ft. Introduced in 1699. Flowers yellow; May. Fruit half the size of the common chestnut.

In dry arid soils *C. pumila* is a shrub not exceeding 6 or 7 feet in height, but in rich soil it is a low tree. The leaves are 3 or 4 inches long, sharply toothed, and similar in form to those of the *C. v. americana*; from which they are distinguished by their inferior size, and the whiteness of their under surface. The fructification, also, resembles that of *C. v. americana* in form and arrangement; but the flowers and fruit are only about half as large, and the nut is convex on both sides.

**Species of Castánca not yet introduced into European Gardens.**

Several species of chestnuts have been discovered in Nepal and Java; some of which were, at first, supposed to belong to the genus Quercus, but have since been separated from that genus, and referred to Castánca, by Dr. Lindley; and others have been described and figured by Blume, in his splendid work on the plants of Java. Dr. Lindley has given a synoptical list of the Indian Castánca in Dr. Wallich's *Pl. As. Rar.*, in which he enumerates eight different species, all of which we shall shortly notice.


C. sphaérocárpica Lindl. l. c., Quércus armáta Rox. MSS., is a native of the mountains near Silhet.

C. tribulóides Lindl. l. c., Royle Illust. p. 341. Quércus tribulóides Smith in Rees’s Cycl. No. 13., D. Don in Prod. Nep. p. 56., Wall. in Litt.; Q. Catungea Ham. MSS.; Q. férox Rox. Hort. Beng. p. 68. — This species, according to Sir J. E. Smith, was discovered by Dr. Buchanan (Hamilton) in the forests of Upper Nepal, flowering and fruiting at various seasons. Dr. Buchanan supposed it to be an oak; and he describes it as being a tree with smooth branches, and leaves on short footstalks, lanceolate, more or less ovate, entire, taper-pointed, somewhat unequal at the base, about 4 in. long, 1¾ in. broad; rigid, and rather coriaceous, with irregular, di-s tant, slightly curved veins; the upper surface polished, and the under one paler, and opaque. The flowers are generally monoecious (though Dr. Buchanan observed one tree with only female flowers), in slender, downy, clustered, axillary or terminal spikes; the male spikes being the more numerous. Stamens about 8, with a dotted central disk. The calyx of the fruit is armed with very numerous, rigid, prominent, sharp thorns, a fourth of an inch or more in length, spreading in every direction.

C. martabánica Wall. Pl. As. Rar. t. 107., and our fig. 1709., has the leaves lanceolate-oblong, acuminate, quite entire, smooth, on short footstalks, acute at the base, silvery beneath. Catkins downy, densely clothed with palmate branchy spines, divaricate. (Wall.) A native of Martaban, near Amherst.

C. Tungúrrut Blume Hjdr. Fl. Jav. t. 22., and our fig. 1710., has the leaves elliptic-oblong, acute, and ash-coloured beneath. The veins and catkins are downy. It is an immense tree, 150 ft. high; and is found in the province of Bantam, at an elevation of from 4000 ft. to 6000 ft. above the level of the sea. The natives call it Tungúrrut, or Tungerreh. (Blume Fl. Jav.)

Castánea argénstea Blume Fl. Jav. t. 21., and our fig. 1711., has the leaves oblong-lanceolate, much acuminated, narrowed towards the base, glabrous and silvery beneath. Catkins silky. A tall tree, with a thick trunk; a native of mountains in the west of Java. The wood is used for beams and the axletrees of wagons; and the acorns are eaten when boiled or roasted. (Blume.)

C. javánica Blume Fl. Jav. t. 23, 24., and our fig. 1712., has the leaves falcate, oblong-lanceolate, sharp at both ends, glabrous, ochreous beneath; the younger ones streaked underneath with dark yellow. A lofty tree, attaining the height of 120 ft., with a trunk 7 ft. in girth. Common in the woods of
the volcanic mountain of Gedé. Blume mentions two varieties: *C. j. montana*, *C. j. montana* Blume Bijd. 10. p. 526.; and *C. j. fuscens*. (Blume.)

*C. inermis* Lindl. in Wall. Pl. As. Rar. is a native of Singapore.

*C. chinensis* Spreng. is mentioned in our *Hortus Britannicus*.

**Genus IV.**


**Synonymes.** Carne, Charme, Fr.; Haynutsche, or Halabuche, Ger.; Carpinho, Ital.

**Derivation.** According to some, from *car*, wood, and *pix*, the head, Celtic; from the wood being used to make the yokes of oxen; and, according to others, from the Romans using the wood for making a sort of chariot, which they called *carpentum*, and which the Swedes still call *karm*. The French name, Charme, is evidently from the same origin. The English name of Hornbeam alludes to the horny texture of the wood; and the German one of Halabuche, to the use of the wood for making groves in the geometric style of gardening.

**Gen. Char., &c.** Male flowers. Catkin lateral, sessile, cylindrical. *Bracteas* imbricate. Flowers consisting of 12 or more stamens inserted at the base of a bractea. *Anthers* bearded at the tip, 1-celled.—Female flowers in lax terminal catkins. *Bracteas* of two kinds, outer and inner; outer bracteas entire, soon falling off; inner bracteas in pairs, each 3-lobed. *Calyx* clothing the ovary to near its tip, and adhering to it; toothed at the tip. *Style* very short. *Stigmas* 2, long, thread-shaped. *Fruit* not attended by the involucre; ovate, compressed, ribbed, clothed except at the base, and tipped with the adnate calyx; woody; including one seed. (G. Don.)

Leaves simple, alternate, extipulate, deciduous; feather-nerved, plaited in the bud. Flowers very small, greenish.—Trees, mostly of the middle size; natives of Europe, the Levant, and North America; little valued
either for their timber or ornamental effect; but one species valuable as a garden hedge plant. Common soil, and seeds or layers.

† 1. C. BE'TULUS L. The Birch, or common, Hornbeam.


Spec. Char., &c. Bracteas of the fruit flat, oblong, serrated, with two lateral lobes. (Smith.) A deciduous tree. Britain, and various parts of Europe, in magnitude and general character resembling the common beech. Height 30 ft. to 70 ft. Flowers yellowish; May. Nuts brown; ripe in October or November.

Varieties.

† C. B. 3 variegata Lodd. Cat. 1836.—Leaves variegated.

The hornbeam, being extremely patient of the knife, forms excellent hedges. The wood is very tough and horny, and the bark smooth and whitish, or light grey spotted with white; and on old trees it is generally covered with a brownish moss. The wood is white, hard, heavy, tenacious, and very close-grained; but it will not take a good polish. It weighs, when green, 64 lb.; half-dry, 57 lb.; and quite dry, 51 lb. It is very seldom used in construction; partly because it is seldom found of proper dimensions, and partly because, when the tree attains a large size, the wood is apt to become shaky, like that of the chestnut. As fuel, it surpasses the beech in the proportion of 1655 to 1540. For a nurse plant, and for hedges, it is particularly well adapted. It will succeed in any soil not too warm and dry. It is naturally found on cold.
hard, clayey soils, in exposed situations; but it attains its largest dimensions
on plains, in loams, or clays that are not too rich. On chalk it will not thrive, in
which respect it is directly the reverse of the beech. The seeds of the horn-
bean ripen in October; and they are produced freely in England, but seldom
in Scotland; the bunches, or cones, as they are called, which contain them,
should be gathered by hand, when the nuts are ready to drop out; or they
may be left on the tree till they drop; when, though a part of the seed will
have fallen out, there will, in all probability, be enough left for future use,
the tree being at present but very sparingly propagated in Europe. The nuts
separate readily from their envelopes; and, if they are sown immediately,
many of them will come up the following spring, and all of them the second
spring. If they are preserved in dry sand, or in their husks, and sown the
following spring, they will come up a year afterwards; the usual covering
is 3 in. The plants may remain in the seed-bed for two years; after which
they may be planted into nursery lines, and undergo the usual routine treat-
ment.


Engravings. Dend. Brit., t. 157; Michx. N. Amer. Syl., 3. t. 108; and our fig. 1714.
Spec. Char., &c. Bracteas of the fruit 3-partite; middle division oblique,
ovo-lanceolate, 1-toothed on one side. (Willd.) A low deciduous tree.
Nova Scotia to Florida. Height 12 to 15 feet, but sometimes from 25 ft.
to 30 ft. Introduced in 1812. Flowers and fruit like those of the
common hornbeam, and produced and ripened about the same time.

The American hornbeam is smaller than that of Europe, but in other
respects closely resembles it. Propagated by layers, and sometimes by
imported seeds.

† & 3. C. (B.) ORIENTA'lis Lam. The Oriental Hornbeam.

Synonyme. C. dulciscala Scop. Carn., t. 60.
Engravings. Scop. Carn., t. 60; Dend. Brit., t. 98; and our fig. 1715.
Spec. Char., &c. Bracteas of the fruit ovate, unequal at the base, undivided,
somewhat angular, unequally serrated. (Willd.) A low deciduous tree or
shrub. Asia Minor and the Levant. Height 10 ft. to 12 ft. Introduced
in 1739. Flowers and fruit closely resembling those of the common horn-
beam, and produced and ripened about the same time.
As it shoots out into numerous widely spreading, horizontal, irregular branches, it cannot be regularly trained up with a straight clear trunk. The leaves are much smaller than those of the common hornbeam, and the branches grow closer together; so that it is even still better adapted for forming a clipped hedge than that species. Very hardy, and easily propagated by layers.

Species or Varieties of Carpinus not yet introduced into European Gardens.

Carpinus (B.) Carpinum Host, Fl. Aust. 2. p. 626. — Leaves crenately serrated; scales of the strobiles revolute, 3-cleft; the middle segment the longest, and quite entire. A native of the woods of Transylvania. The Transylvanians distinguish this sort from C. Bétulus, and call it Carpinum.

Carpinus vinea Lindl., Wall. Pl. As. Rar. t. 106., Royle Illust. p. 341., and our fig. 1716., has the leaves ovate-lanceolate, much acuminate, doubly serrated; petioles and branchlets glabrous; bracteas fruit-bearing, ovate-oblong, lacinate at the base, somewhat entire at the apex, bluntish. (Lindl., in Wall.) A native of the mountains of Nepal, in Sirmore and Kamaon; and, according to Royle, on Mus-source, at the height of 6500 ft. above the level of the sea; flowering and fruiting from January to April. A fine tree, very like the common alder.

Carpinus lagina Lindl., Wall. Pl. As. Rar. 2. p. 5., has the leaves ovate-oblong, acute, sharply serrated, and glabrous; petioles and branchlets downy; bracteas fruit-bearing, somewhat rhomboid, with large teeth, acute, reticulated. It is nearly allied to C. orientalis, but differs in the form and margin of the leaf, and in the bracteas. (Wall. Pl. As. Rar., 2. p. 5.)

Genus V.


Synonyms. Carpinus Lin. and others; Hopfenbuche, Ger.; Ostrica, Ital.

Derivation. From ostrycos, a scale; in reference to the scaly catkins.

Gen. Clar., &c. Male flowers with the bracteas of the catkins simple, imbricate. Flowers of 12 or more stamens, inserted at the base of a bractea. Filaments branched, each branch bearing an anther. Anthers each of 1 cell. — Female flowers with the bracteas small, deciduous. Inte
terual scales in pairs, hairy at the base, a pair growing together at their opposed edges, and constituting an inflated covering to the opening. Calyx investing the whole ovary, and extended at the tip into a very short ciliate tube. Style short. Stigmas 2, long, thread-shaped. Fruit a small nut, ovate, bearded at the tip. The fruits of a catkin imbricately disposed into an ovate spike. (G. Don.)

Leaves simple, alternate, exstipulate, deciduous; feather-nerved, serrated. Flowers small, greenish white. — Trees deciduous, small, in general appearance like the hornbeam; natives of Europe and North America. Propagated by seeds or layers in common soil.
Í 1. O. vulgà'ris Willd. The Hop Hornbeam.


The hop hornbeam, in its general appearance, bark, branches, and foliage, bears a great resemblance to the common hornbeam; but is at once distin-

![Image of O. vulgà'ris](image)

![Image of O. vulgà'ris](image)

guished from it by its catkins of female flowers. These consist of blunt scales, or bracteal appendages, which are close, and regularly imbricated, so as to form a cylindrical strobile, very like the catkin of the female hop; whereas in the common hornbeam the bracteas are open and spreading. The tree has a very handsome appearance when in fruit; and, in favourable situations, it will attain nearly as large a size as the common hornbeam. It is commonly grafted on the common hornbeam; but, as the growth of the former is more rapid than that of the latter, unless the graft is made immediately above the collar, the trunk of the scion becomes too large for that of the stock, and the tree is liable to be blown down, or broken over by the wind. Propagating by layers, or by seeds, is therefore a preferable mode.

Í 2. O. (?) virgi'nica Willd. The Virginian Hop Hornbeam.


Engravings. Abb. Ins., 2. t. 75.; Pluk. Alm., t. 156. f. 1.; and our figs. 1718, 1719.

Florida. Height 15 ft. to 40 ft. Introduced in 1692. Flowers and fruit as in the preceding species.

The Virginian hop hornbeam, or iron wood, generally forms a tree about 30 ft. high, growing more rapidly than O. vulgāris, and differing from that species, according to Willdenow and Pursh, chiefly in the position of its female catkins, which are upright, instead of being pendulous. The tree, according to Michaux, is easily known, in winter, by its smooth greyish bark, which is finely divided, and detached in strips of not more than a line in breadth. In British gardens the tree bears a close resemblance to the European hop hornbeam.

Genus VI.


Gen. Char., &c. Male flowers in cylindrical catkins. Bracteas sessile, imbricate. Perigonal scales two, cohering at the base, and adnate to the under surface of the bracteal scale. Stamens 8, inserted upon the perigonal scales towards their base. Anthers bearded at the tip. — Female flowers in a bud-like catkin, which is developed into a branchlet. Bracteal scale ovate, entire. Calyx not obvious, formed of a slightly villous membrane. Stigmas 2, long, thread-shaped. Fruit an ovate nut. (G. Don.)

Leaves simple, alternate, estipulate, deciduous; entire, feather-veined. Flowers whitish in the male, and red in the female, protruded before the leaves. — Low trees and large shrubs, deciduous; natives of Europe and North America; thriving only in good soil, rather dry than moist.

C. AVELLANA L. The common Hazel nut.

Spec. Char., &c. Stipules oblong-obtuse. Leaves roundish, cordate, pointed. Involucre of the fruit campanulate, rather spreading, torn at the margin. (Willd.) A deciduous shrub or low tree. Europe and the east and west of Asia. Height 20 ft. and upwards; but commonly found in the character of a bush, as undergrowth in woods, especially of the oak. Male flowers greyish; February: female flowers crimson; April. Nut brown; ripe in October.

Varieties. These are numerous; and they may be divided into two classes; viz., botanical or ornamental varieties, and those cultivated for their fruit.
A. Botanical Varieties.

C. A. 1 sybæstris Ait. C. Avellana Svensk., Eng. Bot. t. 723; C. sybæstris Bauh. Pin. 418., and our fig. 1720. — The common hazel nut, in a wild state.

C. A. 2 pumila. C. pumila Lodd. Cat. ed. 1836. — Rather dwarfer than the species.

C. A. 3 heterophyila. C. heterophyila Lodd. Cat. ed. 1836; C. laciniata Hort.; C. urticifolia Hort.; the various, or Nettle, leaved Hazel. (Our fig. 1721.) — The leaves variously cut, and thickly covered with hairs.

C. A. 4 purpæra. C. purpæra Lodd. Cat. ed. 1836; C. àtropurpæra Hort. — The leaves of a dark red or purple. A very striking variety. If grafted standard high on C. Colurna this would make a most singular and beautiful small tree. Grafted on the common hazel, it imparts its colour to the leaves of the stock.

B. Varieties cultivated for their Fruit.

The cultivated hazels are of two kinds; viz. nuts and filberts. The former are distinguished by the shortness of their calyces, or husks, and the latter by their length; but, in consequence of the numerous crosses between these two classes of varieties, the distinction can scarcely now be kept up. The term filbert is supposed, according to some, to be a corruption of full beard, alluding to the husk.

In the Horticultural Society's Catalogue of Fruits, 31 sorts of nuts and filberts are enumerated; but the kinds best deserving of culture for their fruit, and also as ornamental shrubs or low trees, are considered by Mr Thompson to be only the five following:

C. A. 5 tubulosa. C. tubulosa Willd. Abbild. t. 152., and our fig. 1723.; C. maxima Mill. Dict.; C. sativa Bauh.; C. s. rubra Ait.; red Filbert, Hort. Soc. Cat. No. 18; Langbartnuss, or Lambertsnuss, Ger.; Noisetier franc à fruit rouge, Poit. et Turp. Arb. Fruit. 11. — Long tubular calyx, contracting so much beyond the apex of the fruit, as to prevent its falling out.

C. A. 6 tubulosa álba. C. sativa álba Ait.; C. A. álba Lodd. Cat. ed. 1836; white Filbert, Hort. Soc. Cat. No. 19; weisse Langbartnuss, Ger. — Only differs from the preceding variety in having the pellicle of its kernel white.
C. A. 7 crispa Encyc, of Plants ; the frizzled Filbert, Pom. Mag. t. 70., Hort. Soc. Cat. No. 16. (Our

fig. 1722.) — A most remarkable variety, and well deserving of cultivation as an ornamental shrub, from the singular appearance it presents in its greatly laminated calyx.


The hazel grows best upon what is called a hazel mould, that is to say, a reddish brown calcareous loam; but it will grow on any soil, from a chalk or gravel, to a cold and wet clay: the rods are durable in proportion to the dryness of the ground on which the hazel grows, and they are particularly good where the bottom is chalk. The situation most favourable is on the sides of hills, for it will not thrive in a soil where water is stagnant: though, like all trees and shrubs that grow in dense masses, it requires a great deal of moisture; and, indeed, it will always keep the ground moist under it by the denseness of its shade. The species is propagated by nuts, and the varieties by layers. The nuts may be dried in the sun and preserved in a dry loft, covered with straw, or in sand, till the following February; when they may be sown, and treated in the same manner as mast or chestnuts.

2. C. Colu'rna L. The Constantinople Hazel.


Spec. Char., &c. Stipules lanceolate, acuminate. Leaves roundish ovate, cordate. Involute of the fruit double, the exterior many-partite, the interior 3-partite; divisions palmate. (Willd.) A deciduous tree. Turkey and Asia Minor. Height 50 ft. to 60 ft. Introduced in 1665. Flowers and fruit as in the common hazel, but longer and larger.

Varieties.

† C. C. 3 arboréscens Fisch. (Our fig. 1724.)—Differs from the species, chiefly in the calyx of the nut being cut into shreds.

The branches spread out nearly horizontally; the leaves are more angular, and softer, than those of the common hazel; and the stipules are linear. The nuts are small, round, almost covered with the calyx, which is double, and deeply laciniated, or fringed, with the points recurved. The tree grows rapidly, and with great vigour, having produced shoots, in the climate of Paris, 6 ft.
long in one year; and sometimes nearly as much in the climate of London. It will grow in almost any soil, but does best in one similar to that adapted for the common hazel. It is easily propagated by seed, grafts, or layers. Grafting on the common hazel is, however, the most general way, as the nut often proves abortive.

3. *C. rostrata* Ait. The beaked, American, or Cuckold, Hazel.


**Engravings.** Our fig. 1727. from a specimen in the British Museum gathered in autumn, and showing the male catkins beginning to develop themselves.

**Spec. Char., &c.** Stipules linear-lanceolate. Leaves ovate-oblong, acuminate. Involucre of the fruit tubular, campanulate, larger than the nut, 2-parted; divisions inciso-dentate. (*Willd.*) A bushy deciduous shrub. Canada to Carolina, on mountains. Height 4 ft. to 5 ft. Introduced in 1745. Flowers and fruit as in the common hazel.

Resembling the common European hazel, but distinguished from it by its fruit being covered with the calyx, which is prolonged in the form of a long very hairy beak; and hence the name.


**Synonymes.** C. americana humulis Wang. Amer. 88. t. 29. f. 63.; Dwarf Cuckold Nut, wild Filbert. Amer.

**Engravings.** Wang. Amer., 88. t. 29. f. 63.; and our fig. 1728.

**Spec. Char., &c.** Leaves roundish, cordate, acuminate. Involucre of the fruit roundish, campanulate, longer than the nut; limb spreading, dentately serrated. (*Willd.*) A deciduous shrub. Canada to Florida, in low shady woods. Height 4 ft. to 8 ft. Introduced in 1798. Flowers and fruit as in the common hazel.

It differs from *C. rostrata* about as much as the filbert from the European hazel. The calyx is larger than the included nut, the flavour of the kernel of which is said to be very fine.

*C. ferox* Wall. Pl. As. Rar. t. 87., and our fig. 1729., in which a is the nut with its deeply laciniated calyx; b, the nut; c, the kernel; and d, a longitudinal section of the nut, with the kernel enclosed. The leaves are oblong, and much pointed. Stipules linear-lanceolate. Nut compressed, and half the length of the villous, 2-parted, ragged, and spinous involucre. (*Wall.*) A deciduous tree, 20 ft. high, with a trunk sometimes 2 ft. in circumference, and somewhat glabrous ash-coloured bark.
Nepal, on the mountain Sheopur. Flowering in September, and bearing fruit in December and January.

---

**Order LXXI. Garryaceæ.**

**Ord. Char.** Flowers unisexual; those of the two sexes upon distinct plants. — Male. Flowers in pendulous catkin-like racemes, within connate bracteas. Calyx 4-leaved. Stamens 4. — Female? Flowers in pendulous catkin-like racemes, within connate bracteas. Calyx connate with the ovary, 2-toothed. Ovary 1-celled. Styles 2, setaceous. Ovules 2, pendulous, with funiculi as long as themselves. Fruit a berried pericarp, not opening, containing 2 seeds. Embryo very minute, in the base of a great mass of fleshy albumen. (G. Don.)

Leaves simple, opposite, exstipulate, evergreen; serrated or entire. — Flowers in long pendulous catkins. Wood without distinct concentric zones. — Shrubs evergreen; natives of California and Mexico.

**Genus I.**


**Identification.** Lindl. in Bot. Reg., t. 1686.

**Derivation.** Named by Mr. Douglas in compliment to Nicholas Garry, Esq., Secretary to the Hudson's Bay Company, to whose kindness and assistance he was much indebted during his travels in North-west America.

**Gen. Char.** See Ord. Char.

Only two species have been introduced, which are very ornamental, grow in loamy soil, and are propagated by layers.

1. **G. elliptica** Doug. The elliptic-leaved Garrya.

**Identification.** Bot. Reg., t. 1686.

**Engravings.** Bot. Reg., t. 1686.; and our fig. 1750.

**Spec. Char. &c.** Branches, when young, pubescent and purplish; when older, smooth and greyish. Leaves opposite, exstipulate, wavy, on short footstalks, oblong-acute, leathery, evergreen; dark green and shining above; hoary beneath, with simple, twisted, interwoven hairs. (Lindl.) An evergreen shrub. North Carolina. Height 3 ft. to 4 ft. in America; in England, 8 ft. to 10 ft. Introduced in 1828. Flowers greenish white, or yellowish; November to February.

Only the male plant is in the country. When in flower this shrub has a most striking and graceful appearance, from its slender pendulous catkins, many of which are from 8 in. to 1 ft. in length. It was at first grown in peat, but appears to prefer a loamy soil. It is readily increased by layers, and by cuttings in sand under a hand-glass. In British gardens it is about as hardy as the common laurustinus.

2. **G. laurifolia** Hartw. The Laurel-leaved Garrya.


**Engravings.** Our fig. 1751. from a specimen in the Lambertian herbarium.

**Spec. Char. &c.** Leaves elliptic oblong, very entire, or minutely dentate.
Flowers in both sexes solitary, opposite, sessile; one seated in every bract, and shorter. (Benth.) An evergreen shrub, or low tree. Mexico, on mountains. Height 15 ft. to 18 ft., and in some places with a trunk 2 ft. in diameter. Introduced in 1839. Only one plant of this very desirable evergreen has been raised in the Horticultural Society's Garden.

Other Species of 

Ord. Char. Flowers unisexual, collected into globose or oblong catkins of different sexes, involucrated or naked.—Male flower having the perianth composed of numerous small linear pieces, intermixed with the stamen.—Female flower with the scales absent, or intermixed with the flowers; perianth adhering to the ovary, cup-shaped, or ending in small pilose bristles. Carpels 1 or 2, 1-celled, horned at apex, coriaceous. Seeds solitary in the cells, pendulous. Albumen none. (G. Don.)

Leaves simple, alternate, stipulate, deciduous; palmate. Flowers in globose catkins. —Lofty deciduous trees, with widely spreading branches, dense foliage, and bark scaling off in hard irregular patches. Natives of the East of Europe, West of Asia, and North of Africa, and of North America. In Britain, they are chiefly planted for ornament, and they succeed in any free moist soil, in a sheltered situation. They are readily propagated by layers, or even by cuttings, and sometimes by seeds. The cause of the scaling and falling off of the bark, Dr. Lindley states to be the rigidity of its tissue; on account of which it is incapable of stretching as the wood beneath it increases in diameter.

Genus I.


Synonyme. Platane, Fr.; Platanus, Ger.; Platano, Ital.

Derivation. From platys, ample; in allusion to its spreading branches and shady foliage. The name of plane tree is applied, in Scotland, to the Aër Pseudo-Platanus (see p. 414); probably because the French, according to Parkinson, first called that the plane tree, from the mistake of Tragus, who fancied, from the breadth of its leaves, that it was the plane tree of the ancients.


There are only two species introduced into Europe; one of which, P. orientalis, is found to be much harder than P. occidentalis, though the latter
grows more rapidly, attains a larger size, and may be propagated much more readily by cuttings. Both species ripen seeds in Britain, in fine seasons. *P. occidentalis* is readily known from *P. orientalis*, in the winter season, by its bark scaling oft' much less freely, or, in young or middle-sized trees, scarcely at all; and, in the summer season, by its leaves having red petioles, and being but slightly lobed (fig. 1732. *a*), instead of being palmate like those of *P. orientalis* (fig. 1732. *b*), which have green petioles, and by its globular catkins being nearly smooth, while those of *P. orientalis* are rough.

**1. *P. orientalis* L. The Oriental Plane.**


*Engravings.* Du Ham. Arb., t. 33.; N. Du Ham., 2. t. 1.; Dend. Brit., t. 101.; the plates of this species in Arb. Brit., 1st edit., vol. viii. and var.; and our fig. 1736. In fig. 1735. *a* shows the female catkins transversely cut, so as to display the position of the flowers on the orbicular receptacle; *b* shows a section of the female catkin in seed; *c*, a scale and pistil; *d*, stamen and scale; *e*, the longitudinal section of a seed; and *f*, an entire seed.

*Spec. Char., &c.* Leaves 5-lobed, palmate, wedge-shaped at the base, the divisions lanceolate, sinuated. Stipules nearly entire. (Willd.) A large, deciduous tree. The Levant. Height 60 ft. to 80 ft.; with a wide-spreading head. In British gardens before 1548. Flowers greenish yellow; April, May. Fruit brown; ripe in October; persistent great part of the winter.

*Varieties.*


1732. *P. occidentalis.*

1733. *P. o. acerifolia.*
P. o. 3 hispánica. *P. hispánica* Lodd. *Cat.* ed. 1836; *P. macrophylla* Cree in *Don. Cat.*; the Spanish Maple.—Leaves rather longer than those of the species, but it is in other respects the same.

P. o. 4 cuneáta. *P. o. undulata* Ait. *Hort. Kew.* iii. p. 364; *P. cuneáta* Willd. *Sp. Pl.* iv. p. 473. (The plate of this tree in *Arb. Brit.*, 1st edit., vol. viii; and our fig. 1734.)—Leaves 3—5-lobed, dentate, and wedge-shaped at the base; somewhat glabrous. This is a stunted-looking low tree or bush, seldom seen above 20 ft. in height, with small deeply cut leaves.

The oriental plane is one of the noblest trees of the East, where it grows to the height of 70 ft. and upwards, with widely spreading branches and a massive trunk; forming altogether a majestic tree. The wood may be compared to that of the *Acer Pseúdo-Platanus*; but very little use is made of it in the West of Europe. Pliny affirms that there is no tree whatsoever that defends us so well from the heat of the sun in summer, or that admits it more kindly in winter. Both properties result from the large size of its leaves: in summer, these present horizontal imbricated masses, which, while they are favourable to the passage of the breeze, yet exclude both the sun and the rain; while, as the distance at which the branches and twigs of trees are from one another is always proportionate to the size of the leaves, hence the tree in winter is more than usually open to the sun's rays. As an ornamental tree, no one
which attains so large a size has a finer appearance, standing singly, or in small groups, upon a lawn, where there is room to allow its lowest branches, which stretch themselves horizontally to a considerable distance, to bend gracefully towards the ground, and turn up at their extremities. The peculiar characteristic of the tree, indeed, is the combination which it presents of majesty and gracefulness; an expression which is produced by the massive, and yet open and varied character of its head, the bending of its branches, and their feathering to the ground. In this respect, it is greatly superior to the lime tree, which comes nearest to it in the general character of the head; but which forms a much more compact and lumpish mass of foliage in summer; and, in winter, is so crowded with branches and spray, as to prevent, in a great measure, the sun from penetrating through them. The head of the plane tree, during sunshine, often abounds in what painters call flickering lights; the consequence of the branches of the head separating themselves into what may be called horizontal undulating strata, or, as it is called in artistical phraseology, horizontal tufting, easily put in motion by the wind, and through openings in which the rays of the sun penetrate, and strike on the foliage below. The tree, from its mild and gentle expression, its usefulness for shade in summer, and for admitting the sun in winter, is peculiarly adapted for pleasure-grounds, and, where there is room, for planting near houses and buildings. For the latter purpose, it is particularly well adapted even in winter, from the colour of the bark of the trunk, which has a greyish white tint, not unlike the hue of some kinds of freestone. The colour of the foliage, in dry soil, is also of a dull greyish green; which, receiving the light in numerous horizontal tuftings, readily harmonises with the tint of stone walls. It appears, also, not to be much injured by smoke, since there are trees of it of very considerable size in the very heart of London.

A light deep free soil, moist, but not wet at bottom, is that on which the Oriental plane tree thrives best; and the situation should be sheltered, but, at the same time, not shaded or crowded by other trees. It will scarcely grow in strong clays, and on elevated exposed places; nor will it thrive in places where the lime tree does not prosper. The plane tree may be propagated by seeds, layers, or cuttings. The seeds should be gathered in October or November; and, the balls being broken by the hand, or by threshing with a flail, the seeds may be separated from their husks, and cleaned by the usual processes; and either sown immediately, or mixed with sand or fine sandy soil, and preserved in a place secure from frost till February or March.
seeds may also be kept in the barn, or catkins, till spring; either by allowing
them to hang on the tree, or by gathering them in autumn, and spreading
them out in a dry loft. The general practice is to sow the seeds in autumn;
or as soon as gathered, or received from the Continent; choosing a moist
rich soil, and a shady situation, and covering them as lightly as those of the
birch or alder are covered, or beating them in with the back of the spade, and
not covering them at all; and protecting the beds with litter of some sort, to
exclude the frost. The plants will come up the following spring.

**2. P. occidentalis L. The Western Plane.**


**Synonymy.** P. occidentalis seu virginianus Park. Theatric. 1427., Du Ham. Arb. t. 35.; Button-
wood, Water Beech, Sycamore, Cotton Tree, Amer.; Platane de Virginie, Fr.

**Description.** Button-wood refers to the smooth round heads of flowers, which resemble the globular
buds formerly in use, and still seen in some military costumes; Sycamore to the resemblance of
the leaves to those of that tree; and Cotton Tree to the down detached in the course of the summer
from the leaves.

**Engravings.** Ded. Brit., t. 100.; Michx., N. Amer. Syl. 6. t. 63.; the plate of this species in Arb.
Brit., 1st edit., vol. viii.; and our fig. 1737. In fig. 1737, a represents a transverse section of the
female catkin in flower; b, the same in fruit; c, the female flower and scale; d, the stamen and
scale; e, the longitudinal section of a seed; and f, an entire seed.

**Spec. Char., &c.** Leaves 5-angled, oblongely lobed, dentate, wedge-shaped
at the base; downy beneath. (Willd.) A large deciduous tree. Atlantic
and Western States. Height 70 or 80 feet; with a widely spreading head.
Introduced in 1636. Flowers greenish; May. Fruit brownish; ripe in
October and November.

The American, or Western, plane is of much more rapid and upright growth
than the Oriental plane; with broader and less deeply cut leaves, red petioles,
and fruit comparatively smooth, and considerably larger. The bark is said to
scale off in larger pieces, and the wood to be more curiously veined. In all
other respects, the descriptive particulars of both trees are the same.

The rate of growth of *P. occidentalis*, when placed near water, is so rapid,
that in 10 years it will attain the height of 40 ft.; and a tree in the
Palace Garden at Lambeth, near a pond, in 20 years had attained the
height of 80 ft.; with a trunk 8 ft. in circumference at 3 ft. from the ground;
and the diameter of the head 48 ft. This was in 1817. In May, 1837,
we had the portrait of this tree taken, which will be found in Arb. Brit.,
1st edit., p. 2044, when it was upwards of 100 ft. in height. Uses, culture, soil, &c., as in *P. orientalis*, with this
difference: that cuttings root much more readily; that the tree, to attain a
very large size, requires a moister soil, or to be placed near water; that it is
less hardy, and also less ornamental, though, from being more readily pro-
pagated, it is much more frequently planted.

---

**Order LXXXIII. BALSAMACEÆ.**

**Card. Char.** Flowers unisexual, in different catkins on the same plant. —
Male catkins in an upright raceme. Stamens numerous, mixed with scales,
on a conuate receptacle. — Female catkins solitary, below the male ones,
globose, on longer stalks. Ovaria many, 2-celled, each surrounded by a few
scales. Styles two. Fruit a kind of cone, composed of indurated connected
scales, in the cavities of which lie the capsules, which are 2-lobed. Seeds

302
numerous, or solitary by abortion; compressed, membranous, winged. Albunea present. (G. Don.)

Leaves simple, alternate, stipulate, deciduous; lobed, with glandular serratures at the edges. Flowers in catkins, greenish yellow. Fruit in globular capsules, brown.—Trees, natives of Asia and North America, with beautiful foliage, and intense fragrance. Decaying leaves of an intense purple. Common soil, kept somewhat moist; and seeds or layers.

**Genus I.**


*Synonymes.* Altingia Noronh.; Liquidambar, Fr.; Ambarbaum, Ger.

*Derivation.* From liquidus, liquid, and ambar, amber; the plants exuding a liquid gum.

**1. L. STYRACIFLUA L.** The Sweet-Gum Liquidambar.


*Spec. Char., &c.* Leaves palmately lobed, with the sinuses at the base of the veins villose. (Willd.) A deciduous tree. North America, middle, western, and southern States. Height 30 ft. to 50 ft. Introduced in 1681. Flowers greenish yellow; March and April. Fruit brown; ripe in October.

The liquidambar generally forms a branching tree, having very much the appearance of a maple. The leaves die off of an intensely deep purplish red, more or less mixed with orange, and with some leaves entirely of that colour. They hang on the trees till the first frosts, when they drop off simultaneously.

The rate of growth of this tree, in the climate of London, is from 8 ft. to 10 ft. in 10 years from the seed; and in 20 years it will attain the height of 25 or 30 feet, and flower and ripen fruit. In Britain, the principal use of this tree is as an ornament to lawns and pleasure-grounds; in which it has a most striking appearance, when the leaves are dying off in autumn; and it is also very beautiful throughout the summer, from the dark green and glossy surface of its elegantly shaped leaves. When bruised, the leaves are fragrant at all seasons; but in spring, when they are first unfolding, after a warm shower, the surrounding air is filled with their refreshing odour. The liquidambar has a decided preference for a moist soil, and will only attain a timber-like size in a sheltered situation. In British nurseries, it is generally propagated by layers, which root with tolerable facility, and may be taken off at the end of the first autumn after they have been formed. It is also propagated by seeds imported from America. These are brought over in the catkins, and should not be taken out of them till the time of sowing; because the seeds, like those of the pine and fir tribe, do not keep well when exposed to the air. The round
prickly catkins which contain the seeds are hard, and not readily broken with the hand; but, by exposure to the sun or to fire heat, they crack and open, and the seeds may then be easily shaken out. They may be sown and treated like seeds of the pine and fir tribe; but, unlike them, they lie a year in the ground before coming up. Seedlings generally attain the height of from 5 in. to 8 ft. in the first year, with numerous fibrous roots. They may either be transplanted that year or the next, and may afterwards undergo the usual routine culture in nursery lines, till they are wanted for final transplanting.

2. L. Imber'be Willd. The beardless, or Oriental, Liquidambar.


Engravings. Pocock. Itin., 2. t. 89.; and our fig. 1739.

Spec. Char., &c. Leaves palmate-lobed, with the sinuses at the base of the veins; smooth. (Willd.) A low stunted tree, or large bush, of slow growth, with numerous small branches crowded together into an irregular head. Levant. Height 10 ft. to 20 ft. Introduced in 1759. Flowers ?.

The young shoots are pliant and reddish; the leaves are much like those of the preceding species, but smaller, and more resembling those of the common maple; because they are bluntly notched, while the others are acutely so. (See fig. 1740., in which a is a leaf of L. Styraciflua, and b one of L. imberbe, both to the same scale.) The veins of the leaves, in this species, are naked, while in the other they are hairy at the base of the midrib. The flowers are disposed like those in the preceding species, and the fruit is smaller, and more sparingly furnished with prickly points. The rate of growth, in the climate of London, is slow, being not more than 5 or 6 feet in ten years. It will grow in a soil rather drier than suits the preceding species; though Du Hamel was informed that in its native country it grows in moist soil, by water, like the common willow.

found very plentifully in the provinces of Bantam and Buitenzorg in Batavia, at an elevation of from 2000 ft. to 3000 ft.; but in the East of Java it is very rare, if not totally wanting. Noronha first described this tree in the Act. Soc. Batav.; but he had not the least suspicion that it belonged to the genus Liquidambar Linn. Sprengel imagined that this tree was the same as our Araucaria excelsa; an error which was detected by the description and figure of Blume, as given above.

---

**Order LXXIV. MYRICA'CEÆ.**

*Ord. Char.* Flowers disposed in unisexual catkins, each scale having a flower in its axil.—Male flowers having the perianth composed of 2 scale-formed pieces, four free stamens.—Female flowers with the perianth enlarging after florescence, each composed of 3—6 small scales. Ovarium simple, free. Stigmas 2, filiform. Drupe globose, dryish when ripe, containing a bony valveless nut. *Albomen* none or fleshy. (*G. Don.*)

Leaves simple, alternate, exstipulate, deciduous or evergreen; entire or pinnatifidly toothed.—Shrubs; natives of Europe, Asia, and North and South America. The genera in British gardens are two, which are thus contradistinguished:

*MYRICA*. Flowers dioecious. Fruit resembling a berry.

*COMPTONIA*. Flowers monoecious. Fruit hard, shining.

**Genus I.**

**MYRICA L.** The Candleberry Myrtle. *Lin Syst. Dicēcia*

*Tetrándria.*


*Synonyms.* Gale, Fr.; Wachsmuth, Ger.; Mirica, Itel.

*Derivation.* From myrē, to flow; the plants being found on the banks of rivers.

*Gen. Char.* &c. Male flowers in cylindrical sessile catkins. Each flower consists of 4, rarely more, stamens; these are inserted at the base of a bractea. Bracteas extending beyond the stamens, loosely imbricating.—Female flowers in ovate sessile catkins, with closely imbricate bracteas; one bractea attends 2 flowers. Each flower consists of a calyx of 2—4 very minute scales; an ovary, to which the scales adhere; a short style; and two long thread-shaped stigmas. Carpel involucrated by the adherent, more or less fleshy, enlarged calyx, and so more or less resembling a berry. (*G. Don.*)

Leaves simple, alternate, stipulate, deciduous or evergreen; more or less serrated; besprinkled with resinous dots, as are the scales of the buds and the surface of the fruit, which yield, when rubbed, an aromatic odour. Flowers in axillary catkins, greenish white, expanding early in the year.—Shrubs, natives of Europe and North America. They are of low growth, and generally require a moist peaty soil, in which they are propagated by layers, suckers, or by division of the plant. The American species is sometimes propagated by seeds, which should be sown in autumn, as soon after they are received from America as possible; for, if kept out of the ground till spring, they will not come up till the spring following.

1. **M. GALE L.** The Sweet Gale Candleberry Myrtle, Sweet Willow, or Dutch Myrtle.

LXXIV. Myricaæae: Myrica.

935


The Scææ. Both are in the arborætum of Messrs. Loddiges.

Spec. Char., &c. Leaves lanceolate, serrated; tapering and entire at the base.

Scales of the catkins pointed. (Smith.) A deciduous aromatic shrub. Europe, from Norway to Lombardy, the North of Asia, and in great part of North America, and always in boggy soil. Height 2 ft. to 4 ft. Flowers brownish green; February and March.

The catkins are numerous and sessile; they are formed in the course of the summer's growth, and remain on during the winter, expanding the following spring, before the leaves. The flower buds are above the leaf buds, at the end of the branches; whence, as soon as the fructification is completed, the end of the branch dies, the leaf buds which are on the sides shoot out, and the stems become compound. The scales of the male catkins are of a red shining brown; and the lower ones of the female catkins have a circle of red hairs towards the tip. The berries are very small, and covered with resinous dots, like the leaves. The plant is common in bogs. The gale is the badge of the Highland clan Campbell. A variety with larger leaves, &c., is mentioned by Mirbel, and a figure of it given in the + Mém. Mus., 14. p. 474. t. 28., of which our fig. 1743 is a reduced copy.

§ 2. M. cerifera L. The common Wax-bearing, or American, Candleberry Myrtle.


Engravings. Pluk. Alm., t. 48. f. 5.; Cat. Car., l. t. 69.

The Scææ. Only the male is in the Huckney Arboretum; but, as seeds are annually imported from America, the female is doubtless in the country in many places.

Spec. Char., &c. Leaves lanceolate, pointed, serrated, flat, somewhat shining. (Lam.) A large evergreen shrub. Canada to Carolina, in moist soil. Height 5 ft. to 12 ft. Introduced in 1699. Flowers reddish green; May or June. Fruit white; ripe in October.

Variety

* M. c. 2 latifolia Ait. M. c. média Michx.; M. carolinensis Wild., Pursh Fl. Amer. Sept. ii. p. 620.; M. pennsylvânicâ Lam., N. Du Ham. ii. p. 190. t. 55., and our fig. 1744.; M. c. sempervirens Hort.; Myrtus brabantica Cat. Car. i. t. 13.; Cérier de Pennsylvanie, Fr.; Carolinischer Wachstrauh, Ger.; the broad-leaved American Candleberry Myrtle. —

This variety has the leaves broader than those of the species, and an arborescent stem. According to the Nouveau Du Hamel, it is harder than M. cerifera. Cultivated in England before 1730.

Its general appearance and habits closely resemble those of the European species; the leaves are, however, larger, and more serrated; they are evergreen, and in M. c. latifolia greatly resemble those of the sweet bay. The
male catkins are axillary and sessile; but have not the shining scales of the *Myrica Gale*. The fruits are globose drupes, about the bigness of a grain of black pepper; covered with an unctuous substance as white as snow, which gives them the appearance of a kind of sugar plum. Like the *Myrica Gale* of Europe, it delights in wet places about swamps or rivers. In France and Germany, it has been cultivated with a view to its producing wax; and it is said to thrive in sandy peat, rather moist, and to produce an abundant crop of berries every year. In Prussia, it has been cultivated in a garden on the banks of the Spree, near Berlin, in lat. 52° 53'; which is nearly 1½ degree farther north than London, but where the mean annual temperature is 2° 9' higher than London; and wax and candles have been made from the fruit.


**Genus II.**


**Derivation.** Named by Dr. Solander in honour of Henry Compton, Bishop of London, the introducer and cultivator of many curious exotic plants, and one of the greatest patrons of botany and gardening of his time.

**Gen, Char.** Male catkins lateral, cylindrical, of several flowers. *Bracteas* imbricated. *Flower* of 3 twin stamens, seated towards the base of a bractea; sessile. *Anthers* 2-lobed, opening at the side.—Female catkins lateral, ovate, of several flowers. *Bracteas* imbricated. *Flower* consisting of a calyx and pistil. *Calyx* free, flat, 6-parted. *Segments* slender, unequal in length; the longest as long again as the bractea. *Style* short. *Stigmas* 2. *Fruit* 1-celled, ovate, hard, shining, attended by the calyx. *Seed* 1, oval. (G. Don.)

Leaves simple, alternate, exstipulate, deciduous; lanceolate, pinnatifidy toothed, downy, sprinkled with golden, resinous, transparent particles. *Flowers* whitish.—shrubs dwarfish; natives of North America; fragrant, from the resinous particles which cover the whole plant. Culture and soil as in *Myrica*.

1. **C. ASPLENIFOLIA** Solan. The Asplenium-leaved Comptonia.


**Engravings.** N. Du Ham., t. 11.; Dend. Brit., t. 165.; and our fig. 1746.

**Spec. Char., &c.** Leaves long, linear, alternate, cre-nately pinnatifid. (Willd.) A deciduous shrub. New England to Virginia, in sandy, stony, or slaty woods.
Height 3 ft. to 4 ft. Introduced in 1714. Flowers, in sessile catkins, brownish; March and April.

The young branches are downy. Leaves alternate, oblong, linear; cut on each side into rounded and numerous lobes, like those of the ceterach; and sprinkled with shining dots, like those of the gales. This shrub is very hardy, but it requires peat earth and a shady situation. Propagated by layers, suckers, or seeds. The first and second methods are the most common, as good seeds can rarely be procured.

---

**Order LXXV. Gnetaceae.**

**Ord. Char.** Flowers unisexual, disposed in aments, which are involucrated by opposite or decussate connate scales. — Male flower with a 1-leaved perianth, which is transversely cleft at apex, and branched into 1- or many-anthered filaments; cells of anthers separate or combined, each opening by a pore at apex.—Female flower composed of 2 connate scales. Ovarium 1-celled, perforated at apex. Ovulum solitary. Fruit indehiscent, drupaceous. Albumen fleshy. (G. Don.)

Leaves simple, opposite, exstipulate, caducous; linear, and scale-like. Flowers in terminal catkins. — Shrubs evergreen, from the colour of the bark, with tubular jointed stems and branches. Natives of Europe, Asia, and Africa. Cultivated in sandy soil; and propagated by division.

**Genus I.**

**Ephedra L. The Ephedra. Lin. Syst. Diec'cia Monadélphia.**


**Derivation.** From ephedra, the Greek name for the Hippûris, or Horsetail, which it resembles.

**Gen. Char.** See Ord. Char.

Low shrubs; evergreen, from the colour of the bark of their branches, and in that respect resembling the genera Casuaria and Equisètum. They are natives of the South of Europe, Barbary, and Siberia, on the sea-shore, or in saline or sandy wastes; and they have been but little subjected to cultivation. According to Du Hamel, they bear the shears well, and form beautiful round balls, which may either be made to appear as if lying on the ground, or may be supported on a short stem. The lower sorts, Du Hamel continues, may be clipped to resemble turf; and for that purpose the plant may be valuable, in some parts of Australia and Africa, to form lawns which shall create an allusion to temperate climates. The saving by using such plants as Ephedra, which would require little or no watering, instead of a great deal, as the European grasses do in such a climate, would be very considerable.

**n. 1. E. Distachya L. The two-spiked Ephedra, Great shrubby Horse-tail, or Sea Grape.**


**The Species.** Both are figured in Tabernamentanus, in Clusius, and in Richard.

**Engravings.** Du Ham., t. 1. pl. 92.; Rich. Mém. Conif., t. 4. f. 1.; and our figs. 1747. and 1748. of the natural size.

**Spec. Char., &c.** Peduncles opposite. Catkins twin. (Lin.) A small ever-
green shrub, with numerous cylindrical wand-like branches, articulated, and furnished at each articulation with two small linear leaves. South of France and Spain, in sandy soils on the seashore. Height 3 ft. to 4 ft. Introduced in 1750. Flowers whitish; June and July. Berries red; ripe in August.

As far as we have observed, justice has never been done to this, or any other species of Ephedra, in British gardens. The fruit becomes succulent, like that of the mulberry, with a slightly acid and yet sugary and agreeable taste, and might be cultivated for the dessert.

n. 2. E. monostachya L. The one-spiked Ephedra, or Small shrubby Horsetail.


Synonimies. E. polygonoides Pall. Ross.; Ephèdre mineure, Ephèdre de Sibérie, Fr.
The Species. There are male plants at Messrs. Loddiges's.

Engravings. Dead. Brit., t. 142; and our figs. 1749 and 1750 of the male plant.

Spec. Char., &c. Peduncles many. Catkins solitary. (Lin.) An evergreen shrub, much smaller, and harder than E. distachya. Siberia, near salt springs, and in saline wastes; and, according to Pallas, common in the southern parts of Russia, from the Don and the Volga to the Leira; Persia and India. Height 1 ft. to 2 ft. Introduced in 1772. Flowers whitish; June to July. Berries red; ripe in August and September.

The Kergisi use the ashes of the wood of the Ephedra for snuff.

Order LXXVI. Taxaceæ.

Ord Char. Floral buds consisting of numerous imbricate scales. Flowers dioecious.—Male flowers disposed in catkins, each consisting of a scale, and a 2- or many-celled anther, the cells dehiscing longitudinally.—Female flowers solitary, naked or bracteate. Nut, or seed, solitary, surrounded at its base by a disk, which at length becomes fleshy, and conceals the greater portion or the whole of the nut, and forms with it what may be called a succulent drupe, except in Torreyæ, where the nut is not surrounded by any disk, but by dry scarcely increasing scales. The nut or seed is
covered by a crustaceous testa. *Embryo* in the axis of the albumen. *Radius* at the apex of the seed, having an organic connexion with the albumen. (G. Don.)

Leaves simple, alternate or distichous, exstipulate, evergreen or deciduous; mostly linear. — Trees or shrubs; natives of Europe, Asia, and North America.

The genera are three, which are thus characterised: —

**Ta'xus.** Dioecious. Anthers of 4—6 cells. Nut, or seed, surrounded by a fleshy cupular disk.

**Torreya.** Dioecious. Anther 8-celled. Seed not surrounded by a fleshy disk, but by scales.

**Salishuria.** Dioecious. Anthers 2-celled. Seed, or nut, covered by the fleshy persistent disk.

### Genus I.


*Derivation.* From toxon, a bow; being formerly much used in making them: or from tazis, arrangement; from the leaves being arranged on the branches like the teeth of a comb: or from toxicon, poison; though Pliny says that poison (toxicon) was so named from this tree, which was considered poisonous. The derivation of the term Yew is supposed to be from the Celtic word triu, sometimes pronounced yf, and signifying verdure; alluding to the yew being an evergreen: and this will also explain the French name, if.

*Gen. Char.* Male flower consisting of anthers upon short pedicels, at the top of a column that has imbricate scales at the base. Anthers with 4, 5, 6, or rarely more, 1-celled lobes, attached to the connectivum, whose tip is a horizontal shield, lobed at the edge; its lobes corresponding in number and place with those of the anthers, and covering them; the cells opening longitudinally. — Female flower an erect ovule, perfect at the tip; with an unobvious annular disk at its base; and, exterior to this, investing imbricate scales. Fruit the disk at the base of the ovule, which becomes a fleshy open cup. Seed like a nut.

Leaves simple, alternate, exstipulate, evergreen; linear, acute, rigid, more or less 2-rowed in direction. Flowers whitish. Fruit red, pulpy. — Low trees and shrubs, evergreen; natives of Europe, Asia, and North America. Propagated by seeds or layers, in common soil.

1. **T. bacca' ta L.** The berried, or common, Yew.


*Synonyms.* Ta'xus, No. 1653.; Hall. Hist. 2. p. 322.; If, Fr.; Izenbaum, Izenbaum, or Izeinbaum, Ger.; Texo, Ital.; Texo, Span.

*The Sexes.* The yew being almost always raised from seed, the male and female plants may be supposed to be nearly equally distributed, both in natural woods and in artificial plantations. Both sexes are sometimes found on the same tree. As far as we have been able to observe, says White of Selborne, the male tree becomes much larger than the female one.


*Spec. Char., &c.* Leaves 2-ranked, crowded, linear, flat. Receptacle of the barren flowers globular. (Smith.) An evergreen tree. Europe generally; in loamy soils and shady situations. Height 20 ft. to 30 ft., rarely 40 ft. Flowers white; March and April. Fruit red; ripe in September.

*Varieties.*

? **T. b. 2 fastigiata.** T. fastigiata Lindl.; T. hibernica Hook., Lodd. Cat. ed. 1836; (the plate of this tree in Arb. Brit., 1st edit., vol. viii.; and our fig. 1751.) the upright, or Florence Court, Yew; the Irish Yew. Discovered wild at the former place about 1780.—This is a very distinct variety, readily distinguished from the species
ARBORETUM ET FRUTICETUM BRITANNICUM.

by its upright mode of growth, and deep green leaves, which are not in ranks like those of the common yew, but scattered. All the plants of this variety in cultivation are of the female sex; and the fruit is oblong, and not roundish, as in the common variety.

* T. b. 3 procumbens, T. procumbens Lodd. Cat. ed. 1836. — Low and somewhat trailing.

* T. b. 4 erücta. The upright Yew.—A seedling from T. b fastigiata, in which the leaves are 2-ranked as in the common yew, but the branches take an upright direction as in the Irish yew.

* T. b. 5 sparsifolia Hort.—Leaves scattered.

* T. b. 6 fólis variegátis Lodd. Cat. ed. 1836.—Leaves variegated with whitish yellow. It is seldom found higher than a large shrub.

* T. b. 7 frúcto lúteo.—Fruit yellow. The tree does not differ, either in its shape or foliage, from the common yew; but, when covered with its berries, it forms a very beautiful object, especially when contrasted with yew trees covered with berries of the usual coral colour. There are fine trees of this variety at Clontarf Castle, near Dublin.

The yew is of slow growth; but, in favourable situations, it will attain the height of 6 or 8 feet, or more, in 10 years from the seed. In 20 years, it will attain the height of 15 ft., and it will continue growing for 100 years; after which it becomes comparatively stationary, but will live for many centuries. When drawn up by other trees, or by being planted in masses, it takes somewhat the character of a fir; and may be found, thus circumstanced, with a clear trunk 30 or 40 feet high. It stoles when cut down under 20 or 30 years of age, but rarely when it is older. In a wild state the yew affords food to birds by its berries; and an excellent shelter to them during severe weather, and at night, by its dense evergreen foliage, but no insects live on it. By man, the tree has been applied to various uses, both in a living state, and when felled and employed as timber. The wood is hard, compact, of a fine and close grain, flexible, elastic, splitting readily, and incorruptible. It is of a
fine orange red, or deep brown; and the sap wood, which does not extend to a great depth, is white, and also very hard. Where the two woods join, there are generally different shades of red, brown, and white: both woods are susceptible of a very high polish. Varennes de Fenilles states that the wood, before it has been seasoned, when cut into thin veneers, and immersed some months in pond water, will take a purple violet colour; probably owing to the presence of alkali in the water. According to this author, the wood of the yew weighs, when green, 80 lb. 9 oz. per cubic foot; and, when dry, 61 lb. 7 oz. It requires a longer time to become perfectly dry than any other wood whatever; and it shrinks so little in drying, as not to lose above \( \frac{1}{3} \) part of its bulk. The fineness of its grain is owing to the thinness of its annual layers, 280 of these being sometimes found in a piece not more than 20 in. in diameter. It is universally allowed to be the finest European wood for cabinet-making purposes. The principal use for which the yew was cultivated, before the introduction of gunpowder, was for making bows; but these are now chiefly made of foreign wood. For details respecting making bows of the yew tree, see Arb. Brit., 1st edit., vol. iv. p. 2086. The yew makes excellent hedges for shelter; undergrowth for the protection of game; and, when planted thick on suitable soil, so as to be drawn up with clean and straight trunks, most valuable timber. When a yew hedge is wanted to be of one shade of green, the plants should all be raised from cuttings of the same tree; and, when they are intended to show fruit, in order to rival a holly hedge, only female plants should be chosen or propagated; and the hedge, like holly hedges kept for their fruit, should be cut in with a knife, and never clipped with the shears. Single scattered trees, when intended to be ornamental by their berries, should, of course, always be females; and, in order to determine their sex, they should not be removed to where they are finally to remain till they have flowered. This may, doubtless, be accelerated by ringing a branch on each plant after it has attained 5 or 6 years' growth. The use of the yew tree in ancient topiary gardening, during the seventeenth century, was as extensive, in England and France, as that of the box seems to have been in Italy in the days of Pliny. The practice was rendered fashionable by Evelyn, previously to which the clipping of trees as garden ornaments was chiefly confined to plants of box, juniper, &c., kept by the commercial
gardeners of the day in pots and boxes, and trained for a number of years, till the figure required was complete. Sometimes, as we find by Gibson, Bradley and others, clipped plants of this sort sold as high as five guineas each; and, in all probability, this high price first led Evelyn to the idea of clipping the more hardy yew in situations where it was finally to remain. The narrowness of the leaves of the yew renders it far less disfigured by clipping than even the box; and, as it is much harder than the juniper, should clipped trees come again into fashion, there can be no doubt that the yew would be preferred to all others. As an avenue tree, the yew may be considered suitable for approaches to cemeteries, mausoleums, or tombs; and, as a single tree, for scattering in churchyards and burial-grounds. The most extraordinary collection of yew trees in England, or perhaps in the world, is at Elvaston Castle, near Derby. (See Gard. Mag. for 1841.) The yew will grow on any soil that is somewhat moist; but it thrives best in loams and clays, on rock, and in a shady situation. It is propagated for the most part by seeds; but the varieties, and also the species, when the object is to form a hedge of plants of the same dimensions and colour of leaf, as already mentioned, should be propagated by cuttings or layers from one plant only. The berries are ripe in October, and should be then gathered, carried to the rot-heap, and treated in the same manner as haws. (See p. 382.) If, however, they are sown immediately, enveloped in their pulp, a few of them may come up the following year, and the remainder the second year; but, if the pulp is allowed to dry round the nut, and they are kept in that state till spring, none of them will come up till the third year. Cuttings may be formed of either one or two years' growth, and planted in a shady border, either in the beginning of April or the end of August. The cuttings will be most certain of success if slipped off with a heel, and if the soil consists chiefly of sand. The leaves should be carefully stripped off the lower part of the cutting, which may be from 7 in. to 10 in. in length, and buried to the depth of 3 in. in the soil. Cuttings treated in this manner require two years before they are sufficiently rooted to be removed. In all probability, however, if the points of the shoots were taken and planted in sand under a hand-glass, about midsummer, or before, they would produce roots the same season, and might be transplanted the following spring. Whether plants are raised from seeds or cuttings, they ought to undergo the usual routine of culture in the nursery, till they are 3 or 4 feet high; because, as they are of slow growth, time is gained by this practice; and the yew transplants so readily at any age, that there is no more danger of plants failing when transplanted at the height of 6 or 8 feet, than there is when they are only 6 or 8 inches high. At Elvaston Castle, already mentioned, above a hundred yew trees between 20 ft. and 40 ft. in height have been transplanted; some of them brought from a distance of upwards of thirty miles.


Engraving. Our figs. 2105, 2106, in p. 1110.

Spec. Char., &c. Leaves linear, 2-ranked, crowded, revolute. Male flowers globose, always solitary. (Willd.) Michaux describes this species as of humber growth than the European yew, of spreading habit, and with smaller flowers and fruit; and Pursh says that, under the shade of other trees, it does not rise above 2 or 3 feet high. Canada and Maryland; growing only in shady rocky places, and flowering in March and April. It was introduced in 1800; and is apparently only a variety of the common yew. Horticultural Society’s Garden.


Spec. Char., &c. Leaves distichous, flat, from 1 in. to 1½ in. in length, dark green and shining on the upper surface; of a white glaucous hue beneath, with the exception of the midrib and revolute margins, which are of a bright green; the apex mucronate; footstalks short. Branches round and furrowed. (Forbes.) An evergreen tree. Japan. Height. Introduced in 1837.

Readily distinguished from all the well-authenticated species of Taxus, by its larger revolute leaves, which are of a silvery glaucous colour on the under side. It is not yet ascertained whether the plant is sufficiently hardy to pass the winter in the open air as a standard, but it promises to be so. Propagated by cuttings, or by grafting on the common yew.

Other Species of Taxus. — T. Mackayi Pin. Wob. p. 218. is a native of Japan, with very narrow leaves. Introduced in 1838. T. Inukajá is a native, in Mr. Knight's Catalogue, of a Japan species which has leaves like the leaflets of the sago palm; but very little is known respecting it. T. globosa Schlecht. (G. M. xv. p. 242.) is a Mexican species, not yet introduced.

Genus II.


Derivation. Named by Dr. Arnott in honour of Dr. Torrey, one of the authors of the North American Flora.

Synonyme. Taxus sp. Nutt.

Gen. Char. Dioecious. — Male ament at first subglobose, but at length elongated; the rachis ultimately naked, except at the base, where it is bracteate by quadrijarially imbricated many-flowered scales. Staminiferous scales pedicellate, subpetalate, dimidiate, each bearing a 4-celled anther. — Female ament ovate, one-flowered, bracteate at the base as in the male; disk none. Ovulun erect. Seed ovate, bracteate at the base by dry scarcely increasing scales, but naked at the top. Testa thick, fleshy, and coriaceous outside, but fibry inside. Alburnm ruminated. Embryo subcylindrical, short. Cotyledons connate.

Leaves simple, linear, two-rowed, exstipulate, evergreen; rigid, mucronate. — A tree, evergreen, with spreading branches, and the branchlets dis-
tichous and forked, ending in a pungent mucro. Native of Middle Florida, on calcareous hills.


**Synonyms.** Taxus montana Nutt., not of Willd.; Stinking Cedar, Florida.

**Engravings.** Hooker's Icones Plantarum, t. 232. and t. 233.; Gard. Mag., vol. xvi., figs. 74. and 75.; and our figs. 1755. and 1756., in which m shows the male, and f the female, flowers and branches from male and female plants.

**Spec. Char.** See Gen. Char. An evergreen tree, with the habit and appearance of Abies canadensis. Florida, on chalky hills, all along the eastern bank of the river Appalach. Height 20 ft. to 40 ft. Introduced in 1840. Propagated by grafting on the common yew.

The wood is dense, and closely grained, and in old trees of a reddish colour, like that of Juniperus virginiana. It is of a strong and peculiar odour, especially when bruised or burnt, and hence, in the country where it grows, it is frequently called Stinking Cedar. It makes excellent rails, and is not liable to the attacks of insects. (Ann. Nat. Hist., vol. i. p. 129.) Canterbury Nursery.

**Genus III.**


**Synonyme.** Ginkgo of Kämpfer, Linnæus, and others

**Derivation.** Named in honour of R. A. Salisbury, F.R.S. L.S., &c., a distinguished botanist. Ginkgo is the aboriginal name in Japan.

**Gen. Char.** Male flowers in tapering, decurved, bractless catkins, which are borne several from one bud. Flowers many in a catkin, each appearing as a stamen only, and consisting of a short filament-like stalk.—Female flowers borne from a bud, from which leaves are also produced; and on peduncles, either single or several on the pedicels of a branched peduncle. Flowers seated in a shallow cup, formed of the dilated tip of the peduncle or pedicel,
and consisting of a rather globose calyx, contracted to a point, and then expanded into a narrow limb, and including an ovary. Calyx fleshy and persistent, becoming a drupaceous covering to a nut, which is rather egg-shaped, and very slightly compressed. (G. Don.)

Leaves simple, alternate, stipulate, deciduous; deeply cut or lobed, alike on both surfaces, with long petioles. Flowers yellowish. — Tree deciduous, large, native of Japan, quite hardy in the climate of London, and of easy culture in common garden soil.

Remarkable for the singularity of its leaves, which seem to unite Conifèræ with the Corylææ. Propagated by cuttings or layers in good loamy soils.

**II. S. ADIANTEFOLIA Smith.** The Maiden-hair-leaved Salisburia, or Ginkgo Tree.


**The Species.** Both sexes are in the Kew Botanic Garden, in the Hackney Arboretum, and in our garden at Bayswater.


The male catkins, which appear with the leaves in May, on the wood of the preceding year or on old spurs, are sessile, about 1½ in. long, and of a yellowish colour. The female flowers, according to Richard, have this particularity, that each is in part enclosed in a sort of cup, like the female flowers of Dacrydium. This covering is supposed to be produced by a dilatation of the summit of the peduncle, as may be seen in our figure. The fruit consists of a globular or ovate drupe, about 1 in. in diameter; containing a white nut, or endocarp, somewhat flattened, of a woody tissue, thin, and breaking easily. The fruit has been ripened in the South of France, and young plants raised from it. The tree grows with considerable rapidity in the
climate of London, attaining the height of 10 or 12 feet in 10 years; and, in 40 or 50 years, the height of as many feet. The wood of the ginkgo is said by Kempter to be light, soft, and weak; but Loiseleur Deslongchamps describes it as of a yellowish white, veined, with a fine close grain, and moderately hard. It is easy to work, receives a fine polish, and resembles in its general appearance citron wood. The salisburia, judging from the specimens in the neighbourhood of London, thrives best on a deep sandy loam, perfectly dry at bottom; but it by no means prospers in a situation where the subsoil is wet. The situation should be sheltered, but not so much so as for many exotic trees which have longer leaves and more widely spreading branches. Propagated by layers of two-years-old wood, which generally require two years to be properly rooted; but, on the Continent, it has been found that, by watering the layers freely during the summer, they may be taken off in the autumn of the year in which they were made. Cuttings made in March, of one-year-old wood, slipped off with a heel, root in a mixture of loam and peat earth in the shade; and their growth will be the more certain if they have a little bottom heat. Cuttings of the young wood, taken off before midsummer, and prepared and planted with the leaves on, in sand, under a bell-glass, will, we have no doubt, succeed perfectly.

Order LXXVII. Coniferae, or Pinaeae.


Affinities. The Taxaceae have been separated from this order on the one hand, while, on the other, the Cycadaceae are considered as approaching very near it.

Ord. Char. Flowers unisexual; those of the two sexes in distinct catkins which are situated upon one plant in most of the species, and upon two plants in the rest. — Male catkin longer than broad. Each flower a scale or body, bearing pollen contained within either 2 cells formed within the scale or body, or 3 or more 1-celled cases; in Araucaria Juss., in 2-celled cases, exterior to, but united with, the scale or body: a part of the scale or body is free above the cells or cases containing the pollen. — Female catkin more or less conical, cylindrical, or round, in figure; composed of many, several, or few flowers, each, in most species, subtended by a bractea. The catkin, in the state of fruit, is rendered a strobile of much the same figure. Each flower is constituted of 1—3 ovules, borne from an ovary that resembles a scale, and is in some instances connate with the bractea that subtends it. Ovules regarded as receiving impregnation from direct contact of the pollen with the foramen of the ovule. Bracteas imbricated. Carpels, which are the ovaries in an enlarged and ripened state, imbricated. Seed having in many species a membranous wing. Embryo included within a fleshy oily albumen, and having from 2 to many opposite cotyledons, and the radicle being next the tip of the seed, and having an organic connexion with the albumen. Brown has noticed a very general tendency in some species of Pinus and Abies to produce several embryos in a seed.

Leaves simple, alternate, exstipulate, evergreen, rarely deciduous; needle-shaped, scale-like, or lanceolate; in some species disposed in groups, with a membranous sheath about the base of the group, at least in most of these; in some in rows; in some oppositely in pairs, decussate in direction; imbricate in several. Flowers in catkins; April and May. Fruit a cone;
ripe in the autumn of the second year. — Trees almost all evergreen, the wood abounding in resin,

The hardy genera in British gardens are arranged as under:

**Tribe I. Abietineae.**

Buds scaly. Catkins of both sexes many flowered. Leaves scattered, or in groups. Tips of ovules pointing to the axis of the catkins, except in Cunninghamia. Nadelholz and Tangelholz, Ger.

**Pinus.** Male catkins aggregate. Pollen contained in 2 cells. Ovules 2.

Carpels thickened at tips. Leaves not solitary.

**Abies.** All as in Pinus, but the cones are pendulous, and the leaves are solitary.

**Picea.** This differs from Abies in the cones being erect, and from Pinus in the carpels not being thickened at the tips; and from both, in the leaves being in 2 ranks.

**Larix.** Differs from Abies in the leaves being deciduous, and in groups; and in the cones being erect.

**Cedrus.** Differs from Larix in the leaves being evergreen. Anthers crested.

**Cunninghamia.** Male catkins grouped. Pollen contained in 3 cases.

Ovules 3. Leaves solitary and serrulated.

**Dammara.** Male catkins solitary. Pollen contained in 5 to 24 cases.

Ovules 2. Leaves broad.

**Araucaria.** Catkins dioecious. Pollen contained in 10 to 20 cases. Ovules solitary, combined with the scale.

**Tribe II. Cupressineae.**


**Thuja.** Catkins terminal, solitary. Pollen in 4 cases. Ovules 2. Leaves scale-like, imbricate.

**Callitris.** Catkins terminal, solitary. Pollen in 2 to 5 cases. Ovules 3 or more. Leaves scale-like, opposite or whorled.

**Cupressus.** Catkins solitary. Pollen in 4 cases. Ovules 8 or more. Leaves imbricate.

**Taxodium.** Catkins disposed in compound spikes; female ones 2 or 3 together. Pollen in 5 cases. Ovules 2. Leaves linear, in 2 ranks, deciduous.

**Juniperus.** Male catkins terminal; female ones axillary, few. Pollen in 3 to 6 cases. Ovule one. Fruit pulpy. Leaves opposite or ternate, rigid.

---

**Tribe I. Abietineae.**

The Abietinae are almost all trees of lofty stature, pyramidal in form, and regularly furnished with verticillate frond-like branches, from the base to the summit of the trunk. These branches, unlike those of every other kind of tree, die off as the tree grows old, without ever attaining a timber-like size; so that, in a physiological point of view, they may be considered as rather like immense leaves than branches; and this circumstance, as well as others, seems to connect the pines and firs with the palms. Almost all the species are evergreen, and have linear needle-like leaves; whence the German names of Nadelholz and Tangelholz. The wood is chiefly composed of parallel fibres, arranged in a manner somewhat intermediate between that of dicotyledonous and monocotyledonous trees; and, in consequence of these fibres not being
very close, the wood is elastic and resilient. Being resinous, it is also, in general, very durable, and of great combustibility. The fruit of the Abiétinae are all cones, which vary somewhat in form, though they are in general, as the word implies, conical; and they differ in size, from that of Abies canadensis, which is about half an inch in length, to that of Pinus Lambertina, which has been found 2 ft. long. The largest seeds are those of the Pinus Pinnea; and the smallest those of some species of Abies. In germinating, the seed first swells and bursts at the upper or narrow end, whence the radicle proceeds and turns downwards into the soil; while, soon after, the lower, or thick, part of the seed opens, and the leaves are developed, and rise above the surface of the ground. The rate of growth of the Abiétinae is, in general, rapid; and the duration of the tree, compared with that of the oak, short. The most rapid-growing species in the climate of London is the Pinus Laricio, which will attain the height of 20 ft. in 10 years; and the species of this section generally reach maturity, in the climate of Britain, in from 60 to 100 years. Most of the European species bear cones at about 20 years' growth, or before; the spruce fir, on dry chalky soils, in less than half that period. The pinaster arrives at maturity sooner than any other European pine, but seldom lasts longer than from 40 to 50 years. The European species of slowest growth, and greatest duration, is the P. Cembra, which seldom attains more than 30 or 40 feet in height, but which lives for several centuries. The two species which in Europe are most valuable for their timber are, the P. sylvestris and the Lärix europæa. The grandest and most ornamental species is, unquestionably, the Cedrus Libani; and the most elegant and graceful the Abies canadensis. The species which produce the greatest quantity of timber in the shortest time, in the climate of Britain, are, the Scotch pine and the larch: but, in favourable situations, both in Germany and Switzerland, these species are exceeded in this respect by the silver fir; in Spain by the pinaster; and in North America by the Weymouth pine. The greater number of the species of Abiétinae will live in the open air in the climate of London; but some few require to be protected there from the frost. The debris of granitic rock may be considered as the universal soil of the pine and fir tribe, and a dry subsoil an essential condition for their prosperity; but they will grow on all soils whatever, that are not surcharged with water. The roots of all the Abiétinae run immediately under the surface, and hence do not require a deep soil; and, as their needle-like leaves do not carry off much moisture by evaporation, the soil in which the Abiétinae will grow to a large size may be drier than that required for any other kind of tree. Nevertheless, a soil somewhat loamy, and a cool subsoil, are necessary to bring the timber of the pine to its greatest degree of perfection; and various species, particularly those belonging to the genus Picea, require a loam rather rich than poor, and a situation low rather than elevated. Abies communis grows naturally on moist soil; often on peat bogs. The only mode of propagating the pine and fir tribe on a large scale is by seeds; but all the species will succeed by layers, by inarching on closely allied kinds, and by herbaceous grafting; and many, if not all, may also be propagated by cuttings. The species which strike by cuttings most readily are those belonging to the genera Picea, Abies, Lärix, and Cedrus. The cuttings may be taken from the lateral branches, when the current year's shoots are beginning to ripen, and prepared like those of Cape heaths; they should then be planted in sand, and covered with a glass. This being generally done in August or September, the cutting should be kept in a frame, from which frost is excluded, throughout the winter; and the greater part of them will send up shoots the following May or June, and may be transplanted the succeeding autumn. The operation of herbaceous grafting is performed in the cleft manner; the slit being made a little deeper than that part of the scion which is to be inserted in it. The time of performing the operation is when the leading shoot of the stock has attained the length of from 8 in. to 12 in., and will break over (without tearing the bark) like a piece of glass, or the most succulent part of a shoot of asparagus fit to gather for the table.
The time during which any given species has its leading shoot in a fit state for being broken over in this manner is not more than 15 days; and, as the scions from the species to be grafted are equally tender with the stock, they will not remain longer in a state fit for the operation than about the same period. The scion is always inserted in the leading shoot; the greater number of the side shoots are either removed altogether, or shortened; and the young shoots produced from the stocks during the season are pinched off with the finger and thumb at about half their length. In the European Abietinae, the seeds begin to drop from the cones, which remain on the trees, generally in March; for which reason February is a good month to collect them. The cones of Pinus sylvestris, and of the allied sorts, soon open of themselves, after they have been gathered from the tree, and spread out in the sun; but the cones of P. Pinaster, P. Pinea, and the allied sorts, though treated in the same manner, will not open their scales for several months, or even a year. The cones of Cedrus Libani will not open till they have been three years or upwards on the trees; and, when they are gathered, it is almost always necessary to steep them in water for 24 hours, and afterwards to expose them before a fire, or to the sun. In Scotland, France, and Germany, the seeds of the Pinus sylvestris and of the Larix europaea are very commonly separated from the cones by kilndrying, and afterwards thrashing them; but, as the heat of the kiln is sometimes carried so far as to destroy the vital principle, it is considered safer to steep the cones before drying, in which case less fire is requisite; or to split them by inserting an iron triangular-pointed instrument, not unlike a shoemaker's awl, into the axis of the cone, at its broad end. The cones are also sometimes broken by passing them through a bone-mill, or between two cylinders; or by putting them into a bark-mill. The cones of the silver and the balm of Gilead firs, and also of the Pinus Ströbus, open of themselves in a dry room, and give out their seeds with less trouble than those of any other species. The most general time for sowing the seeds of the Abietinae is in the end of March or in April. The ground ought to be in good heart, light, and sandy rather than loamy, and prepared as finely as possible. The seeds may be most conveniently sown in beds; and, after being gently beaten down with the back of a spade or a slight roller, they should be covered with light soil or leaf mould to the depth of a sixteenth, an eighth, or at most a quarter, of an inch, according to the size of the seeds; and immediately afterwards covered with branches of trees or shrubs, fronds of fern, wickerwork hurdles, or netting, to shade the soil from the sun, and protect the seeds from birds. If, indeed, the seeds are gently patted in with the back of the spade, and the beds kept shaded, and of a uniform gentle moisture, no covering at all is necessary. When rare kinds are sown in pots, if the surface of the soil is kept 1 in. below the rim of the pot, the pot may be covered with a pane of glass, and the seeds will come up with certainty and vigour. Traps ought to be set for mice, which are great devourers of the seeds of the Abietinae. In very dry weather the beds should be watered in the evenings; but in this case it becomes doubly necessary to shade them in the daytime; because in proportion to the rapidity of the germination of the seeds are they liable to be scorched by the sun. The precaution of shading is much less necessary in Scotland, than in England, or on the Continent. The pine and fir tribe does not, in general, succeed so well when transplanted as the broad-leaved trees; for which reason, most of the sorts planted for ornament, such as the cedar, stone pine, Weymouth pine, Siberian pine, &c., should always be kept by the nurserymen in pots. The Scotch pine, the larch, the spruce, the silver and balm of Gilead firs, the Corsican pine, and the Weymouth pine, may be transplanted into nursery lines, from the seed-bed, in the second year; and, after remaining one year in these lines, they may be removed to where they are finally to remain. Very few species can be kept with advantage for a longer period in the nursery than 3 years; viz. two in the seed-bed, and one transplanted. Very little pruning is necessary for the pine and fir tribe, whether they are grown singly or in scattered groups for
ornament, or in masses for useful purposes in plantations. In the former case, to remove any of the branches would destroy the object in view; and in the latter, if the plantation is of suitable thickness, the lower branches begin to die off of themselves, after the trees have acquired a certain age and growth, and all that is necessary is to assist nature, by cutting off the branches close to the trunk, the moment they begin to show indications of decay.

Genus I.

**PINUS L. THE PINE. Lin. Syst. Monoccia Monadéphia.**


**Synonymes.** Le pin, Fr.; Fichte, Pynboom, or Kiefer, Ger.; Pynboom, Dutch; Pine, Ital. and Span.; Pinn, Anglo-Saxon; Pinnua, Welch; Peigne, Erse.

**Derivation.** The word Pinus comes from the Greek pinos, used by Theophrastus to designate the pine tree. Pinus has for its root píos, which signifies fat; because the trees of this genus furnish pitch and tar. Others derive the word Pinus from pin, or pinn, a mountain or rock. Celtic; in allusion to the habitat of the tree; the British towns Pen-rýn, Pen-ryh, and Pen-masen; and the Spanish ones, Penna-flor, Penna-fiél, &c., being so called from being built on hills, or rocks.

**Gen. Char. &c.** Male flowers in grouped catkins. Pollen contained in 2 cells, formed in the scale, that open lengthwise. Female flowers with 2 ovules. Strobile in most species ovately conical. Carpels or outer scales thickened at the tip, exceeding the bracteas or their outer scales in length, and concealing them; persistent.

Leaves simple, alternate, exstipulate, sheathed, evergreen; linear, rigid, in groups of 2, 3, or 5; each group arising out of a scaly sheath. Flowers, males whitish yellow, powdery. Fruit a cone.

Evergreen trees, generally of large size, natives of Europe, Asia, and America, and in an eminent degree both useful and ornamental. They flower, in Britain, in May and June, and generally ripen their cones in the autumn of the following year. The species may be arranged either according to their cones or their leaves; and we have adopted the latter feature as the foundation of our sections, because it is applicable to trees in every stage of their growth; and because many of the species in London gardens have not yet borne cones.

The following is our arrangement of the species in British gardens:

§ I. Binae.—Leaves 2 in a sheath.

A. Natives of Europe.

1. sylvéstris. 5. (L.) Pallasiána. 8. Pînea.
2. Pumílio. 6. (L.) pyrenáica. 9. halepénusis.
3. Luríceo. 7. Pinást. 10. brûtia.
4. (L.) austriáca.

B. Natives of North America.

12. inops. 15. mitis. 17. turbímate.
13. púngens.

§ II. Ternáte.—Leaves 3 in a sheath.

A. Natives of North America.

18. Taéda. 23. Sabiniána. 27. californiána.
20. Frâseri. 25. austrális. 29. tubérculata.
22. ponderósasa.

B. Natives of Mexico.

31. Têcoíté. 32. pátula. 33. Llaveína.
C. Natives of the Canaries, India, China, and Australia.
34. canariensis. 36. Gerardiána. 38. timoriensis.
35. longifolia. 37. sinensis.

§ iii. *Quinae.*—Leaves 5 in a sheath.

A. Cones with the Scales more or less thickened at the Apex.

a. Natives of Mexico or Guatemala.

* Cones long.*
39. Hartwegii. 43. macrophylla. 46. leiophylla.
40. Devoniána. 44. Pseudo-Stróbus. 47. oocarpa.
41. Russellána. 45. filifolia. 48. apulénsis.

b. Natives of the West Indies.

49. occidentalis.

B. Cones with the Scales not thickened at the Apex.

a. Natives of Europe and Siberia.

50. Cembra.


51 Stróbus.

52. Lambertiána. 53. monticola.

c. Natives of Nepal and Mexico.

54. excélsa. 55. Ayacahuile.

§ i. *Binae.*—Leaves generally 2 in a sheath.

A. Natives of Europe.

1. *P. sylvéstris* L. The wood, or Scotch, Pine, or Scotch Fir.


*Spec. Char., *Sc. Leaves rigid, in pairs. Young cones stalked, recurved. Crest of the anthers very small. (Smith.) Buds (fig. 1759.) ovate, blunt - pointed, from $\frac{1}{4}$ in. to $\frac{1}{2}$ in. long, and $\frac{1}{4}$ in. wide in the broadest part; white, with a reddish tip, the white produced by resinous exudation. The central bud generally with 5 or 6 smaller ones round it. Leaves (fig. 1760. a) from $\frac{1}{2}$ in. to
2\frac{1}{2} in. long; somewhat waved and twisted; slightly concave on the upper, and convex on the under, surface; light bluish green, finely serrated on the edges; the sheath lacerated and slightly ringed. Cones (fig. 1760. a) from 2 in. to 3 in. long, and from 1 in. to 1\frac{1}{2} in. broad. Scales (fig. 1760. d) from 1 in. to 1\frac{1}{2} in. long, terminating in an irregular four-sided projecting point, often recurved. Seeds, with the wing (e), from 1 in. to 1\frac{1}{2} in. long; without the wing, from \frac{2}{10} in. to \frac{3}{10} in. long; dark-coloured. Cotyledons 5 to 7. A tall, straight, hardy, long-lived tree, from 60 ft. to 100 ft. high; Europe generally, but not of America; flowering in May and June, and ripening its cones about 18 months afterwards; the most valuable, for its timber, of all the European species of Pinus.

Varieties. Like all trees which have an extensive geographical range, and grow on almost every kind of soil, and at great elevations as well as in plains, the varieties and variations of the Scotch pine are exceedingly numerous; both as respects the exterior appearance of the tree, and the quality of its timber and resinous products. On poor soils, at great elevations, it becomes a diminutive shrub; and in low situations, where it is a lofty timber tree, the wood on some light sandy soils is white, almost without resin, and of little duration; while on other soils, of a colder and more substantial nature, it is red, heavy, and of great durability. It appears, also, that the same situation will produce both white-wooded and red-wooded trees; and seeds from red-wooded trees will, it is said, in some instances, produce others the wood of which is red.

**a. Timber Trees.**

\[ P. s. 1 \text{ vulgāris.} \] The common wild Pine. (fig. 1761., to our usual scale.)—Thus described by Don of Forfar. Branches forming a pyramidal head; leaves margined, of a dark green colour, and but little glaucous underneath; cones considerably elongated, and tapering to a point, and the bark of the trunk very rugged. "This variety seems to be but short-lived, becoming soon stunted in its appearance, and it is altogether a very inferior tree to either variety 2, or variety 3." (Cal. Mem., i. p. 123.)

\[ P. s. 2 \text{ horizontalis.} \] P. horizontalis Don of Forfar; P. sylvestris var. montana Sang; Plant. Cal. p. 63.; the Speyside Pine, Hort. Soc.; the Highland Pine, Grigor in Gard. Mag. viii. p. 10.; the horizontal-branched wild Pine, Laws.; the red-wooded Scotch Pine, Sang; ? P. rubra Mill. Dict. and N. Du Ham. —This variety is described by Don of Forfar as being "strongly marked and permanent." It "is distinguished from the former by the disposition of its branches, which are remarkable for their horizontal direction, and for a tendency to bend downwards close by the trunk. The leaves are broader than those of the first variety, and serrated, and not margined. They are distinguishable at a distance by their much lighter and beautiful glaucous colour. The bark of the trunk is not so rugged as in the preceding variety. Its cones are thicker, not so much pointed, and smoother. The tree seems to be a more Hardy plant, being easily reconciled to very various soils and situations. It grows very freely, and quickly arrives at a considerable size."

\[ P. s. 3 \text{ unciniata (see fig. 1672.)} \] The hook-coned wild Pine; Mar Forest wild Pine, in the Horticultural Society's Garden. — Another of Don of Forfar's varieties, which is described by him, in the
article before quoted, as a remarkable variety, quite distinct both from \textit{P.} \textit{s.} \textit{vulgàris} and \textit{P.} \textit{s.} \textit{horizontàlis}. It will be observed that this hooked cone is quite different, both in its general form, and the form of its scales, from the cone of \textit{P.} \textit{(s.)} \textit{p.} \textit{Mùgghus}, which is also often called \textit{P.} \textit{uncinàta}.

\*\textit{P.} \textit{s.} \textit{haguenénisis}. Pin de Hagnenau, \textit{F}r.; Rothen-tanne of Schòttel, seedsmen, Rastadt.—This variety was introduced from the Forests of Hagnenau (whence its name) and Rastadt, on both sides of the Rhine. It is thus described in Lawson's \textit{Manual}:

"The old trees are remarkably tall, straight, free from branches, except near the summit, with remarkably smooth reddish-coloured bark. The leaves of the young plants are longer than those of any of the preceding varieties; they are much waved or twisted, of a light green slightly glaucous colour, and minutely serrulated; the young terminal buds are of a peculiar reddish colour, and generally more or less covered with whitish resin. The young plants are, besides their difference in shade of colour, readily distinguished by their stronger and more rapid growth." (\textit{Agricult. Manual}, p. 230.)

\*\textit{P.} \textit{s.} \textit{rigénis}. Pin de Riga, \textit{Desf. Hist.} t. ii, p. 61.; Pin de Russie, Pin de Mâture, \textit{F}r.—This variety is said to constitute the forests of Lithuania and Livonia.

\textit{Other Timber Tree Varieties}. The names of several might be given from books; but, as we could neither accompany them with descriptions nor synonyms, nor refer to any place where living plants may be seen, we consider that it would be of very little use. \textit{P.} \textit{s.} \textit{altissima}, in the Horticultural Society's Garden, is a strong-growing variety, resembling the pin de Hagnenau, and is probably identical with it, though raised from Caucasian seeds; but \textit{P.} \textit{altissima} is a name more generally applied to \textit{P.} \textit{Laricio} than to \textit{P.} \textit{sylvèstris}.

b. \textit{Varieties curious or ornamental}.

\*\textit{P.} \textit{s.} \textit{6 genevénsis}. Pin de Tarare, \textit{F}r.; the Geneva wild Pine.—There is a plant of this variety in the Horticultural Society's Garden, a portrait of which is given in \textit{Arb. Brit.}, 1st edit. vol. viii., by which it appears to be a low crooked tree, with numerous twisted branches, extending considerably at the base.

\*\textit{P.} \textit{s.} \textit{7 monophýlla} Hodgins. — The leaves are long and glaucous, and those of each sheath are generally attached to each other throughout their length; though when the points are taken between the finger and thumb, and the apparently single leaf twisted, it separates into two, and sometimes into three, leaves. Hort. Soc. Garden.


\*\textit{P.} \textit{s.} \textit{9 intermèdia}. — This is a Russian variety, having slender young shoots depressed towards the stem, and leaves shorter and less glaucous than those of the species. Horticultural Society's Garden.

\*\textit{P.} \textit{s.} \textit{10 altàica} Ledebour. — Raised from seeds received from Dr. Ledebour in 1836. Horticultural Society's Garden.
P. s. 11 tortuosa Don of Forfar. — Leaves shorter than those of P. s. vulgaris, and somewhat curled, or rather twisted.

Other Varieties. P. rotundata, and some other species which appear to us to be varieties of P. sylvestris, are described by Link; and P. hamata and P. argentea are described by Stevens, as given in Gard. Mag., vol. xv. p. 224, but none of these kinds have yet been introduced. We might also have included in the above list P. (s.) pumilio; but though we have no doubt of its being only a variety of P. sylvestris, yet it is so very different both in appearance and magnitude, that we have kept it apart.

The weight of the wood of P. sylvestris varies according to its age and other circumstances. A cubic foot, in a green state, generally weighs from 54 lb. to 74 lb.; and, in a dry state, from 31 lb. to 41 lb. The wood is valued, like that of every other pine, in proportion to its freeness from knots; and it is found that the knots of this species are much more easily worked, and much less liable to drop out of flooring boards, than is the case with knotty boards of the spruce or silver fir. The facility with which the wood of the Scotch pine is worked occasions its employment in joinery and house carpentry, almost to the exclusion of every other kind of timber, wherever it can be procured. It is at once straight, light, and stiff; and, consequently, peculiarly fitted for rafters, girders, joists, &c., which may be made of smaller dimensions of this timber than of any other. In point of durability, if it is kept dry, it equals the oak; more especially if it has been of slow growth, and is resinous. As a timber tree, for planting in poor dry soils and in exposed situations, none can excel the Scotch pine; and it is only equalled by the larch. In Britain, it surpasses every other species of the pine and fir tribe for sheltering other trees, with the exception of the spruce fir, which, being of a more conical shape, admits more light and air to the heads of the trees which are to be drawn up by it. The Scotch pine is, however, altogether unfit for giving shelter in single rows, unless the branches are allowed to remain on from the ground upwards, and the roots have free scope on every side. Hence, this pine, like every other species of the tribe, is altogether unfit for a hedgerow tree. When planted in narrow belts round fields for shelter, it soon becomes unsightly, unless the trees stand so thin as to allow of their being clothed with branches from the ground upwards. The true situation for this tree, when grown for timber, is in masses over extensive surfaces. A granitic soil, it is generally allowed both by British and Continental writers, is the most congenial to the Scotch pine; and the sand and gravel of the Forests of Rastadt and Haguenau are composed of the debris of this rock. It does not harden its wood well when growing on the granwacke; and it is short-lived, and never attains a large size, on chalk. It will grow and flourish in any kind of soil, from a sand to a clay, provided the substratum be rubble or rock; but in wet nilly soils it ought never to be planted; because, whenever the roots have exhausted the upper soil, and begin to perforate the subsoil, the tree languishes and dies. It is justly observed by Mathews, that the natural location of the Scotch pine in poor sandy soils does not result from these soils being best adapted for it, but from the seeds which are blown about by the winds rising readily in such soils, and the plants growing more vigorously in them than any other tree. Should any one doubt this, he observes, let him make an excursion into Mar Forest, and there he will find the Scotch pine in every description of soil and situation, but always thriving best in good timber soil; and, in short, not differing very materially, in respect to soil, from the sycamore, the elm, the oak, or the ash. The Scotch pine produces cones at the age of fifteen or twenty years; and every cone generally contains from 60 to 100 seeds. The cones are gathered in the months of December and January, and laid in a dry loft, where they will keep good for a year or two, if not wanted for sowing; and whence they may be taken in early spring, and exposed to the sun, or at any season, and slightly dried on a kiln, as already mentioned, p. 949.
2. *P. (s.) pumilio* Hænke. The dwarf, or Mountain, Pine.

**Identification.** Hænke Beoh., 68, ; Lamb. Pin., ed. 2, 1. t. 2.


**Engravings.** Lamb. Pin., ed. 2, 1. t. 2. ; our *fig. 1765.* to our usual scale ; aud *figs. 1763.* and 1764. of the natural size.

**Spec. Char., &c.** Branches generally recumbent. Leaves short, stiff, somewhat twisted; thickly distributed over the branches, with long, lacerated, woolly, white sheaths. Cones, when young, erect; when mature, pointing outwards. Buds (*fig. 1763.*) ovate, blunt, resinous. Leaves (*fig. 1764.* e)

1763. 1764. 1765. *P (s.) pumilio.*

from 2 in. to 2½ in. long; sheaths, at first, from ½ in. to 1½ in. long, white and lacerated; afterwards falling off or shrinking to ¼ in. or ½ in. long, and becoming dark brown or black. Cones (d) from 1½ in. to 2 in. long, and from ¾ in. to 1 in. broad; reddish or dark purplish brown when young, and of a dull brown when mature. Scales (b) and seeds (a) resembling those of *P. sylvestris,* but smaller. Cotyledons 5 to 7. A large spreading bush, or low tree. Europe, on mountains. Height 10 ft. to 20 ft. Introduced in 1779. Flowering and ripening its cones at the same time as the Scotch pine, when in a similar locality.

**Varieties.**

a. 2. *P. (s.) p. 2 rubraëflora.*—Flowers red.

b. 4. *P. (s.) p. 3 Fischeri Booth,* Lodd. Cat. ed. 1836, Lawson’s Man. p. 333.—In the shoots and foliage, it bears so strong a resemblance to *P. (s.) pumilio,* that we doubt very much if it even merits to be considered as a variety of that species. Introduced in 1832. H. S.

c. 4. *P. (s.) p. 4 Mûghus.* *P. s. Mûgho Matt. Camer.; P. montana Baum, Cat.; P. Mûgho Jacq., Poir., and N. Du Ham. v. p. 233. t. 65. (our *figs. 1766.* and 1767., the latter showing the cone, seed, scale, and sheath of leaves, of the natural size); *P. echinâta* Hort.; *P. uncinâta* Ramond in Dec., Lodd. Cat. ed. 1836; the Mûgho wild Pine; *Pin Mugho,* Torchepin, *Pin suffis,* *Pin crin,* *Pin du Brianconnais,* *Pin de Montagne,* Fr.; Bergfiche, Ger.; Mughii, Ital.—This variety is included by Aiton and others in the preceding one; but, having seen both sorts bearing cones, we are satisfied that they are distinct, though they bear so close a resemblance to each other in foliage and habit,
that, when the cones are absent, they might be supposed to be identical. It is remarked in the *Nouveau Du Hamel*, that all the published figures of this variety are bad, with the exception of the one given in that work, from which ours is copied. On comparing figs. 1764, and 1767., it will be found that the cones of *P. (s.)* p. *Magdus*, independently of the peculiar pro-
tuberant appearance of the scales, are larger than those of *P. (s.)* pumilio. This and other differences in the cones are quite sufficient, in a technical point of view, to constitute *P. (s.)* p. *Magdus* and *P. (s.)* pumilio distinct species; but, notwithstanding this, they bear such obvious marks of belonging to *P. sylvestris*, in their foliage, habit, and locality, that we cannot for a moment hesi-
tate about their connexion with that species.

* P. (s.) * p. 5 M. nana. The Knee Pine of the Styrian Alps.—Never grows above 3 ft. high. (*Antoine’s Coniferen*, p. 13.; and *Gard. Mag.*, 1841, p. 29.) A plant has been in the Trinity College Botanic Garden, Dublin, since 1817; and, in 20 years, it has not attained a greater height than an ordinary-sized man’s knee.

Other Varieties. *P. (s.)* pumilio and *P. (s.)* p. *Magdus* vary so much according to the localities in which they are found, that, if it were desirable to increase the number of subvarieties, there might be a dwarf, a tall, and a medium form given to each. In the Horticultural Society’s Garden, there is a handsome, erect-growing, small tree of *P. (s.)* p. *Magdus*, under the name of *P. uncinata*, and also a dwarf plant, under the same name; both producing hooked cones.


* Engravings. Lamb Pin., ed. 2. 1. t. 4.; N. Du Ham., t. 69. and 69. f. 2.; the plates of this species in Arb. Brit., 1st edit., vol. viii.; our *fig.* 1771. to our usual scale, from a specimen received from the Horticultural Society’s Garden; and *figs.* 1768. to 1770. of the natural size

* Spec. Char., &c. Leaves lax, twice the length of the cones. Cones conical, often in pairs, sometimes, but rarely, in threes or in fours. Scales convex on the back, elliptic in their general form, scarcely angular, and very slightly pointed. Male flowers almost sessile, elongated, having the anthers terminated by a small round crest. Bud (see *fig.* 1768.) from ¾ in. to 1 in. long; and from ½ in. to ¾ in. broad; ovate, with a long narrow point, and concave at the sides, resembling a camel-hair pencil. Scales adpressed, and encrustcd with white resin. The centre bud generally surrounded by three or more small buds. Cones varying from 2 in. to 3 in. or more in length;
and from \( \frac{3}{4} \) in. to 1\( \frac{1}{2} \) in. in breadth. The points of the scales turned over like an under lip, and terminating in a point which has a very small prickle, often scarcely perceptible. The colour of the cone tawny, and the interior part of the scales purple. Leaves varying in length from 4 in. to 6 in. and upwards; generally two in a sheath on the side branches, but occasionally three on the leading shoots. Seeds greyish or black, twice as large as those of \( P. \) sylvestris. Cotyledons (see fig. 1770.) 6 to 8. A lofty tree. Corsica, Spain, Italy, Greece, and various parts of the South of Europe, the Hartz in Germany, and Caucasus in Russia; generally on deeper soil than \( P. \) sylvestris. Height 60 ft., 80 ft., 100 ft., 150 ft., according to the variety, the climate, and the soil. Introduced in 1759. It flowers in May, and its cones are ripe in November of the second year.

Varieties. Judging from the names in Continental catalogues, these are numerous; but, as these names are chiefly expressive of different localities, we are ignorant how far the plants are really distinct. In the Nouveau Du Hamel only one variety is given, which is characterised by the cones being greenish, those of the species being described as of a tawny or fawn colour. Delamarre, in his Traité Pratique, &c., enumerates five varieties, some of which, however, are considered by M. Vilmorin as being probably species; the cones not having yet been seen.

- P. L. 1 corsicana. Laricio de l'île de Corse, Delamarre. — Cones of a tawny or fallow colour.
- P. L. 3 caramánica. P. caramánica Bosc; P. caramaniénsis Bon Jard., ed. 1837, p. 974.; Laricio de Caramanía ou de l'Asie Mineure, Delamarre; ? P. romana Lond. Hort. Soc. Gard. — P. L. caramánica seldom grows to above half the height of P. L. corsicana; it has a much rounder and more bushy head, with straight, or nearly straight, leaves, slender branches, reddish-coloured bark, and reddish buds, which are wholly, or in part, covered with white resin. The scales of the cones, which are larger than those of P. L. corsicana, are tipped with a harder and more horny point. Introduced into France from the Levant in 1798, and to England in 1820.
- P. L. 4 calábrica. Laricio de Mont Sila en Calabre, Delamarre. — This pine, Michaux and Vilmorin remark in a note to Delamarre's work, resembles the pine of Caramania; but there are only young plants of it in France, which have not yet fruited.
P. L. 5 austriaca. *P. austriaca* Höss; Laricio d’Autriche, ou de la Hongrie, Delamarre.—Searcely differs from *P. caramánica*, which grows both in Romania and in the Crimea. We are satisfied of this, not only from living plants in British gardens, but from cones which we have received from Vienna.

**Other Varieties.** *P. altissima* and probably some other names are applied to *P. Laricio*, or some of its varieties, but not in such a manner as to enable us to state anything satisfactory respecting them. The only truly distinct forms of this species, in our opinion, are, *P. L. corsiciana*, *P. L. caramánica* (of which there is a handsome tree in the Horticultural Society’s Garden, under the name of *P. romana*), *P. L. Pallasiána* (of which there are trees at White Knights and Boyton), and perhaps *P. L. pyrenáica*; the two last we have treated as species, for the sake of keeping them distinct.

The branches are disposed in whors, of five or six in a whorl; which are distinguished from the branches of *P. Pinaster*, by being often twisted and turned in a lateral direction at their extremities, especially in full-grown trees. The leaves vary much in length, according to the age of the tree, and the soil on which it grows. The shortest are generally 4 or 5 inches, and the longest 7 or 8 inches, long. The cones are commonly in pairs, but sometimes three and sometimes four occur together; they point horizontally and slightly downwards, and sometimes they are slightly curved, so as to be concave at the extremity of the side next the ground. They are from 2 in. to 3 in., or more, in length; of a ruddy yellow or tawny colour, or greenish. In France, according to Thouin, *P. Laricio* grows two thirds faster than the Scotch pine, placed in a similar soil and situation. Baudrillard says that the wood of *P. Laricio* has neither the strength nor the elasticity of that of *P. sylvéstris*. Previously to the year 1788, the wood was only used by the French government for the beams, the flooring, and the side planks of ships; but, in that year, the administration of the marine sent two engineers to examine the Forests of Lonca and Rospa in Corsica, in which abundance of trees were found fit for masts. After this, entire vessels were built with it; only it was found necessary to give greater thickness to the masts, in order to supply its want of strength and elasticity. The thickness of the sap wood in *P. Laricio* is greater than in most other species of pine; but the heart wood is found to be of very great duration. In Corsica, it is employed for all the purposes for which it is used, when of 36 or 40 years’ growth. It is easily worked, and is used both by cabinetmakers and sculptors in wood; the figures which ornament the heads of vessels being generally made of it. In Britain, the tree hitherto can only be considered as being one of ornament; and, as such, it deserves to be planted extensively for its very regular and handsome form, and the intensely dark green of its abundant foliage. It also deserves planting on a large scale as a useful tree, on account of the great rapidity of its growth. In the low districts of Britain, it might probably be a good substitute for *P. sylvéstris*.

**4. P. (L.) austriaca** Höss. The Austrian, or black, Pine


*Synonymes.* *P. nigricans* Hort.; *P. nigrescens* Hort.; schwartz Føhre, Ger.

*Engravings.* Fig. 1772, showing the bud of a plant of two years’ growth in the Horticultural Society’s Garden; and fig. 1775, a cone of the natural size, from a specimen received at Vienna.
Spec. Char., &c. Sheath with from 3 to 5 rings, at first of a clear ash grey, then becoming reddish, afterwards darker, and at last black. Leaves from 2 in. to 5 in. long; seldom, and but little, twisted; when young, erect; when older, standing out, and curved towards the twig; outer surface half-round, dark green, glossy, and with a sharply serrated margin; inner surface nearly even, but slightly dotted along the ridge; points prickly, of a yellowish brown or fawn colour. Buds large, the leader often from 1 in. to 1½ in. long, ovate, with a long point.

The cone does not arrive at maturity till October in its second year; it is conical, rounded at the base, 2 or 3 inches long, pointing horizontally, or nearly so; of a light yellow brown, polished, and shining. Seeds very closely resembling those of P. Laricio; and the cotyledons 6 or 8, as in that species. The bark of the shoots of the current year is of a greenish yellow, regularly and deeply raised by the insertions of the leaves, furrowed, and shining. (Höss's Gemeinflussliche Aufleitun, &c., p. S.) A large tree. Austria, in the Breima Forest (Wienerwald), the Banate, upon the Demoglet, near Mehadia; and in the neighbourhood of the Snowy Mountains, at higher altitudes than Picea pectinata. Height 60 ft. to 80 ft. Introduced in 1835. It flowers about the end of May, and its cones are ripe in the October of the second year.

This pine prefers a deep, dry, calcareous sand; but it will succeed in any soil, provided it is loose; and it even loves a moist soil, if not too wet. It thrives best in situations having a southern aspect. The sap wood of P. austriaca is said by Höss to be of a whitish yellow, and the heart wood of a rusty yellow; the latter being very resinous, strong, and tough. It is much valued in Austria, when kept dry; and is said to surpass even the larch in resisting the injurious effects of water, or of alternate moisture and dryness.

P. (L.) Pallasiana Lamb. Pallas's, or the Tartarian, Pine.


Synonyms. P. taurica Hort.; P. tatrica in the Hammersmith Nursery in 1777; P. maritima Pall. Ind. Tour. (according to a specimen in Mr. Lambert's herbarium); Tzaan in the Tartar language.

Engravings. Lamb. Fin., ed. 2, 1. t. 5.; the plate of this tree in Arb. Brit., 1st edit., vol. viii.; our figs. 1774. and 1775. to our usual scale; figs. 1775. and 1777. of the natural size, from living specimens received from A. B. Lambert, Esq., taken from his trees at Boyton.

Spec. Char., &c. Leaves in pairs, very long, erect, rigid, channelled; sheaths very short. Crest of the anthers roundish, convex, repand. Cone ovate-oblong, often curved. Scales slightly tuberculate, and terminated by a very small prickle. (Lamb.) Bud (fig. 1775.) ⅛ in. to ½ in. long, and from
½ in. to 1 in. broad; ovate, and pointed, with the sides concave, like those of *P. Laricio*, but much larger. Leaves (see fig. 1777.) from 4 in. to 7 or 8 inches in length; sheath from ½ in. to ¾ in. in length. Cones from 4 in. to 5 in. in length, and from 1½ in. to 1¾ in. in breadth at the widest part: ovate-oval, acuminate, horizontal in their direction, and slightly incurved at the extremities, which point downwards. Scales as in those of *P. Laricio*, but larger. A large spreading tree, Taurica. Height 60 ft. to 70 ft., sometimes 80 ft. Introduced in 1790. It flowers in the end of May, and its cones are ripe in November of the second year.

**Varieties.** We can readily conceive that *P. L. Pallasiâna*, like every other variety of *P. Laricio*, is liable to sport; and, accordingly, of the trees possessed by Mr. Lambert, one has the cones straight and short, and another long and crooked. The *P. taurica* of the London gardens is without doubt a synonyme, and not even a variety.

This tree is about the size of *P. sylvestris*, but much more spreading, sending out numerous large, declining, and horizontal branches from the summit to the base; the lower branches almost equaling the trunk itself in size. The chief circumstance in which

1775. *P. (L.) Pallasiâna.*

*P. (L.) Pallasiâna* differs from *P. Laricio*, judging from the trees at White Knights, is in the length of the cones: the leaves are also larger than those of *P. Laricio*; and, on the whole, the difference may be compared to that which exists between *Tilia eu-
ropæa and T. c. grandiiloba, or the pin de Hageneau and the pin de Genève.


Engravings. Our fig. 1780. from a cone received from M. Vilmorin, fig. 1778. from a bud of the plant in the Horticultural Society’s Garden, both of the natural size; and fig. 1779., to our usual scale, from a tree growing, in 1857, at Woodside, near Hatfield, the residence of John Church, Esq.

Spec. Char., &c. Leaves long, in tufts at the extremities of the shoots; branches dispersed, naked, scaly when young. Cones conical, smooth, and a little recurved, seeds hard. (Lap.) The tree when young somewhat resembles P. halepensis, but when older it assumes a much higher stature, and a more pyramidal form. The cones are, like those of P. halepensis, on strong footstalks; but, instead of pointing downwards, they are always in a horizontal direction. The leaves are long and fine; but strong and upright, and arranged round the branches like the hairs of a camel-hair pencil, whence the name of pine pinceau. They are sometimes three in a sheath, on the young shoots. (Ann, de la Soc. d’Hort. de Paris, xiii. p. 186.) A majestic tree. Spain, in the extensive forests of the Sierra de Segura, and other places. Height 60 ft. to 80 ft. Introduced in 1834. It flowers in May, and its cones ripened in the November of the second year.

Captain Cook, who introduced this pine, describes it as quite hardy, of quick growth, and from its noble appearance, the beauty of its form, and the clear transparent colour of both the bark and foliage, likely to be a vast acquisition to our park scenery. The timber is white and dry, being nearly without turpentine; but the cones exude a most delicious balsamic odour, as do the leaves. H. S.

2 7. P. Pina’ster Ait. The Pinaster, or Cluster, Pine.


Leaves in pairs, rigid, very long. Cones conical, placed in whorls of 3, 4, or even as many as 8, together; rather solitary, much shorter than the leaves; the backs of the scales forming each a rhomboidal pyramid, with two lateral angles, from which proceed ribs, terminating at the summit of the pyramid in a smaller pyramid, which has a hard point, more or less sharp, and of a grey colour. Crest of the anthers rounded. Bud (fig 1781.)

from \(\frac{5}{8}\) in. to \(\frac{3}{16}\) in. long; and from \(\frac{3}{4}\) in. to \(\frac{1}{2}\) in. broad; straight-sided, cylindrical, with the scales turned back; white and woolly, but never resinous; surrounding buds few and small. Leaves (see fig. 1782.) from 6 or 8 inches to 1 ft. in length, slightly serrated on the margins; sheaths from \(\frac{1}{2}\) in. to \(\frac{3}{4}\) in. in length; imbricated, scarcely rigid; pale green or whitish at first, and becoming at last black. Cones from 4 in. to 6 in. in length, and from \(1\frac{1}{4}\) in. to 2\(\frac{1}{2}\) in. wide at the broadest part; light brown, and shining; scales from 1 in. to 1\(\frac{1}{4}\) in. in length, and from \(\frac{1}{4}\) in. to \(\frac{3}{4}\) in. in breadth at the widest part; terminating in a regular pyramid; rhomboidal at the base. The summit consisting of a smaller rhomboidal pyramid, of an ash-grey colour, very
hard, and with a small sharp point, more particularly in the upper part of the cone. Seeds oblong, and measuring, without the wing, upwards of \( \frac{3}{4} \) in. in length, and nearly \( \frac{1}{2} \) in. in breadth; with the wing above \( 1\frac{3}{4} \) in. in length; wing nearly \( \frac{1}{4} \) in. in breadth. Cotyledons 7 or 8. A large tree. South of Europe and Greece; chiefly in low situations, and sandy soils near the sea. Height 50 ft. to 60 ft. sometimes 70 ft. Introduced in 1596. It flowers, near London, in the beginning of June; in the North and West of France, in May; and on the Landes of Bordeaux, in April; and the cones ripen at the end of the second year.

**Varieties.** The extensive geographical range of this tree has given rise to many varieties, though we have seen but very few that can be considered truly distinct.

1 P. P. 2 *Aberdoniæ* Gard. Mag. vol. xv. p. 128. *P. P.* Escarènus Arb. Brit. 1st edit. p. 2214. — The leaves are of a paler green than those of the species, but they are equally long and strong. The cones are shorter, and more ovate. A most distinct and handsome variety. Introduced into Britain by the Earl of Aberdeen, in 1825.

2 P. P. 3 *Lemoniânu*. *P. Lemoniâna* Benth. Hort. Transact., vol. i., second series, p. 509. pl. 20.; and our *fig.* 1783. to our usual scale, and *fig.* 1784. to the natural size.—This is also a very distinct variety, but quite the opposite of the last; being a stunted bushy plant, with

![Image of cone](image_url)

1783. *P. P. Lemoniânu*.  
1784. *P. P. Lemoniânu*.

zigzag, close, and twiggy branches; and standing apparently in the same relation to *P. Pinâster* that *P. (s.) pumilio* does to *P. sylvestris*.

2 P. P. 4 *minor*. *P. maritima* minor *N. Du Ham.* v. p. 242. t. 72. bis, f. 1., and our *fig.* 1785.; *Pin Pinsot*, *Pin de Mans*, *Pin à Trochet*. — This variety, which is chiefly distinguished by the somewhat smaller size of its cones, being from \( 3\frac{1}{2} \) in. to \( 4 \) in. long, and \( 1\frac{1}{2} \) in. broad, is said by Bosc to be produced by a colder climate, and to abound on the west coast of France, especially on the barren sands in the neighbourhood of Mans; and to be harder than the species. It is found in the Landes of Bordeaux, growing along with *P. Pinâster*.

3 P. P. 5 *foliis varieglatis*. — Leaves variegated.

4 P. P. 6 *maritimus*. — Shoots and leaves more slender than those of the species. Greece and Italy, on the sea coast.

**Other Varieties.** Several enumerated in our first edition bear the names
of the countries whence they were introduced, but they are not worth keeping distinct. The only varieties of pinaster which we think worth cultivating are, *P. P. Aberdonica* and *P. P. Lemonianus*, and, for those who like variegated plants, *P. P. foliis variegatis*.

There is a more decided taproot in this pine than in any other European species; and, where the soil is dry and sandy, it descends perpendicularly into it, like the root of a broad-leaved tree. In proportion as the perpendicular roots are stronger than those of other pines, the horizontal roots are weaker; and hence, in the case of transplanted trees, from the weight of the head, produced by the dense mass of long foliage, the stem is generally inclined to one side; and when, after two or three years, it begins to grow erect, a curvature appears close above the root, which remains visible even in old trees. The rate of growth is very rapid; plants, in 10 years from the seed, attaining the height of 10 or 12 feet, and, in twenty years, the height of 30 ft., in the climate of London. The wood is in thick layers, soft, and not of great duration. The most remarkable fact in the history of this tree is the great use which has been made of it in France, in covering immense tracts of barren sand on the sea coast. Though the wood of the pinaster is soft, and not of long duration, it is employed, in the marine arsenal at Toulon, for the outer cases of all the packages which are put on board vessels, and principally for the piles and props which are used for sustaining the frames of vessels while they are being constructed. In Bordeaux and in Provence, it is employed for the common kinds of carpentry, for packing-boxes, and for fuel; but the most valuable purposes to which the tree is applied in these countries is the production of rosin, tar, and lampblack. The modes of procuring pitch, tar, rosin, &c., from the Pinaster, are given at length in our first edition, vol. iv. p. 2221. to 2224. A deep dry sand, or a sandy loam on a dry bottom, suits this tree best; it abhors chalk, and every description of calcareous soil. With
respect to elevation, though it will endure the sea breeze, it will not thrive, in England, much above the level of the sea.


Spec. Char., &c. Leaves in pairs. Cones ovate, obtuse, nearly as long as the leaves, their scales with recurved deciduous points. Seed bony, with very short wings. Crest of the anthers jagged. (Smith.) The buds (see fig. 1787.) resemble those of Pinaster, but are smaller in all their dimensions, much less pointed, more woolly, and wholly without resin. The surrounding buds are nearly as large as the central one. The leaves are from 5 in. to 7 in., and sometimes 8 in., long, serrated; sheaths, at first, 3/4 in. long, afterwards becoming lacerated, shortened to half their length, and ringed with four or five rings. Cone from 5 in. to 6 in. in length; and from 31/2 in. to 4 in. in breadth; scales large and woody, from 2 in. to 2 1/2 in. in length, and from 1 in. to 1 1/2 in. in breadth, with the thickened part pyramidal, rhomboidal, and sometimes hexagonal in the plan, resembling those of P. Pinaster, but having four ribs from the four angles, instead of two from the lateral angles. The ribs meet in a small rhomboidal pyramid, of a grey colour, which terminates in a broad blunt prickles. The colour of the entire cone is much lighter than that of P. Pinaster, and is of a pale wainscoat colour. Seeds, without the wing, 3/4 in. long, and from 3/8 in. to 3/4 in. broad; with the wing, 1 in. long. Cotyledons 9 to 11. A low or medium-sized tree. Greece, and cultivated in Italy. Height, in Greece, 50 ft. to 60 ft.; in England, 15 ft. to 20 ft., rarely 30 ft. Introduced in 1548. It flowers, in the climate of London, in the latter end of May or the beginning of June, and ripens its cones in the autumn of the second year.

Varieties.

Π P. P. 2 frigilis N. Du Ham. v. p. 242.—The only variety mentioned by Continental authors; and it only differs from the species in having a tender shell to the seed.

Π P. P. 3 crética Hort.—The leaves seem to be rather finer than those of the species.

In the South of Europe, this species is a large tree, with a spreading head, forming a kind of parasol, and a trunk 30 or 40 feet high, clear of branches; but in England it generally forms a bush rarely exceeding 15 ft. in height. The soil for the stone pine should be deep, sandy, and dry, and the situation sheltered, though the plants should not be crowded. The seeds are procured from foreign cones, which are generally purchased in the autumn, or at the beginning of winter, and the seeds taken out of them by throwing them into hot water, and treating them like those of pinaster. They are frequently sown in pots in the course of the winter, and preserved in a frame, and kept

3 q 3
gently moist, till the spring; when most of the seeds will come up, though some will remain in the ground till the second year. Their tardy germination is owing to the thickness of the shell of the seed, which some cultivators break before sowing, though at the risk of injuring the seed. The plants which come up should be transplanted into small pots, after midsummer of the same year, or, at all events, not later than the following spring; and, for two or three years, they should be kept during winter in a frame, quite close to the glass. The plants are very tender for the first two or three years; but in the fourth and fifth years they will endure the open air, in the climates of
London and Paris, without any protection. The leaves of this species, as well as of several others, have quite a different appearance for the first two years from what they have ever afterwards; they are very glaucous, ciliated on their margins, very short, and very sharp-pointed. During this period, they are single and without sheaths; but afterwards they come out in pairs, with sheaths, these pairs being what are considered by botanists as abortive shoots. The nursery treatment of the stone pine is the same as that recommended for the pinaster, with which the tree is frequently confounded; this species having also very long taproots, which render it necessary to be extremely careful in taking them up for removal; indeed, they should generally be grown in pots; and, when they are turned out of the pots to be planted where they are finally to remain, the greatest care should be taken to stretch out the roots, and to spread them carefully in every direction.


Engravings. Lamb. Pin., ed. 2., t. 7. (exclusive of the ripe cone, which is that of P. Laricio); the plate of this tree in Arb. Brit., 1st edit., vol. viii.; our fig. 1793., to our usual scale; and figs. 1790. to 1792.; all from specimens from a tree in the Horticultural Society's Garden.

Spec. Char., &c. Leaves in pairs, very slender. Cones pyramidal, rounded at the base, turned downwards, smooth, solitary or in pairs, stalked. (Lois., and obs.) Buds (see fig. 1790.) from \( \frac{1}{8} \) in. to \( \frac{1}{4} \) in. long, and from \( \frac{1}{4} \) in. to \( \frac{1}{2} \) in. broad; imbricated, roundish, somewhat pointed, wholly without resin; and altogether like those of a pinaster in miniature. Cones (fig. 1792.) from \( 2\frac{1}{2} \) in. to 3 in. in length; and from 1\( \frac{1}{4} \) in. to 1\( \frac{1}{2} \) in. in breadth; invariably turned downwards, so as to form an acute angle with the stem. Footstalks of the cones from \( \frac{1}{2} \) in. to \( \frac{3}{4} \) in. in length. Scale (fig. 1791. a) from \( 1\frac{1}{4} \) in. to \( 1\frac{1}{2} \) in. long, and \( \frac{1}{4} \) in. broad. Seed, without the wing (c), from \( \frac{1}{2} \) in. to \( \frac{3}{4} \) in. in length, and \( \frac{1}{4} \) in. in breadth; with the wing (b), from 1 in. to \( 1\frac{1}{4} \) in. in length. Cotyledons about 7. A low tree. South of Europe, Syria, and Barbary, in dry sandy warm soils. Height 20 ft. to 30 ft. Introduced in 1683. It flowers, in the climate of London, about the end of May or the beginning of June, and the cones are ripened in the autumn of the second year.

Varieties.

P. h. 2 minor. — Cones rather smaller than in the species, but it is scarcely worth keeping distinct. Horticultural Society's Garden.
† P. h. 3 maritima. P. maritima Lamb. Pl. ed. 2. t. 6. — According to Mr. Lambert's figure, the cones of this variety, in the different forms in which he has given it, are all larger than those of the species. A very doubtful variety.

† P. h. 4 genuensis. P. genuensis Cook.— Does not appear, in foliage and habit, different from the species. The cone we possess is 3 in. long, and 1 3 in. in diameter at the broadest end, and regularly pyramidal. The length of the stalk is 3 in.

The leaves are of a deep green, 2 or 3 inches long, most commonly 2 in a sheath, but sometimes, though rarely, 3; and they are so disposed as to form a double spiral round the branches. They never remain longer than two years on the tree; in consequence of which the branches of old trees have a naked appearance, and the head looks open, straggling, and thin. The male catkins are reddish, from 3 in. to 3 in. in length, on short pedicels, disposed in branches of 30 or 40 together. The crest is large, proportionally to the size of the anthers, and is rounded. The female catkins are not, as is usual, placed at the extremity of the shoot of the year, but come out at the side of the shoot, and towards the middle of it; they point outwards during their flowering, and are of a greenish hue, slightly tinged with red. The cones have very strong peduncles of half an inch or more in length; and, as they advance in size, they take a direction almost perpendicularly downwards. The tree grows rapidly when young, acquiring the height of 15 or 20 feet in ten years.


Spec. Char., &c. Leaves in pairs, very long, slender, wavy. Cones sessile, crowded, ovate, smooth. Scales truncate at the apex, flattish, umbilicate. (Lamb.) Buds (see fig. 179a.) 3 in. long, and 3 in. broad; ovate, pointed, whitish, and wholly without resin; centre bud surrounded by three smaller buds. Leaves from 3 3 in. to 4 in. long on the young plant, in the Horticultural Society's Garden; but above 6 in. long in Mr. Lambert's figure. Sheaths, in both, less than 3 in. in length. According to Link, a lofty tree, viny with P. Laricio. Calabria, on mountains, 4000 ft. to 5000 ft. above the level of the sea. Height 70 ft. to 80 ft. sometimes 100 ft. Introduced in 1836.

Leaves in twos, rarely in threes, very long, slender, glabrous, wavy, spreading, about 9 in. long; light green, canaliculate above, convex beneath, serrulate on the margin, terminated by a small conical callous mucro; sheaths about 3 in. long, persistent, of an ash-brown colour, membranaceous, entire round the tops, guarded at bottom with a linear-lanceolate, revolute, bright brown, thread-like, ciliate scale (metamorphosed leaf). Cones sessile, generally in clusters, ovate, smooth, brownish, 2 in. to 3 in. long. Cones truncate at the apex, flattish, trapezoidal, umbilicate, smooth, obsolescely 4-angled; umbilics dilated, depressed, somewhat hollow, ash-coloured. (D. Don.) This species is nearly related to P. h. maritima, but it is readily distinguished both from it and P. halpepeins by its very long wavy leaves, and by its shorter, sessile, clustered cones, with the scales depressed and slightly concave at their apex.
The leaves resemble those of *P. Laricio*; but they are more slender, and rather longer; and both species differ essentially in their cones. Sprengel has referred it to *P. Pinaster*, not even allowing it the rank of a variety; but, according to Lambert's *Monograph*, the leaves in *P. Pinaster* are twice as stout, straight, and rigid, and disposed in interrupted verticels; and the cones are double the size, with the scales elevated and angular. The tree of *P. brüttia* is said to attain a considerable size, and to yield timber of excellent quality. (Lamb. *Pin.*) H. S.

**B. Natives of North America.**


**Engravings.** Lamb. *Pin.*, ed. 2., 1. t. 3.; Michx. *N. Amer. Syl.*, 3. t. 136.; our fig. 1799. to our usual scale of 1 in. to 2 ft.; and fig. 1798. of the natural size.

**Spec. Char., &c.** Leaves in pairs, divaricated, oblique. Cones recurved, twisted. Crest of the anthers dilated. (Smith.) Bud ¼ in. long, ½ in. broad; cylindrical, blunt at the point, whitish, and covered with resin in large particles; central bud surrounded by from three to five smaller buds, as shown in fig. 1797. Leaves (see fig. 1798.) from 1 in. to 1½ in. in length, including the sheath, which is short, and has three or four rings. Cones from 1½ in. to 2 in. long. Leaves and cones retained on the tree three or four years. Scales terminating in a roundish protuber-
ance, with a blunt point. Seeds extremely small. A low, scrubby, straggling tree. Hudson's Bay, and farther north than any other American pine, where it grows among barren rocks. Height, in America, 5 ft. to 8 ft.; at Dropmore and White Knights, 15 ft. to 30 ft. Introduced in 1735. Flowers yellowish; May. Cones ripe in the November of the second year.

The catkins of both sexes are expanded in May, before those of *P. sylvestris*; but, as in that species, the cones do not attain their full size and maturity till the November of the second year, and do not open to shed their seeds till the spring of the third year. The cones are commonly in pairs, of a grey or ash colour (whence the American name of grey pine); they are above 2 in. long, and have the peculiarity of always pointing in the same direction as the branches. They are remarkable for curving to one side, which gives them the appearance of small horns. They are extremely hard, and often remain on the trees several years. Plants are raised from imported seeds, when these can be procured; but the species may be inarched, or grafted in the herbaceous manner, on *P. sylvestris*.

† 12. *P. t'vops* ALT. The Jersey, or poor, Pine.


**Synonymes.** *P. virginiana* Du Roi Harb.; ed. Pott. 2. p. 47; Pin chêff, Fr.

**Engravings.** Lamb. Pin., ed. 2. 1. t. 12; N. Du Ham., t. 9. f. 1.; Michx. N. Amer. Syl. 3. t. 137; our fig. 1801, to our usual scale, and figs. 1800. and 1802. of the natural size, all from Dropmore specimens.

**Spec. Char., &c.** Leaves in pairs. Cones drooping oblong-conical, longer than the leaves. The scales awl-shaped, with prominent prickles. Crest of the anthers short, broad, jagged. Bud (fig. 1800.) from 3/8 in. to 1/2 in. long, and 1/4 in. broad; cylindrical, blunt at the point, resinous, brown, and surrounded by three small buds. Cone (fig. 1802.) from 2 3/8 in. to 3 1/2 in. long, and from 1 in. to 1 1/2 in. broad. Some of those at Dropmore are of the last dimensions. Scales of a hard woody texture, of a yellowish brown colour, with a sharp woody prickle projecting from each, which is generally straight. Leaves from 1 1/2 in. to 2 1/2 in. long. Sheaths with 3 or 4 rings. Seeds small, cotyledons 6 to 8. Young shoots covered with a fine purplish glaucous bloom. A tortuous-branched low tree, having, at a distance, the general appearance of *P. Banksiana*; but differing from that species in having many of the more slender branches pendulous, and the wood of the shoots of the current year conspicuously glaucous and tinged with violet.

New Jersey to Carolina, on dry barren soils. Height, in America, 30 ft. to 40 ft.; at Dropmore and Pain's Hill, 40 ft. to 50 ft. Introduced in 1739.
Flowers in May, and the cones are matured in November of the second year.

The violet colour of the shoots is peculiar to this species and to \textit{P. mitis}, among the 2- and 3-leaved pines, but it occurs in the 4-leaved pines, in \textit{P. Sabinaia} and \textit{P. Coulteri}. The buds are resinous; and this matter very readily exudes, and incrusts the surface of the sections wherever a branch is cut off. At Dropmore, in warm weather during sunshine, the fragrance of the air in the neighbourhood of this tree is delightfully balsamic.

13. \textit{P. pu'ngens} Michx. The prickly-coned, or Table Mountain, Pine.


\textit{Engravings}. Lamb. Pin., ed. 2., 1. t. 17.; Michx. N. Amer. Syl., 3. t. 136.; our fig. 1804. to our usual scale, and figs. 1803. and 1805. natural size, all from Dropmore specimens.


Cones top-shaped, very large, yellow. Scales with hard incurved prickles, thick, and broad at the base. (\textit{Michx.}) Bud (fig. 1803.) from \frac{1}{4} in. to \frac{1}{2} in. long, and \frac{1}{2} in. broad; cylindrical, blunt at the point; brownish, and covered with white resin; generally without small buds. Leaves (fig. 1805.) \frac{2}{3} in. long, including the sheath, which has 4 or 5 rings; the leaves are much broader, and rather shorter and lighter, than those of \textit{P. (s.) pemphix}, and tipped with a sharp point. Cone \frac{3}{4} in. long, and about \frac{2}{3} in. broad. Scale woody, and furnished with a strong awl-shaped hook, exceeding \frac{1}{3} in. in length. Seeds nearly as large as those of \textit{P. sylvestris}, rough and black. Cotyledons from 6 to 8.
A tree, with the habit of *P. sylvestris*, but with a much more branchy head. North Carolina, on high mountains. Height 40 ft. to 50 ft. Introduced in 1804. Flowers in May, and the cones are ripened in November of the second year.

Readily distinguished from *P. sylvestris* by the young leaves not being glaucous, and by the leaves generally being more straight and rigid, slightly serrated at the margins, and with shorter sheaths. The leaves are also of a paler green, both when young and full grown; so that the tree, when of large size, has nothing of the gloomy appearance attributed to the Scotch pine. The cones are of a light yellowish brown colour, without footstalks; and they are generally in whorls of 3 or 4 together, pointing horizontally, and remaining on the tree for many years. At Dropmore, there are cones adhering to the trunk and larger branches of more than 20 years' growth, giving the tree a very singular appearance; and rendering its trunk easily distinguishable, even at a distance, from those of all others of the pine tribe.

**14. *P. resinos*a Ait.** The resinous, or red, Pine.


*Synonyms.* *P. rubra* Michx. N. Amer. Syl. 3. p. 112.; *Norway Pine, in Canada*; *Yellow Pine, in Nova Scotia*; le Pin rouge de Canada, Fr.

*Engravings.* Lamb. Pin., ed. 2., 1. t. 13.; Michx. N. Amer. Syl., 3. t. 134.; our fig. 1808., to our usual scale, with a male catkin (m) of the natural size, and figs. 1806. and 1807. of the natural size, all from Dropmore and White Knights specimens.

*Spec. Char., &c.* Bark red. Leaves in pairs, 4 or 5 inches long. Cones of a reddish brown, ovate-conical, rounded at the base, and half the length of the leaves; scales dilated in the middle, and unarmed. (Michx.) Buds
(fig. 1806.), in the White Knights specimen, 1½ in. long, and 5⁄16 in. broad; ovate, acuminate, concave on the sides, with a long point, as in P. Laricio; but reddish brown, and very resinous. Leaves (fig. 1807.) from 5 in. to 6 in. long, straight, stiff, and yellow at the tip; sheath from ¼ in. to 1 in. long, white, lacerated, and becoming short and dark with age. Cone 2 in. long, and 1¼ in. broad, ovate-conical, brownish red, sessile, or with very short footstalks; scales ½ in. long, and 2⁄3 in. broad. Seeds small; with the wings 3 in. long. The leaves are thickly set, and inclined towards the shoot, and much lighter and more glaucous than in P. Laricio and its varieties, in which the foliage is of a darker green than it is in any other species of Pinus. The shoots are much more naked, the whole tree is more open and lighter, and the large and small branches are straighter and more distant, than in P. Laricio; the plant is also of much less vigorous growth in British gardens. A large tree, Canada, near Lake St. John, and also in Nova Scotia and at Lake Superior; in dry sandy soils. Height, in America, 60 ft. to 70 ft.; in England, 20 ft. to 30 ft. Introduced in 1756. It flowers in May, and the cones are ripened in the autumn of the second year.

The foliage and the cones, and even the tree altogether, bear a close general resemblance to P. Laricio; but the different form and colour of the scales, the lighter tinge of the foliage, and, above all, the much more delicate constitution of the tree, appear sufficient to justify us in retaining it as a distinct species. We are certain that the trees at White Knights are the true P. rubra of Michaux: because they were raised by Messrs. Loddiges from seeds of P. rubra, sent to them by Bartram of Philadelphia. We have also, since the above was written, received cones and leaves from Mr. M'Nab, jun., which were gathered by him in Upper Canada, in August, 1834, from trees which had been blown down, and which measured upwards of 70 ft. in length.
**2 15. P. m'tis Michx.** The soft-leaved, or yellow, Pine.

*Identification.* Michx. Fl. Bor. Amer., 2. p. 204.; N. Amer. Syl., 3. p. 120.


*Engravings.* Michx. N. Amer. Syl., 3. t. 137; our figs. 1812, from Dropmore, and 1813, from Michaux, to our usual scale; and figs. 1809, 1810, and 1811, of the natural size.

*Spec. Char., &c.* Leaves long, slender; hollowed on the upper surface. Cones small, ovate-conical. Scales with their outer surface slightly prominent, and terminating in a very small slender mucro, pointing outwards. (Michx.) Buds, on a young tree (fig. 1809.), 3/4 in. long, and 1/3 in. broad; on an old tree, larger (fig. 1810.); scarcely resinous. Leaves (fig. 1811. from Michaux) from 2 in. to 4 in. long, with sheaths 3/4 in. long; white, lacerated, afterwards becoming dark, slightly ringed. Cone 2 in. long, and 1 in. broad in the widest part. Seeds small; with the wing, 3/4 in. long. Young shoots covered with a violet-coloured glaucous bloom, like those of *P. inops*, by which it is readily distinguished from the *P. variabilis* of Lambert. A beautiful tree, much valued in America for its timber. New England to Georgia, in most pine forests, in various parts of the United States. Height 50 ft. to 60 ft. in America, and also in England; with a trunk of the uniform diameter of 15 or 18 inches, for nearly two thirds of its length. Introduced in 1739. Flowers in May, and its cones are ripened in November of the second year.

The branches are spreading on the lower part of the trunk, but become less divergent as they approach the head of the tree, where they are bent towards the body so as to form a summit regularly pyramidal; but not spacious in proportion to the dimensions of the trunk. This narrow conical appearance of the head, as compared with the spreading character of those of other species, seems to have given rise to the name of spruce pine in America. The leaves, according to Michaux, are 4 or 5 inches long, fine and flexible, hollowed on the upper surface, of a dark green, and united in pairs. Sometimes, from luxuriance of vegetation, three leaves are found in the same sheath on young shoots, but never on old branches. The *P. variabilis* of Lambert's *Pinos*, which is made a synonyme of this species by Pursh, is unquestionably a totally different plant from
the *P. mitis* of Michaux; being without the violet-coloured glaucous bloom on the young shoots; having rigid leaves, generally in threes; and a cone with very strong prickles, like that of *P. Twa'dn*, to which species we have referred it. The only plants that we know which answer to Michaux’s description of *P. mitis* are at Dropmore, where they are readily known by the violet-coloured glaucous bloom on the young shoots, and by the leaves being almost all in twos; at the same time, it is proper to mention that the leaves there, though soft and slender, are much shorter than those in Michaux’s figure. The name applied to this species at Dropmore is *P. variabilis*. There is also a plant at Dropmore named *P. mitis*; but it is wholly with three leaves; and, as far as we can ascertain (the tree not having yet borne cones), it belongs either to *P. serotina*, or to some variety of it. The description given by Miller of *P. echinata*, as having finely elongated leaves, and a cone with very slight slender prickles, agrees perfectly well with this species, as described by Michaux; and not at all with Mr. Lambert’s *P. variabilis*, which he describes as having leaves only 2 in. long, and cones with scales having “thorny points of a strong woody texture projecting from them.”


Buds roundish, with a blunt point, covered with resin, and brown. Leaves 2 in a sheath, 2 in. long; sheath very short, imbricated, black. Cones from 2 in. to 2½ in. long; and from ¾ in. to 1 in. broad; scales with the apices having a depressed lateral rib, terminating in a blunt point, furnished with a caducous mucro. The shoots are regularly and closely covered with leaves, much in the same manner as those of *P. (s) pumilio*, to which the specimen sent home by Douglas, in the Horticultural Society’s herbarium, bears a general resemblance. This pine was found by Douglas in North-west America, on swampy ground near the sea coast; and, abundantly, near Cape Disappointment and Cape Lookout.  

*Fig. 1814.* to our usual scale, and *fig. 1815.* of the natural size, are from the specimens in the Horticultural Society’s herbarium.


Leaves 2 in a sheath, slightly glaucous, scarcely 1 in. long. The buds are very small, reddish, fringed, and not resinous. The cones are in whorls from 2 to 5 together, sharply pointed, longer than the leaves, with the scales almost square, and not pyramidal. Bosc thinks that it is probably a native of North America; but his description is taken from a tree in the garden of the Petit Trianon, about 40 ft. high, the only one he had seen. He adds that its general appearance resembles that of *P. mitis*; but it differs in its leaves being much shorter, and its cones being without spines.
§ ii. *Ternāte.* — Leaves 3 in a Sheath.

A. Natives of North America.

**2 18. P. Tē'na L.** The Frankincense, or Loblolly, Pine.


*Synonyms.* P. foliis ternis Gorn. Virg. 152; *P. virginiana* teniiōla triplis Pink. Alm. 207; White Pine, at Petersburg and Richmond, in Virginia; Oldfield Pine, Amer.; Pin de l'Encens, Fr.

*Engravings.* Lamb. Pin., ed. 2, t. 15; Michx. N. Amer. Syl., t. 143; our *fig* 1819; to our usual scale; and *figs* 1816 to 1818, of the natural size, from the Horticultural Society, Dropmore, and Syon specimens.

*Spec. Char, &c.* Leaves in threes, elongated. Cones often in pairs, shorter than the leaves; oblong, pyramidal, somewhat truncate at the apex; scales with sharp prickles, turned inwards. Crest of the anthers rounded. Buds, on young trees (see *fig* 1816), ½ inch long, and ¼ inch broad; pointed, with straight sides; brownish red, and more covered with resin than any other species, except *Pin. Banksiana*.

Buds on the full-grown tree at Syon as in *fig* 1818. Leaves (see *fig* 1817) from 3½ to 5½ in. long, rigid, bluntly pointed, channeled in the middle, with sheaths from ¼ in. to 1 in. long; brown, and faintly ringed. Cones 3½ in. to 4½ in. long, and from 1½ to 2 in. broad; scales 1½ in. long. Seed small; with the wing, 1½ in. long.

A large tree. Florida to Virginia, in barren sandy situations. Height 70 ft. to 80 ft. Introduced in 1713. In the climate of London, the tree flowers in May, but in Carolina it flowers in April; and the cones ripen in the August of the second year.

*Variety.*

**† P. T. 2 alopecrüide Ait. Hort. Kew., ed. 2, v. p. 317.** The Foxtail Frankincense Pine. — Said to have the leaves spreading, and more squarrose than the species. Pursh is of opinion that this variety is nothing more than the *P. scrotina* of Michaux; but Lambert thinks it a variety of *P. rigida*. 
The leaves are broad, pointed, flat on the upper surface, and forming a ridge below; of a fine light green, with a sheath long and whitish at first, but becoming short, thick, and brown when old. The cones are about 4 in. in length; and the scales terminate in processes which have the form of an elongated pyramid, somewhat in the manner of *P. Pinaster*; but the apex of the pyramid terminates in a thick and sharp prickle, somewhat in the manner of *P. pungens*, and turned upwards. In England, in the climate of London, *Pinus Taeda* grows vigorously; there being large trees at Syon and at Kew, which, after being 50 years planted, produce shoots of from 9 in. to 1 ft. every year, and ripen cones.

19. *P. rigida* Mill. The rigid, or Pitch, Pine.


**Spec. Char., &c.** Leaves in threes. Cones ovate-oblong, in threes or fours, much shorter than the leaves; their scales terminated by a rough thorny point. Male catkins elongated, with the crest of the anthers dilated, and
roundish. Buds, on young trees (see fig. 1821.), from \( \frac{1}{4} \) in. to \( \frac{5}{4} \) in. long, \( \frac{1}{4} \) in. broad, pointed, brown, and covered with resin; on the full-grown trees at Dropmore as in fig. 1822. Leaves (see fig. 1823.) from \( 3\frac{1}{2} \) in. to \( 4\frac{1}{2} \) in. long; sheath \( \frac{2}{6} \) in. long, white at first, and afterwards becoming darker, but scarcely black. Cones from \( 2\frac{1}{4} \) in. to 3 in. long, and from \( 1\frac{1}{4} \) in. to \( 1\frac{1}{2} \) in. broad; scales \( 1\frac{1}{2} \) in. long, terminating in depressed quadrilateral pyramids, ending in a prickle, pointing outwards. Seed little more than \( \frac{1}{16} \) in. long; but, with the wing, from \( \frac{3}{16} \) in. to \( \frac{1}{8} \) in. long. Cotyledons, ?.

**Variety.** According to Mr. Lambert, *P. T. alopecuroidea* Ait. is a variety of *P. rigida*, characterised by its much shorter and stouter leaves, and its ovate-oblong, much narrower, and aggregated cones. (*Lamb. Pin.,* ed. 2., no. 17.) We have, however, placed it under *P. serotina*.

The pitch pine, in America, Michaux informs us, varies, according to soil and situation, from 12 or 15 feet to 70 or 80 feet in height. "The buds are always resinous; and its triple leaves vary in length from \( 1\frac{1}{2} \) in. to 7 in. according to the degree of moisture in the soil. The male catkins are 1 in. long, straight, and winged, like those of the pond pine (*P. serotina*). The size of the cones depends on the nature of the soil, and varies from less than 1 in. to more than 3 in. in length; they are of a pyramidal shape, and each scale is pointed with an acute prickle of about \( \frac{3}{16} \) in. long. Whenever these trees grow in masses, the cones are dispersed singly over the branches; and they shed their seeds the first autumn after they are mature; but, on
solitary trees, the cones are collected in groups of four, five, or even a larger number, and will remain on the trees closed for several years. In British gardens, the tree is of as rapid growth as *P. Té'da* or *P. pungens*.


There is a tree bearing this name in the Hackney arboretum, which, in 1840, was upwards of 13 ft. high, with 3 leaves in a sheath, and pendulous branches reaching to the ground. The leaves and young shoots have every appearance of those of *P. rígida*; and, though the tree has not yet borne cones, we have little doubt of its belonging to that species. The plant was received from the Liverpool Botanic Garden in 1820.

† 21. *P. (r.) sero'tína* Michx. The late, or Pond, Pine.


*Engravings.* Michx. N. Amer. Syl., 3. t. 142.; Lamb. Pin., ed. 2. 1. t. 18.; the plate of this tree in Arb. Brit., 1st edit., vol. viii.; our fig. 1826. to our usual scale; and figs. 1825. to 1827. of the natural size, from the Horticultural Society and Dropmore specimens, and from Michaux.

*Spec. Char., &c.* Leaves in threes, very long. Male catkins erect, incumbent. Cones ovate; scales having very small mucros. Buds, on young trees (see fig. 1824.), from \( \frac{7}{8} \) in. to \( \frac{1}{4} \) in. in length, and from \( \frac{1}{4} \) in. to \( \frac{1}{4} \) in. in breadth; conical, dark brown, and very resinous; buds on old trees as in fig. 1825. Leaves (see fig. 1827.), in the Dropmore specimens, from \( \frac{1}{4} \) in. to 6 in. long; in Michaux’s figure, upwards of 8 in. long. Cones 2\( \frac{1}{2} \) or 3 inches long, and 1\( \frac{1}{2} \) or 2 inches broad; egg-shaped; scales \( \frac{1}{4} \) in. long, and \( \frac{1}{4} \) in. broad, with the apex depressed, and terminating in a slender prickle. Seed very small; with the wing, from \( \frac{1}{4} \) in. to \( \frac{1}{4} \) in. in length. Cotyledons, ?. The cones and leaves of the trees of this name at Dropmore, and the circumstance of there being trees at Pain’s Hill with cones of different sizes and shapes, but all on three-leaved pines, and all evidently of the *Té’da* family, induce us to believe that *P. rígida* and *P. sérôtîna* are only different forms of the same species. A middle-sized tree. New Jersey to Carolina, on the edges of ponds, and in swamps. Height 30 ft. to 40 ft. Introduced in 1713. It flowers in May, and the cones are ripened in the autumn of the second year, but do not shed their seeds till the third or fourth year, whence the specific name.

The tree has a branchy trunk, from 15 in. to 18 in. in diameter, and in America it rarely exceeds from 35 ft. to 40 ft. in height. The timber consists chiefly of sap wood, and is of very little use except for fuel. The leaves are generally 5 or 6 inches long, and sometimes more. The male catkins are straight, and about \( \frac{1}{4} \) in. long. The cones are commonly in pairs, and opposite to each other; they are about \( \frac{1}{2} \) in. long, nearly 2 in. in diameter, and egg-shaped; the scales are rounded at their extremities, and armed with fine short prickles, which are easily broken off, so that in some cases no vestiges are left of their existence. This, like the other kinds of *P. Té’da*, forms an interesting addition to the pinetum, growing freely at Syon, Pain’s Hill, and Dropmore.

3 r ²
P. variabilis Lamb. Pin., ed. 2., 1. t. 14.; and our fig. 1828. of the natural size, from Lambert’s plate.—Mr. Lambert describes this pine as having the leaves in twos and threes, 2 in. long, channeled, the margins and nerves rough, and the apexes sub-keel-shaped; the sheaths short, straight, and but little wrinkled. The cones solitary, recurved, pendulous, narrow-ovate, muricate; spines subincurved, with the scales dilated in the middle. He has only seen two trees of this species in England; one at Pain’s Hill, and the other at Kew. (Lamb.) The one at Kew no longer exists; and the only trees at Pain’s Hill, that we could see, with cones resembling those in Mr. Lambert’s plate, had three leaves, and appeared to us to belong to P. Tae’da. The buds in Mr. Lambert’s figure appear to be resinous, and are nearly smooth (see fig. 1829.), but those of P. variabilis at Dropmore, which we feel confident is the P. mitis of Michaux (which Mr. Lambert makes a synonyme of his plant), are scaly, with the scales reflexed, as in fig. 1810. in p. 974. The young shoots in Mr. Lambert’s plate are green, but in the Dropmore plant they are of the same violet glaucous hue as those of P. inops; a character so remarkable that it cannot be mistaken, and which, Michaux says, belongs to no other pine of the United States but P. inops and P. mitis. (N. Amer. Syl., iii. p. 130.) It is found also in P. Sabiniuna and P. Coulteri; but with these species Michaux was not acquainted, and besides they are not natives of the United States. P. vari-


**Engravings.** Pin. Wob., t. 15; our fig. 1833, to our usual scale; and figs. 1830. to 1832. of the natural size, from the tree in the Horticultural Society’s Garden, and Douglas’s specimens in the Horticultural Society’s herbarium.

**Spec. Char., &c.** Leaves three in a sheath, much longer than the cones, flexible, tortuous, with short sheaths. Crest of the anthers rounded, entire.

Cones ovate, reflexed, with the apices of the scales flattened, with a raised process in the middle, terminating in a conical, minute, recurved spine, slightly quadrangular. Buds, in Douglas’s specimen, \( \frac{1}{4} \) in. long, and \( \frac{3}{8} \) in. broad; cylindrical, with straight sides, rounded like a dome at the extremity, but with a prominent blunt point; dark brown, and covered with resin. Buds, on the living tree in the Horticultural Society’s Garden (see fig. 1830.), from 1 in. to \( \frac{1}{4} \) in. long, and from \( \frac{3}{8} \) in. to \( \frac{1}{2} \) in. broad; smooth, cylindrical, with a long point; reddish brown, and covered with a fine white bloom, consisting of fine particles of resin, surrounded by two or more smaller buds. Leaves disposed in parallel spirals; in Douglas’s specimen (see fig. 1832.), from 9 in. to 11 in. long; 3 in a sheath, which is from \( \frac{1}{4} \) in. to 1 in. in length, with numerous fine rings; scales of the leaves persistent on the wood, even of two years’ or three years’ growth. Leaves, on the living plant, from 7 in. to 9 in. long. The cone (see fig. 1831.), in Douglas’s specimen, is deformed, and very imperfectly developed; it is only 3 in. long, and \( \frac{3}{8} \) in. broad. The scales are terminated in flattened processes, scarcely ribbed in any direction. In the centre of the process is a protuberance, large in proportion to the scale, which terminates in a sharp prickle, pointing outwards. Scale 1 in. long, and \( \frac{1}{8} \) in. broad; dark brown. Seed, \( \frac{1}{16} \) in. long, and \( \frac{3}{8} \) in. broad; dark brown, with the wing nearly 1 in. in length, and \( \frac{3}{8} \) in. in breadth; wings of a yellowish brown. A lofty tree.

North America, on the north-west coast. Height 50 ft. to 100 ft. Introduced in 1826. It has not yet flowered in England.
The plants, when of ten or twelve years' growth, are remarkable for the twisted appearance of their branches which are in regular verticillate whorls. The timber of full-grown trees is said to be so heavy as almost to sink in water. The species is found to be quite hardy, and of rapid growth, both in the climate of London and of Edinburgh. *P. ponderosa* is a native of the north-west coast of North America, on the banks of the Spokan and Flathead rivers, and on the Kettle Falls of the Columbia, abundantly. It was discovered by Douglas, and sent by him to the Horticultural Society in 1826. A number of plants were raised from seeds in that year, and distributed: the largest of those we believe to be that in the Horticultural Society's Garden. The tree at Dropmore was, in 1837, 9 ft. high.

23. *P. Sabina* Douglas. Sabine's, or the great prickly-coned, Pine.


*Engravings.* Lamb. Pin., ed. 2, t. 80; Pin Wob., t. 23 and 24; our fig. 1837, to our usual scale; and figs. 1834. to 1835, of the natural size, from the tree in the Horticultural Society's Garden, and Lambert.

*Spec. Char., &c.* Leaves in threes, very long. Cones ovate, echinate, very large.

Scales long, awl-shaped, incurved, and spiny at the apex. (*Lamb. Pin.*) Buds, on the tree in the Horticultural Society's Garden (see fig. 1834.), nearly 1 inch long, and ½ in. broad; convex on the sides, imbricated, but not covered with resin.

Leaves from 10 in. to 1 ft. in length; glaucous in every stage of their growth, flexuose; and, when full-grown, partly bent downwards, as those shown in fig. 1837. Sheaths above 1 in. in length, membranaceous, ash-brown, shining, and nearly entire at the top, with numerous rings. Scales of the cones, in the specimens sent home
by Douglas, 2 in. long, and
1\frac{3}{4} in. broad (see fig. 1838.).
Seeds (a in fig. 1838., and b
in fig. 1835.) above 1 in. long,
and nearly \frac{1}{2} in. broad, much
larger than those of P. Col-
teri shown at a in fig. 1835.;
wings very short. Shoots of
the current year covered with
violet-coloured bloom, like
those of P. inops, but darker.
A large tree. Upper California.
Height 40 to 110 ft., rarely
140 ft. Introduced in 1832.
Plants have not yet flowered

Douglas describes the leaves
as in threes, very rarely in fours;
from 11 in. to 14 in. long; sharp,
round, and smooth on the out-
side, angular on the inside; ser-
rated, more widely and conspicu-
ously so towards the point;
erect, but flaccid and drooping
during winter. Sheath 1\frac{3}{4} in.
long, light brown, chaffy, some-
times torn at the top. Stipules
lanceolate and rigid. Male and
female catkins erect. Flowers appearing in
February and March. Cones of a bright green when young; at the end of the
first season, measuring from 6 in. to 8 in. round, and being then of a more
rounded form than they are when perfect, in the November of the following
year (see fig. 1836.); when mature, ovate, recurved, pressing on the shoots
for support, in clusters of from
3 to 9, surrounding the stem;
remaining on the tree for a series
of years; and from 9 in. to
11 in. long, and from 16 in. to
18 in. round; some, however,
are larger. Scales spathulate, 2\frac{1}{4} in.
long, having a very strong,
sharp, incurved point (see b in
fig. 1838.) with abundance of
pellucid resin. Seeds (see a in
fig. 1838.) somewhat oblong, ta-
pering to the base; flattish on
the inside, 1 in.
long, and nearly 1\(^{1/2}\) in. broad; shell thick, hard, brown; wing yellow, short, stiff, and half the length of the seed, which it nearly encompasses; kernel pleasant to the taste. Cotyleddons from 7 to 12. The tree does not attain quite so large a size as the other gigantic species of the genus which inhabit the northern and western parts of North America. The largest and most handsome trees inhabit the aqueous vegetable deposits on the western flank of the Cordilleras of New Albion, at a great elevation above the level of the sea, and 1600 ft. below the verge of perpetual snow, in the parallel of 40° N. lat. This species is quite hardy in British gardens, having passed the winter of 1837–8 uninjured.

24. P. (S.) COULTERI D. Don. Coulter's, or the great hooked, Pine.


**Synonyms.** ? P. Sabiniana var. Hort.; ? P. macrocarpa Lindl. MS. Dr. Lindley finds, upon comparing Mr. Lambert's specimens of P. Coulteri with those of P. macrocarpa, that the identity of the two alleged species is by no means certain; and that "in reality they are probably different." (Bot. Reg., 1840, M. R., No. 133.) The difference in the cones noticed by Dr. Lindley in the passage referred to may, in our opinion, exist without the two kinds being specifically different; but, be that as it may, having no positive evidence before us from which to decide, we deem it better to retain the synonyms as in our first edition, but placing before them the expression of doubt. Young plants were raised at Kew in 1840, from seeds taken from a cone which is supposed to be the true P. Coulteri, for which reason we have indicated it below as a variety.

**Engravings.** T. 1839, 1840, 1841. Our fig. 1839, from the dried cone in the Horticultural Society's herbarium, and figs. 1839 and 1840, from the young plants in the Horticultural Society's Garden.

**Spec. Char., &c.** Leaves in threes, very long, compressed; sheaths ragged. Cones oblong, solitary, very large; scales wedge-shaped, with the apex elongated, thickened, lanceolate, mucronate, compressed, hooked. (D. Don.) Buds, on the tree in the Horticultural Society's Garden (see fig. 1839.), 1 in. long, and from \(\frac{3}{8}\) in. to \(\frac{5}{8}\) in. broad; conical, pointed, convex on the sides, imbricated; the scales of the buds adpressed, brown, and not covered with resin. Leaves of the young plants 9 in. long, and of the dried specimens in the herbarium of the Horticultural Society upwards of 10 in. long; of the same glaucous hue as those of P. Sabiniana, but not turned downwards at any stage of their growth. Cones (see fig. 1841., to our usual scale) sent home by Douglas 1 ft. in length, and 6 in. in breadth; scales of the cones 3 in. long, and from \(\frac{1}{2}\) in. to \(\frac{3}{4}\) in. broad. Scales (see fig. 1835.) \(c\) from \(\frac{3}{4}\) in. to 4 in. long, and from \(\frac{3}{4}\) in. to \(\frac{5}{4}\) in. broad; in fig. 1841., at \(\alpha\), a front view of the hook of the scale is given, of the natural size. Seed (see fig. 1835. \(a\)) brown, flatish, from \(\frac{1}{4}\) in. to \(\frac{1}{2}\) in. in length, and \(\frac{1}{4}\) in. in breadth, without the wing; with the wing 1 in. in length: wing stiff, light brown, and nearly encompassing the seed. Cotyleddons, ?. The seed of P. Sabiniana is much larger than that of P. Coulteri, as shown at \(a\) and \(b\) in fig. 1835. Shoots of the current year covered with a violet-coloured glaucous bloom, like those of P. inops, but darker. A large tree. California, on the mountains of Santa Lucia in lat. 36°, at an elevation of 3000 ft. to 4000 ft. above the level of the sea. Height 80 ft. to 100 ft. Introd. 1832. It has not yet flowered in England.

**Variety.**

\* P. (S.) C. 2 vêra. — See the synonyms above.
ARBORETUM ET FRUTICETUM BRITANNICUM.

Leaves in threes, rarely in fours or fives, about 9 in. long, incurved, somewhat compressed, mucronate; 2-furrowed above, flattish beneath, slightly serrated on the margin, and on the elevated line along the middle. Sheaths 1½ in. long, about the thickness of a crow-quill, swelling at the tips. Scales of the stipules ovate-lanceolate, acuminate, cartilaginous, bright brown, shining, adpressed; margin scarious, white, thread-like, and torn; with the lower ones shorter, and keel-shaped. Stipules larger, much acuminate, hooded at the base, callous, indurated, and persistent. All the cones large, conical-oblong, 1 ft. and more in length, 6 in. in diameter near the middle, and weighing about 4 lb. Scales wedge-shaped, elongated at the apex, lanceolate, mucronate, compressed on both sides, obsolescent quadrangular, incurved and hooked, very thick, indurated, smooth, shining, brownish, acute at the margin, 1 in. to 3 in. long; the lower ones longer, deflexed, and spreading. (Lamb.)

Its leaves are broader than those of any other pine. In its general appearance, it resembles P. Sabinianna; but it is readily distinguished from that species by the upright character of its foliage. Both species have the buds of the same form and colour; the leaves of the same beautiful glaucous hue in every stage of their growth; the young shoots covered with a violet glaucous bloom, like those of P. inops and P. mitis; and both retain their leaves till the summer of the third year. The colour and form of the seeds in the two kinds are
exactly the same; but the larger cone has the smaller seeds. To us it appears that they are only varieties of one species; but, if they are so, they are as well worth keeping distinct as any species whatever. They may, indeed, be described as of surpassing beauty; and, what adds greatly to their value, they appear to be quite hardy.


Engravings. Michx. Arb., i. t. 6.; N. Amer. Syl., 3. t. 141.; Lamb. Pin., ed. 2., 1. t. 24, 25.; Pin. Wob., t. 22.; our fig. 1845., to our usual scale, from Abbott; and figs. 1842. to 1844. of the natural size, from Michaux and from Dropmore specimens.

Spec. Char., &c. Leaves in threes, very long. Male catkins long, cylindrical, of a tawny blue, divergent. Cones very long, tessellated with tumid tubercles, terminated by very small mucros. (Michx.) Buds, in the Dropmore specimen (see fig. 1842.), rather small in proportion to the termination of the shoot, and buried in leaves. When the leaves are removed, the bud is found to be from 3 to 5 in. long, and from 5 to 6 in. broad, with numerous, far-projecting, white, fringed scales; general form conical, and wholly without resin. Leaves (see fig. 1843.) from 8 in. to 9 in. in length. Sheath from 14 in. to 2 in. long, white, membranaceous, and lacerated. The cones, in Michaux's
figure, 8 in. long, and 2½ in. broad in the widest part. Scale (fig. 1844.) from 1½ in. to 1¾ in. long, and 1½ in. broad. Seeds oval, from 3/8 in. to 1/2 in. in length, 1/2 in. broad, whitish; with the wing 2½ in. in length, and 1 in. in breadth, and, as well as the cone, of a rich chestnut brown; in Lambert's figure, the scales and seeds are much smaller. Cotyledons, ?. A large tree in America, but rather tender in England. North Carolina to Florida, near the sea coast. Height 60 ft. to 70 ft. in America, rarely above 10 ft. to 12 ft. in England. Introduced in 1730. The largest plant that we know of is at Farnham Castle, which, in 1834, after being 35 years planted, was 20 ft. high.

Variety.

♀ P. a, 2 excelsa. P. palustris excelsa Booth. — Raised in the Fleetbeck Nurseries, in 1830, from seeds procured from the north-west coast of North America. The plant, in 1837, was 4 ft. high, with leaves as long as those of P. australis; and was quite hardy, even in that climate. Possibly a distinct species.


Engravings. Pin. Wob., t. 18.; our fig. 1847. to our usual scale, and fig. 1848, of the natural size, both from Douglas's specimens in the Horticultural Society's herbarium; and fig. 1846., from the side shoot of a young tree in the Horticultural Society's Garden.

Spec. Char., &c. Leaves three, and occasionally four, in a sheath; much twisted, varying greatly in length, longer than the cones, of a deep grass green, and very numerous. Cones ovate, pointed, with the scales tuberculate. Buds (see fig. 1846.) of the side shoots of young plants from 1/8 in. to 1/4 in. long, and from 1/4 in. to 1/2 in. broad, brown, and apparently without resin; on the leading shoots a great deal larger, and resembling in form, and almost in size, those of P. Sabiniina. Leaves, in Douglas's specimen, from 3 in. to 4½ in. long; on the plant in the Horticultural Society's Garden, from 5 in. to 7 in. long. A large tree. California. Introduced in 1833, and requiring protection in British gardens, at least when young.

This pine is well named insignis; its general appearance being indeed remarkable, and totally different from that of every other species that has yet been introduced. The leaves are of a deep grass green, thickly set on the
branches, twisted in every direction, and of different lengths. The plants in the Horticultural Society's Garden, and in most other places,

were killed by the winter of 1837–8; but one plant at Elvaston Castle stood that winter without protection. This has also been the case with some plants in the neighbourhood of London.


Synonymes. P. montereyensis Godefroy; P. adunca Bosc, as quoted in Bon Jard.; Pin de Monterey, Bon Jard. ed. 1837.

Spec. Char., &c. Leaves in twos and threes. Cones much longer than the leaves. (Lois.) This tree grows in the neighbourhood of Monte-Rey, in California. Its cone is in the form of that of P. Pináster, but one third larger in all its parts. Under each of the scales are found two seeds of the size of those of P. Cembra, and of which the kernel is good to eat. A plant of this pine in the Horticultural Society’s Garden, named there P. montheragensis, which was received from M. Godefroy about 1829, formed a stunted bush, 3 ft. high, and 4 or 5 feet broad, but it died in the winter of 1837–8. A very doubtful species.


Spec. Char., &c. ? Leaves in threes. Cones ovate, with unequal sides, crowded; scales wedge-shaped, flattened at the apex, mucronate; those at the
external base elongated, compressed, recurved, and spreading. (D. Don.)
Cones, in Lambert's figure, 2 in. long, and 3 in. broad. A straight middle-
sized tree, about 40 ft. high. California, at San Luis, where it is
called Obispo (the bishop), growing at the height of 3000 ft. above
the level of the sea.


Engravings. Lamb. Pin., 3. t. 85.; and our fig. 1850.

Spec. Char., &c. ? Leaves in threes. Cones oblong, with unequal sides,
crowded. Scales quadrangular, and truncate at the apex, with a depressed
umbilicus; those at the exterior base larger, elevated, and conical. (D.
Don.) A tree, about 100 ft. high. California, at Monte-Rey, on the sea
shore. Found by Dr. Coulter, along with P. radiata, which it resembles
in size and habit, but is essentially distinguished by the form of its cones,
which are oblong, 3 in a cluster, of a tawny grey, ¾ in. long, and 2½ in.
broad.


Engravings. Lamb. Pin., 3. t. 86.; and our fig. 1851.

radiately cleft, truncate, with a depressed umbilicus; gibbous, somewhat
recurred, and three times as large at their external base. Cones, in Lambert's figure, 5\(\frac{1}{2}\) in. long, and 3\(\frac{1}{2}\) in. broad. An erect tree, attaining the height of about 100 ft., with copious spreading branches, reaching almost to the ground. Monte-Rey, in lat. 36\(^\circ\), near the level of the sea, and growing almost close to the beach. Cones in clusters, ovate, about 6 in. long, ventricose at the external base. Scales wedge-shaped, thick, bright brown, shining, dilated at the apex, depressed, quadrangular, radiately cleft; umbilicus depressed; three times larger at the external base; apex elevated, gibbous, somewhat recurved.

B. Natives of Mexico.


Synonymes. Teocote and Ocote of the Mexicans.

Engraving. Our figs. 1852, 1853, 1854. from specimens sent from Mexico to the Horticultural Society by M. Hartweg, in 1839.

Spec. Char., &c. Leaves in threes, compressed, flexuose, scabrous; sheaths about \(\frac{1}{2}\) in. long. Cones ovate, smoothish, about the size of those of P. sylvestris, but with the tips of the scales flatter. A tree. Orizaba, in Mexico. Height 40 ft. to 50 ft.; according to Lindley, in Penny Cyc., 100 ft. Introduced in 1839. Cones were distributed by the Horticultural Society, from the seeds in which many plants have been raised; but their degree of hardiness is not yet ascertained.
The figure of the cone of *P. Teocote*, in *Arb. Brit.*, 1st edit. p. 2266., does not exactly agree with the cones sent home by Hartweg, and therefore we have omitted it in this abridgement.

Branchlets very leafy, with a persistent epidermis. Buds imbricated, with lanceolate, acuminate, ciliate, and torn scales. Leaves in threes, erect, rigid, compressed,

acute, tortuous; light green, bicanalicate above, slightly convex beneath, very smooth; the intermediate slightly prominent angle, and the margins, crenulated, scabrous. Sheaths cylindrical, about 1 in. in length, persistent, torn on the margin. Cones ovate-oblong, drooping, and smoothish, scarcely 3 in. long. Scales dilated at the apex, somewhat trapezoidal, much depressed; in the young cones always mutic. (*Lamb.*) This, till lately, was a very rare species; there having been no plants of it either at Dropmore or in the Horticultural Society's Garden. Indeed, so far as we are aware, it existed in no collection in Britain, but that of Mr. Lambert at Boyton, till 1840.


*Engravings.* Lamb. Pin., ed. 2, t. 19; and figs. 1855. and 1856., from Mr. Lambert's figure.

*Spec. Char.* Leaves in threes, very slender, 2-channeled, spreading; sheaths about 1 in. long. Cones ovate-oblong, polished. Branchlets covered with a smooth, lead coloured, and persistent epidermis. Scales of the bud lanceolate, acuminate, carinate, rigid, thread-like, and ciliate. Leaves in threes, slender, recurved and spreading; soft, light green; deeply bicanalicate above, convex beneath, marked with many dotted lines; 6 in. to 9 in. long; the intermediate somewhat prominent angle, and the margins, sharply serrated, scabrous. Sheaths cylindrical, 1 in. to 1½ in. long. Apex and margin of the scales thread-like and ciliated. Cones ovate-oblong.
smooth, about 4 in. long. Scales dilated at the apex, much depressed, flattish, somewhat trapezoidal; in the young cone, mucronulate. (Lamb.) A tree. Mexico, at Malpayo de la Joya, in the cold region. Height 60 ft. to 70 ft. Introduced in ?1820, and again by Hartweg in 1839, in which year cones were distributed extensively by the Horticultural Society.

Variety.

† P. p. 2 fóliis stríctis Benth.
Plant. Hart. No. 442.,
— Cones smaller than those of the species, and the leaves straighter.
Found by Hartweg near Real del Monte. Horticultural Society's Garden.

33. P. LLAVE'I'NA Schiede. La Llave's Pine.

Engravings. Our fig. 1859, from a specimen of the tree in the London Horticultural Society's Garden; fig. 1860, from a cone sent home by Hartweg; and fig. 1858, a the cone, b the seed, from a cone received from M. Otto of Berlin.

Spec. Char., &c. Leaves short, narrow, triquetrous, slightly twisted, in thickly set tufts on the branches, of a glaucous green. Branches in regular whorls, smooth, of an ash grey, declining towards the stem. Buds exceedingly small; in form, and in every other respect, like those of Pinus halepènis.: the buds are scarcely ½ in. long, and from ⅛ in. to ⅛ in. broad; roundish, with two or three smaller buds. (See fig. 1857.) Leaves generally in threes, often in twos, and sometimes in fours, varying from 1½ in. to 2½ in. in length; flat on the upper
surface, and cylindrical, with a rib below; sheaths short, and caducous. Cones small, consisting of very few scales, which are about \( \frac{1}{3} \) in. long, roundish and obtuse. The scales are keel-shaped below, deeply concave, with two deep receptacles for the seeds. Seeds without wings, of an egg shape reversed, dark grey or brownish, about 6 or 7 lines long, and about 4 lines thick at the upper end, but diminishing in size towards the lower extremity, which is obtuse. (Schlecht. in Linnaea, l. c.) A low tree. Mexico, between Zimapan and Real del Oro, in forests; and also occasionally cultivated in gardens for the seeds, as the stone pine is in Italy, and the neoza pine in the Himalayas. Height 20 ft. to 30 ft. Introduced in 1830, and quite hardy in British gardens. The seeds are edible, and very well tasted; and they are sold in Mexico under the name of Pinones, as those of the stone pine are in Italy under the name of Pinocchi. The young tree is of a very singular and beautiful character, and will doubtless soon find a place in every collection.

C. Natives of the Canaries, India, Persia, China, and Australia.

\[ 34. \] P. canariensis C. Smith. The Canary Pine.


**Synonyme.** ? P. adunca Bosc, according to Sprengel.


**Spec. Char., &c.** Leaves in threes, very long and spreading, rough. Crest of the anthers round, entire. Cones oblong, tuberculate. (Lamb. Pin.) Buds, in the Dropmore specimen (see fig. 1861.), from \( \frac{3}{8} \) in. to \( \frac{1}{8} \) in. long, and from \( \frac{7}{16} \) in. to \( \frac{3}{16} \) in. broad; dry and scaly, white, and without resin. Leaves (see fig. 1862.) from 7 in. to 7\( \frac{1}{2} \) in. long, and slender; sheaths from \( \frac{1}{3} \) in. to \( \frac{5}{8} \) in. long, whitish, membraneous, torn at the margin, and brownish at the base. Cone, in Lambert's figure, 5\( \frac{1}{2} \) in. long, and 2\( \frac{3}{8} \) in. broad; scale 2 in. long, and 1\( \frac{1}{2} \) in. broad, terminating in an irregular pyramidal process, at the apex of which is a blunt point, like that of P. Pinaster. Scales (see fig. 1863.) 2 in. long, and 1\( \frac{1}{2} \) in. broad.
Seeds $\frac{1}{2}$ in. long, and $\frac{3}{16}$ in. broad, flat, pointed at both extremities; with the wing $1\frac{1}{2}$ in. long, and $\frac{7}{15}$ in. broad at the widest part; colour a whitish brown. Cotyledons, ? The tree throws out abundance of shoots and tufts of leaves from the dormant buds in the trunk and larger branches, more especially at places where any branches have been cut off. A large tree. Teneriffe and Grand Canary, at 5000 ft. to 7000 ft. of elevation. Height 60 ft. to 70 ft. Introduced ? 1759, and requiring protection in British Gardens.

This species, $P.$ longifolia, and $P.$ leiophylla bear a close general resemblance, and are all rather tender; but, when the leaves and buds are examined closely, their specific difference becomes obvious. They are all readily propagated by cuttings of the young shoots which are thrown out by the trunks, planted in sand, and covered with a hand-glass, but without bottom heat. They all require protection, even in our mildest winters, and should be placed in a conservatory devoted entirely to half-hardy Abietineae. Lambert states that this species differs from $P.$ longifolia chiefly in the
much more depressed and straight-pointed tubercles of its cones; those of *P. longifolia* being hooked. The largest specimen of this pine that we know of is at Dropmore; where, after having been 14 years planted, it was, in 1837, 17 ft. high. It is protected during winter in the same manner as *P. longifolia* and *P. leiophylla*. A plant in the Trinity College Botanic Garden, Dublin, raised there about 1815, from seeds collected at Teneriffe, by the late Dr. Smith of Christiania, attained the height of 15 ft. without any protection, and remained uninjured till the severe spring of 1830, when the top was completely destroyed. In the early part of the summer of that year, however, the trunk threw out two or three shoots, a few inches above the collar, and, the dead part above it being cut off, these shoots have grown vigorously ever since; and one of them, having taken the lead, promises to make a handsome plant.

*P. longifolia* Roxb. The long-leaved Indian Pine.


**Engravings.** Lamb. *Pin.*, ed. 2., t. 26, 27; Royle Illust., t. 85, f. 2; our fig. 1866. to our usual scale; and figs. 1865. to 1868. of the natural size, from Royle and Lambert, and from Dropmore specimens.

**Spec. Char., &c.** Leaves in threes, very long and slender, pendulous; sheaths long. Cones ovate-oblong. Scales elevated at the apex, very thick, recurved. *(Lamb. Pin.)*

Buds, in the Dropmore specimens (see fig. 1865.), from 1 in. to 1½ in. long, and nearly ½ in. broad; covered with dry scales at the lower part, and abortive leaves; swelling towards the upper part, and concavely acuminate; white, woolly, and entirely without resin. Leaves (see fig. 1868.) 1 ft. in length; sheaths ⅜ in. long, white, chaffy, and lace-
rated. Cone (see fig. 1868.) from 5 in. to 5½ in. long, and 2½ in. to 2¾ in. broad; scale, according to Mr. Lambert's plate (see fig. 1867.), from 1¼ in. to 2 in. in length. Seed, without the wing, ¼ in. long; with the wing, 1½ in. Cotyledons, according to Lawson, about 1½. A large tree. Himalayas. Introduced in 1807, and requiring protection in England.

*P. longifolia* is a native of Nepal, on the mountains; and also of the lower and warmer parts of India, where the tree is cultivated on account of its beautiful foliage and graceful habit of growth, but where it never attains the same magnitude as on the Himalayan Mountains. It was introduced into Britain in 1801, and for a long time was treated as a greenhouse plant; it is now found to stand the open air, but not without protection during winter. The largest tree in England is believed to be that at Dropmore. It was, in 1837, nearly 12 ft. high; but it is covered every winter with a portable roof of fern, enclosed in mats, and supported by a wooden frame; the sides being closed in with the same materials, but with two doors opposite each other, to open on fine days, to promote ventilation. Mr. Lawson suggests that the tenderness which is apparent in some individuals of this species may possibly arise from the seed from which they were raised having been produced by trees growing in the warm valleys of Nepal; and that, "by procuring seed from trees at the highest elevation at which they are found to exist, plants might be raised sufficiently hardy to stand the climate of Britain."
2 36. P. Gerardi'na Wall. Gerard's, or the short-leaved Nepal, Pine.


*Engravings*. Lamb, Pin., ed. 2., 2. t. 79.; Royle Illust., t. 85. f. 4.; Pin. Wob., t. 19.; and our fig. 1871., from Royle, to our usual scale; and figs. 1869. and 1870., the cone from Lambert, and the leaves from Royle, both of the natural size.

**Spec. Char., &c.** Leaves in threes, short; sheaths deciduous. Cones ovate-oblong; scales thick, blunt, and recurved at the apex. *(Lamb, Pin.)* Leavés, in Royle's figure, from 3½ in. to 5 in. in length; sheaths imbricate, § in. in length.

Cone 8 in. long, and nearly 5 in. broad. Seed ½ in. long, and ½ in. broad; cylindrical, pointed at both ends, and of a dark brown; eatable, like those of the stone pine. Wings short. A middle-sized tree. Nepal, on the northern face of the Himalayas, at from 5,000 ft. to 10,000 ft. of elevation. Height 30 ft. to 50 ft. Introduced 1830. Apparently tender in British Gardens.
Nothing is said respecting the timber of this tree; but the seeds are eaten by the inhabitants of the lower parts of India, in the southern countries. This species was discovered by Captain P. Gerard, of the Bengal Native Infantry; and named in commemoration of him by Dr. Wallich. Cones have been sent to England, by Dr. Wallich and others, at different times; though they are often confounded with those of *P. longifolia*. The plant named *P. Gerardiana* in the Horticultural Society's Garden has persistent sheaths, and long slender leaves; and is, doubtless *P. longifolia*; and the same may be said of a number of plants at Messrs. Loddiges's. There are plants of the true *P. Gerardiana* in the Clapton Nursery, under its synonyme of *P. Neösa*.


**Engravings.** Lamb. Pin., ed. 2., 1. t. 29.; Pin. Wob., t. 12.; and our fig. 1873. to our usual scale, from a specimen of a tree at Redleaf; and figs. 1874. and 1872. of the natural size, the cone and leaves from Lambert, and the bud from Redleaf.

**Spec. Char., &c.** Leaves in threes, rarely in twos, very slender. Male catkins short. Cones ovate; scales truncate at the apex, without any point. Branches tubercled. Leaves squarrose, with stipular scales; twin, or in threes, slender, spreading, semicylindrical, mucronated, serrulated; grass green, 5 in. long; sheaths cylindrical, \( \frac{1}{2} \) in. long. Male catkins numerous, somewhat verticillate, \( \frac{3}{4} \) in. long. Cones with very short footstalks, ovate, brownish, \( \frac{1}{2} \) in. long. Scales thick, woody, tetragonal at the apex, flattened, truncate, mutic. (Lamb.) Buds (see fig. 1872.), in the Redleaf specimen, from \( \frac{3}{16} \) in. to \( \frac{5}{16} \) in. in length, and about the same breadth; bluntly pointed, with numerous fine scales of a brownish colour, and wholly without resin. Leaves from 5 in. to \( \frac{3}{4} \) in. in length; three-sided, slender, straight, and about the same colour as those of *P. Pinea*. Sheaths from \( \frac{3}{8} \) in. to \( \frac{3}{4} \) in. long; brownish, slightly membranaceous, and rigid. A large tree. China. Introd. 1829, or before, and requiring protection in England in very severe winters.
A tree at Redleaf, raised by W. Wells, Esq., from seeds received from China in 1829, was 16 ft. high in 1837, but was killed by the winter of 1837-8.

§ 38. P. timorin'sis. The Timor Pine.

A tree at Boyton, which, in 1837, was 16 ft. high, after being 25 years planted, was raised from seed received by Mr. Lambert from Timor, one of the Molucca Islands. It bears a close general resemblance in the foliage and habit to P. longifolia; but the leaves (of which there are three in a sheath) are rather more slender, and of a deeper green.

§ iii. Quinæ. — Leaves 5, rarely 4, in a Sheath.

A. Cones with the Scales thickened at the Apex.

a. Natives of Mexico.

Engravings. Our figs. 1875. and 1876. from specimens sent home by Hartweg.

Spec. Char., &c. Leaves in fours; secondary narrowest, primary membranaceous, elongate, scarious. Cones pendulous, oblong, obtuse, aggregate. Scales transverse at apex, depressed in middle, umbo-nate, and carinate; umbo straight and rounded. Seeds roundish, wedge-shaped, four times shorter than the testaceous wing. (Lindl.) A tree. Mexico, on the Campanario, beginning to appear where the oyamel, or Abies religiosa, ceases to grow, about 9000 ft. above the sea. Height 40 ft. to 50 ft. Introduced in 1839, by cones sent home by Hartweg, from which many plants have been since raised.

The leaves are almost invariably in fours, and are rather more than 6 in. in length.


Synonymes. Pino blanco, or P. real, of the Mexicans.
Engravings. Our figs. 1877, 1878. from specimens sent home by Hartweg.

Spec. Char., &c. Leaves in fives, very long. Branches very thick. Cones pendulous, solitary, curved, obtuse. Scales rounded at apex, rhomboidal with a slightly elevated transverse line, dull pearly grey, abruptly umbo-nate in middle, obtuse, smooth. Seeds obovate, five times shorter than the blackish wing. (Lindl.) A large tree. Mexico, on the Ocotillo, between Real del Monte and Regla. Height 60 ft. to 80 ft. Introduced in 1839, by cones sent home by Hartweg, from which numerous plants have been since raised.

The cones are from 9 in. to 10 in. long, curved, about 3 in. in diameter near the base, and tapering till they are not more than 1 1/2 in. broad at the point. The leaves are between 8 in. and 9 in. in length, with sheaths of nearly 1 in. in length. The
young shoots are very nearly 1 in. in diameter, and look very like those of Pinus palustris. This noble species of pine, worthy of the princely patron of gardening in honour of whom it is named, it is thought will probably prove hardy in British gardens.

† 41. P. RUSSELLIANA. Lindl. Russell's, or the Duke of Bedford's, Pine.

Engravings. Our figs. 1879. and 1880. from specimens sent home by Hartweg.

Spec. Char., &c. Leaves in fives, very long. Cones elongate, horizontal, slightly drooping, verticillate, straightish, sessile. Scales rhomboidal at the apex, pyramidal, straight, obtuse. Seeds oblong, four times shorter than their blackish wing. (Lindl.) A large tree. Mexico, on the road from San Pedro to San Pablo, near Real del Monte. Height, ?. Introduced in 1839, by cones sent to the Horticultural Society of London by Hartweg, which have been extensively distributed, and from which many plants have been raised.

The cones are about 7 in. long, 1½ in. broad at the base, and they terminate in a point; the scales are a little elevated, so as to form a small pyramid, with a somewhat prominent apex. The leaves are 7½ in. in length, with sheaths of upwards of 1 in. in length. A very noble species, worthy of the house of Russell, and of commemorating the publication of the Pinetum Woburnense.
P. Montezuma, or the rough-branched Mexican, Pine.


Engravings. Lamb. Pin., ed. 2., 1. t. 22.; and our figs. 1881. and 1884. from Lambert.

Spec. Char., &c. Leaves in fives, erect, triquetrous; sheaths about 1 in. long, persistent. Cones oblong, about 9 in. long, tuberculate. (Lamb. Pin.) A tall tree. Orizaba, and other mountains of Mexico, to the height of 1100 ft.

Variety.

P. M. 2 Lindlcyi (figs. 1882, and 1883, from specimens sent home by Hartweg)—Cones with the scales flattened, or very slightly tuberculated at the tip. Found on the road to Sumate, where it grows from 40 ft. to 50 ft. high. The cones of P. Montezuma, which were distributed by the Horticultural Society in 1839, differ so much from those of this species in Mr. Lambert's possession, and also from cones sent from Mexico to Mr. Henchman, that we have thought it advisable to keep them distinct. The cones in Mr. Lambert's possession are much tuberculated, as are also those of Mr. Henchman; while those distributed by the Horticultural Society have the tips of the scales almost flat; and therefore we have thought it advisable to mark the Horticultural Society's plant as a variety, till something more is known respecting it.

A tall tree. Branchlets covered with thick scabrous bark. Leaves generally in fives, rarely in threes or fours; stipular, persistent, lanceolate, much pointed,
with ciliated and torn scales; erect, waved, somewhat rigid, triquetrous, callous, and mucronate; glaucous green, marked with many parallel dotted lines; slightly bicaulicolate above, and flattish beneath; 6 in. long; angles crenulated, and scabrous; sheaths 1 in. to 1 1/2 in. long, persistent; scales amentaceous, ciliate and torn on the margin, bright brown. Male catkins cylindrical, 1 in. long, with many imbricated, oval, ciliated scales at the base. Appendage to the anthers roundish, convex, coriaceous, membranaceous on the margin, torn, and crenulated. Cones oblong, tubercled, bright brown, thicker at the base, a little attenuated towards the apex, about 6 in. long; scales elevated at the apex, bluntly tetragonal, truncate, very thick.

(Lamb.) Mr. Lambert says: "Baron Humboldt has referred this species to *Pinus occidentalis* Swartz; but I have ventured to separate it, as the size of the cones, which may, in general, be relied on as indicating a specific distinction in this genus, differs so much." Those described by Swartz are only 3 in. long, whereas those of *P. Montezumae* are more than double that length. Whether this species will prove quite hardy in British gardens is not, as far as we are aware, at present ascertained. Something may doubtless be accomplished with this and other species by grafting on more hardy kinds.

**Identification.** Lindl. in Bot. Reg., M. Chron., 1839, No. 98; Penny Cyc., vol. 18.

**Engravings.** Our figs. 1885, 1886. from specimens sent home by Hartweg.

**Spec. Char., &c.** Leaves in fives, very long. Cones straight, horizontal, ovate, elongate, solitary. Scales transverse at apex, rhomboidal, runcinate. Seed sub-rhomboidal, rugose, four times shorter than testaceous wing. *(Lindl.)*

A small tree. Mexico, on the Ocotillo, one specimen only being found, of small size. Height ?. Introduced in 1839 by cones sent home by Hartweg, from which plants have been raised.

Differs from *P. Russelliana* in the longer leaves, and shorter and stouter cones, the ends of the scales of which are strongly hooked backwards. They are 1½ or 1½ inches long, very robust, and resemble those of the *Pinaster.* The cones are about 6 in. long, and 3 in. broad at the base; and the scales are hooked backwards like those of *P. Coulteri,* and very hard. The small size of the tree, if that should be its general habit, and the great length of its leaves, would seem to render this a very remarkable species. Young plants have been raised, but whether they will prove hardy is uncertain.
1885. *P. macrophylla.*
P. macrophylla.


**Engravings.** Our figs. 1887, 1888. from specimens sent home by Hartweg.

**Spec. Char., &c.** Leaves in fives, very slender, glaucescent. Cones oval, vertically erect, straightish, with a transverse elevated line. Seeds oval, four or five times shorter than the blackish wing. (Lindl.) A tree, Mexico, at Anganguco, 8000 ft. above the sea. Height ?. Introduced in 1839, by cones sent home by Hartweg, from which many plants have been raised.

The leaves are five, and glaucescent like those of the Weymouth pine; but the cones differ in being thickened at the apex, in the manner of other Mexican pines. The cones are between 4 and 5 inches long, by 1½ in. in diameter at the middle, pointed and curved.


**Engravings.** Our figs. 1889, 1890. in p. 1010, 1011. from specimens sent home by Hartweg.

**Spec. Char., &c.** Branches rigid, thick. Scales of the bud linear, very acuminate, and with very long cilia. Leaves in fives, very long (1½ ft.) acutely triangular; sheaths long, smooth, persistent. Cones elongate, obtuse, 7 or 8 inches in length; scales with lozenge-shaped, depressed, pyramidal apices, and terminating in a callous obtuse mucro. (Lindl.) A noble tree, with branches as stout as those of *P. australis* or stouter. Guatemala, on the Volcan del Fuego. Introduced in 1840 by the Horticultural Society. H. S.

The leaves of this species are from 12 in. to 13 or 14 inches in length, which is longer than those of any other pine previously discovered. Abundance of plants of it have been raised in the Horticultural Society's Garden, and other places; but it is to be feared that they will not prove hardy in the climate of London.
LXXVII. CONIFERÆ: PI'NUS.

1888. P. Pseudostrobus.

3 T
P. leiophylla Schiede et Deppe MSS. The smooth-leaved Pine.

Synonyme. Ocote chino, in Mexico.
Engravings. Lamb. Pin., ed. 2., 1. t. 21.; and our fig. 1891. from Lambert's figure, and figs. 1892. 1893. from a specimen sent home by Hartweg.

Spec. Char., &c. Leaves in fives, very slender; sheaths deciduous. Cones ovate, stalked.

Scales depressed, truncate. (Lamb. Pin.) Bud closely resembling that of P. canariensis (fig. 1861. in p. 994.). Leaves, in the Dropmore and Boyton specimens, from 5 in. to 6 in. in length, very slen-
der, and pendent, closely set on the branches, and forming large tufts at the extremities of the shoots. The stem and old wood readily emit leaves and shoots from adventitious buds. A large tree, with the habit of *P. Stróbus*, but not the cones of that species. Mexico, between Cruzblanca and Jalacinga, in the cold region, 7000 ft. above the sea. Height 60 ft. to 100 ft. Introduced ? 1800.

Cones were extensively distributed by the Horticultural Society in 1839. The timber is said to be valuable, but to resist the plane. Mr. Lambert sent seeds to Dromore, where there are three plants raised from them; one of which was, in 1837, 6 ft. high, and had stood out six years without any protection; and two others 12 ft. and 14 ft. high, which are covered every winter in the same manner as *P. longifolia*, and which have been more injured than those which were left without protection.


**Engravings.** Our figs. 1894. to 1897. from specimens sent home by Hartweg; and fig. 1898. from a young plant raised in 1839.

**Spec. Char., &c.** Leaves five in a sheath, from 8 in. to 11 in. long. Cone
short, broad at the base, and pointed at the extremity. Scales at the apex tolerably elevated and equal-sided, and sometimes of an irregular four-cornered or many-cornered shape; elevated bands

run from the middle point to the corners, so that the whole apex of the scale looks slightly pyramidal. Cones 2 1/4 in. to 2 1/2 in. long, and 1 3/4 in. to 2 in. broad. (Schlecht.) A tree. Mexico. Height 30 ft. to 40 ft. Introd. 1839, and rather tender in British gardens.

P. oocarpoides Benth. — Cones distributed by Hort. Soc. in 1841, but whether more than a mere variation of P. oocarpa appears to us very doubtful.
Engravings. Our figs. 1899, 1900. from specimens sent home by Hartweg.
LXXVII. CONIFERÆ: PINUS.

1015

Spec. Char., &c: Leaves in fives, slender, short. Branches glaucous. Cones pendulous, verticillate, ovate, acute. Scales rhomboidal, pyramidal, straight, sometimes prolonged and contracted in the middle. Seeds oval, four times shorter than the linear wing. (Lindl.) A tree. Mexico, near Apulco, in ravines. Height 50 ft. Introduced in 1839, by cones sent home by Hartweg, from which many plants have been raised.

1900. P. apulcensis.

The short leaves and very glaucous shoots, the ovate cones, covered closely with pyramidal elevations, which are sometimes prolonged and contracted in the middle, especially those near the points of the cones, readily distinguish this from all other species. The leaves are 6 in. long. The cones are about 4 in. long, being rather larger than a hen’s egg; the backs of the scales are sometimes prolonged into a hook, particularly those nearest the base and the point.

b. Natives of the West Indies.

1901. P. occidentalis Swartz. The West-Indian Pine.


Spec. Char., &c: Leaves in fives, pale green, slender; sheaths persistent. Cones conical, half the length of the leaves; scales thickened at the apex, with very small mucros. (Lois.) St. Domingo, in the quarter of Saint Suzanne, on mountains where snow occasionally falls; and where it grows to the height of from 25 ft. to 30 ft., with leaves 6 in. long, of a fine green, and cones somewhat larger than those of P. sylvestris.

A very doubtful species, but we have retained it, as we have done some others of the same kind.
B. Cotes with the Scales not thickened at the Apex.

a. Natives of Europe and Siberia.

† 50. P. CÉMBRA L. The Cembra Pine.


Engravings. Pall. Ross., 1. t. 2; Lamb. Pin., ed. 2, 1. t. 30, 31; the plate of this tree in Arb. Brit., 1st edit., vol. viii; our fig. 1903 to our usual scale, figs. 1902 to 1904 of the natural size, all from Dropmore specimens.

Spec. Char., &c. Leaves in fives; sheaths deciduous. Cones ovate, erect, about as long as the leaves, and having, when young, the scales pubescent; the wings of the seed obliterated; anthers having a kidney-shaped crest. Buds, in the Dropmore specimens, from 3/14 to 3/8 in. broad; globose, with a long narrow point; white, and without resin; not surrounded by smaller buds (see fig. 1902). Cones about 3 in. long, and 2 1/2 in. broad. Scales 1 in. long, and about the same width in the widest part. Seed larger than that of any other European species of Pinus, except P. Pinea, 3/4 in. long, and 3/8 in. broad in the widest part, somewhat triangular, and wedge-shaped; without wings, probably from abortion; and having a very hard shell, containing an eatable, oily, white kernel, agreeable to the taste. Cotyledons 11 to 13 (see fig. 1903). A tall tree. Switzerland and Siberia. Height 50 ft. to 80 ft. Introduced in 1746. It flowers in May, and ripens its cones in the November of the following year.

Varieties.

† P. C. 1 sibirica. P. CÉMBRA Lodd. Cat. ed. 1837; Kedr, Pall.; Cedar of some authors; the Siberian Stone Pine, or Siberian Cedar, Hort.—The cones are said to be longer, and the scales larger, than in the Swiss variety; the leaves are, also, rather shorter; and the plant is of much slower growth in England.

† P. C. 2 pygmaea. P. C. pumila Pall. Ross.; Slanez, Ross.—According to Pallus, the trunk of this variety does not exceed 2 in. in thickness, and it is rarely above 6 ft. in height; the branches being not more than 1 in. in diameter. Some specimens are much lower in height, prostrate, and shrubby.

† P. C. 3 helvetica Lodd. Cat. ed. 1836. The Swiss, Cemborn, or Stone, Pine.—Cones short and roundish, with close scales; and the plants of more vigorous growth than the Siberian variety; the wood, also, is said to be more fragrant. This is much the commonest form of P. CÉMBRA in British gardens.

In England, P. CÉMBRA is an erect tree, with a straight trunk and a smooth bark. When standing singly, it is regularly furnished to the summit with whorls of branches, which are more persistent than the branches of most other species of Pinus. The leaves are from 3 to 5 in a sheath, three-ribbed; the ribs serrated, one of them green and shining, and the other two white and opaque. In most species of pine, it has been observed—that during winter the leaves incline more towards the produce which they produce than in summer, as if to prevent the snow from lodging on them; and this is said to be much more conipicuously the case with the leaves of P. CÉMBRA than with any of those other species. The male catkins are red, and appear at the base of the young shoots. According to Lambert, the flowers have a more beautiful appearance than in any other species of pine, being of a bright purple; and the unripe full-grown cones, he says, have a bloom upon them like that of a ripe Orléans plum. The tree is of remarkably slow growth in
every stage of its progress, more especially when young; seldom advancing
more, even in rich soils, than 1 ft. in a year. The wood of *P. Cembra* is very
soft; and its grain is so fine, that it is scarcely perceptible. It is very resinous,
which is the cause of its agreeable fragrance. It is not commonly large enough to be used in carpentry;
but in joinery it is of great value, as it is remarkably
easy to be worked, and is of great durability. In
Switzerland, it is very much used by turners; and
the shepherds of the Swiss Cantons, and of the
Tyrol, occupy their leisure hours in carving out of it
numerous curious little figures of men and animals,
which they sell in the towns, and which have found
their way all over Europe. The wood is much used
for wainscoting; having not only an agreeable light
brown appearance, but retaining its odour, according
to Kasthofer, for centuries. In Switzerland, the seeds
are used in some places as food, and in others as an
article of luxury. Though the Cembran pine will
grow in the poorest soils, and in the most elevated
and exposed situations, where no other pine or fir
will exist, yet it will not grow rapidly, except in a
free soil, somewhat deep, and with a dry subsoil. All the varieties are propagated from imported seeds, which may be sown in the same autumn in which they are received; or, perhaps, kept in a rot heap for a year, as they lie two winters and one summer in the ground before germinating. The plants grow exceedingly slowly for 4 or 5 years, seldom attaining in that period a greater height than from 1 ft. to 2 ft. When they are to be removed to any distance, they are best kept in pots; but, the roots being small and numerous, large plants of P. Cembra transplant better (when they are not to be carried to too great a distance) than most other species of Pinus.


P. strobus L. The Strobus, or Weymouth, Pine.


Engravings. Micht. N. Amer. Sel. 3, t. 145.; the plate of this tree in Arb. Brit., 1st edit., vol. VIII.; and our figs. 1906 to 1908, from specimens from Whitton.

Spec. Char. &c. Leaves slender, without sheaths. Male catkins small. Cone cylindrical, long, and pendulous. (Michx.) Buds from ⅜ in. to ¾ in. long, and from ⅓ in. to ⅓ in. broad; ovate, pointed, and slightly resinous; surrounded by one or two small buds. (See fig. 1906.) Leaves from 3 in. to 3½ in. long. Cone (see fig. 1908.) from 5 in. to 6 in. long, and from 1½ in. to 1¾ in. broad, on a peduncle ¾ in. long; scales (see fig. 1907.) 1¼ in. long, and from ½ in. to ¾ in. broad. Seed ⅜ in. long, and ⅛ in. broad; obovate, pointed below, with a wing which, including the seed, is about 1 in. long, and ¾ in. broad, in the widest part. Cotyledons 6 to 10. A large tree. Canada to Virginia, in fertile soil on the sides of hills. Height 50 ft. to 80 ft., rarely 150 ft. Introduced in 1705. Flowering in April, and ripening its cones in October of the second year.

Varieties.

P. S. 2 alba Hort. — Leaves and bark much whiter than the species. Horticultural Society.

P. S. 3 brevifolia Hort. — Leaves shorter.

P. S. 4 compréssa Booth. P. S. nova Lodd. Cat. ed. 1836; Floetbeck Weymouth Pine. — Also much shorter in the leaf, and probably the same as P. S. brevifolia.

The wood of this tree is remarkably white when newly sawn into planks; whence the common American name for it of white

pine. The rate of growth in Britain is, except in very favourable situations, slower than that of most European pines. Nevertheless, in the climate of London, it will attain the height of 12 or 13 feet in 10 years from the seed when planted singly, like most other pines, it forms a branchy head; but, when drawn up among other trees of the same species, it has as clear a trunk in Britain as in America. The wood is more employed in America than that of any other pine, serving exclusively for the masts of the numerous vessels constructed in the northern and middle states. The soil and situation ought to be favourable, otherwise the tree will not thrive. Seeds are procured in abundance; and the plants, when sown in spring, come up the first year, and may be treated in the nursery like those of the Scotch pine.

2 52. P. (S.) Lambertiana Dougl. The gigantic, or Lambert's, Pine.


Engravings. Lamb. Pin., ed. 2., t. 34.; our fig. 1911., to our usual scale, and figs. 1909, 1910, 1912. of the natural size; the cone and scale from Douglas's specimens in the Horticultural Society's herbarium, and the buds and leaves from the tree in the Horticultural Society's Garden.

Spec. Char., &c. Leaves in fives, rigid, roughish; sheaths very short. Cones thick, very long, cylindrical; scales loose, roundish. (Douglas.) Buds, in the specimen from the Horticultural Society's Garden, 1/4 in. long, and 1/4 in. broad; roundish, pointed, and with 3 smaller buds. (See fig. 1909.) Leaves 2 3/4 in. to 3 in. long; in Douglas's specimens, 1 1/2 in. and 5 in. long. Cones from 14 in. to 16 in. long, and said to be sometimes 18 in. long, and 4 in. in diameter in the widest part; scales 1 1/2 in. wide, and nearly 2 in. long. Seed large, oval, 3/4 in. long, and nearly 3/8 in. broad; dark brown; wing dark brown, and, with the seed, 1 1/2 in. long, and 3/4 in. broad in the widest part. A gigantic tree. California, upon low hills, east

of the range of the Rocky Mountains, covering large districts. Height 150 ft. to 200 ft. rarely 215 ft. Introduced in 1827. It has not yet flowered in England. Native of the north-west coast of North America, where it was discovered by Mr. Douglas; and introduced into England in 1827.

The species to which this pine is most nearly allied, Douglas observes, is undoubtedly P. Ströbus, from which, however, it is extremely different in station, habit,
and parts of fructification. Plants were raised of this species in the Horticultural Society's Garden in 1827, and distributed in the following year; but it is remarkable that the greater part of them have since died, generally when they were about 4 or 5 feet in height. Notwithstanding this, the species does not appear to be much more tender than *P. Stróbus*. The resin which exudes from the trees, when they are partly burned, loses its
usual flavour, and acquires a sweet taste; in which state it is used by the natives as sugar, being mixed with their food. The seeds are eaten roasted or are pounded into coarse cakes for their winter store. H. S.


Spec. Char., &c. Leaves in fives, short, smoothish, obtuse. Cones cylindrical and smooth; scales loose and pointed. (D. Don.) Buds, in the plant in the London Horticultural Society's Garden, small, resembling those of P. Lambertiana. Leaves from 3½ in. to 4 in. long, without the sheaths. Cone, from Douglas's specimen, 7 in. long, and 1½ in. broad; rather obtuse at the point; scales ⅛ in. broad at the widest part, and from 1½ in. to 2 in. long, and covered with resin. Seed, small, ⅓ in. long, and ¼ in. broad; with the wing, 1½ in. long, and ⅛ in. broad. Cotyledons, ? . A tree. High mountains, at the Grand Rapids of the Columbia river; and in California, on the rocky banks of the Spokan river. Height (?). Introduced in 1831; but there are only very small plants in England.

Except in its much shorter and smoother leaves, this species differs but little from P. Ströbus, of which it may prove to be only a variety; but, until an opportunity occurs of examining the male catkins, and

ascertaining other particulars, it is considered best to keep it distinct. Judging from the appearance of the specimens sent home by Douglas, the tree must abound in resin. Among Douglas’s specimens, there is a variety with red cones, from which no plants have yet been raised.

c. Natives of Nepal and Mexico.

2 54. P. (S.) excelsa Wallich.
The lofty, or Bhutan, Pine.


**Synonyms.** P. Dicksonii Hort.; Chilla, or Chylla, Himalayac; Kuel, Sirmone & Gurkwald; Leshing, Bhotia; Rae- sula, or King of the Firs, Hindostan.


**Spec. Char., &c.** Leaves in fives, very long, and slender, loose. Crest of the anthers roundish, truncate; simple, lacerated. Cones cylindrical, smooth, pendulous, longer than the leaves. (Wall.) Buds, on the tree in the Horticultural Society’s Garden, ½ in. long and ⅜ in. broad; conical, with straight sides, and pointed. (Fig. 1915.) Leaves rather more than 6 in. long. Cone 9 in. long, and 2 in. broad, with a foot-stalk 1 in. long; scale 1½ in. long, and 1¾ in. broad. Seeds ⅞ in. long, and ½ in. broad; with the wing, 1½ in. long, and ½ in. broad. A large tree. Nepal, on mountains. Height 90 ft. to 120 ft. Introduced in 1823. It flowers in May, and ripens its cones in the autumn of the second year.
Pinus excelsa, Mr. Lambert observes, approaches so near in habit, and in the shape of its cones, to P. Strobus, that, were it not for the simple, round, membranaceous crest of the anthers, it would be almost impossible to distinguish them specifically. The leaves are longer than in P. Strobus, and the cones are thicker. Dr. Royle makes a similar remark as to the resemblance of this tree to P. Strobus, and adds "that it is remarkable for its drooping branches, whence it is frequently called the 'weeping fir,' by travellers in the Himalayas." The rate of growth of this tree, in the climate of London, appears to be nearly the same as that of P. Strobus, and it seems equally hardy.


Synonymes. Piñones. It is so called because it was believed that the Ayacahuite, the aboriginal name of this species, had originated in P. Piñones (P. Liaveana).
Engravings. Our figs. 1919, 1920, from a specimen sent home by Hartweg.
Spec. Char., &c. Leaves in fives, on small spur-like protuberances, which, when very close together, make the twig look stunted and very crooked. Leaves from 3 in. to 4 in. long, and about ¼ of a line broad; flat on the back, but with a sharp projecting keel-like midrib, and two furrows. The leaves are whitish when young, with sharp thickened small teeth, not very close together, in the margin towards the points. Cones more than 1 ft. long, and 3 in. in diameter at the base, and tapering towards the point, some much
1920. *P. Ayenohurite*
longer than others. The scales are about 2 in. long, standing open, with their points more or less bent downwards; the rhomboidal surface is much longer than it is broad, intersected by many wrinkles lengthwise, of a dull greenish and yellowish brown colour. Seed winged, 1 in. long, and from 8 to 12 lines broad at the top, where it is broadest. It is small in proportion to the cone. The wing has almost the appearance of the upper wings of many small moths, being brownish, with dark stripes running lengthwise. (Schlecht.) A large tree. Mexico, at Omitlan, near Hacienda de Guerrero, and other places. Height 100 ft. Introd. to H. S. Gard. in 1840 by Hartweg.

A great deal of resin exudes from the whole cone, as in Pinus Stróbus, to which this species is nearly allied; but it differs in the points of the scales, which in this species are bent downwards, whereas in P. Stróbus they are bluntly rounded, obtuse, and stand upright.

**Genus II.**


*Synonyms.* Pinus of Linn. and others, in part; Pinca Link in Abband. König. Akad. Wissens. Berlin, p. 179. for 1827. (the ancients called the silver fir *Abies*, and the spruce fir *Picea*; but, by some inadvertence, Linnaeus reversed these names: Professor Link has restored them in the essay quoted, but we have not thought it advisable to depart from the customary nomenclature, by following him); *Abies* of Tourn., Mill., and others, in part; *Picea* of the ancients; *Sapín épicéa*, Fr.; Fichtbaum, Ger.; Abete, Ital.; Abeto, Span.

*Derivation.* From *abed*, to rise; alluding to the aspiring habit of growth of the tree: or, according to some, from *apias*, a pear tree; in allusion to the form of the fruit.

*Gen. Char.* The same as *Pinus*: but with the cones pendent, and less decidedly grouped; the strobiles cylindrically conical; the carpels not thickened at the tip; and the leaves solitary, partially scattered in insertion, and more or less 2-ranked in direction. Carpels and bracteas adhering to the axis of the strobiles. (D. Don.)
Leaves simple, 2-rowed, exstipulate, evergreen; linear. Flowers in catkins, the males yellowish.—Trees evergreen; natives of Europe, Asia, and America; remarkable for their tall, erect, pyramidal forms, and profusion of foliage. One or more species are useful, and the rest ornamental. In Britain, they flower in May and June, and ripen their cones in the spring of the following year. All the species bear seeds at a comparatively early age; and all of them may be readily propagated by cuttings taken off in the spring, according to Dumont De Courset; or in autumn, according to the practice of British gardeners. All the species hitherto introduced are quite hardy in British gardens.

Our arrangement of the species in British gardens is as under:

§ i. Leaves tetragonal, awl-shaped, scattered in insertion.

A. Natives of Europe and the Caucasus.

1. excélsa.
2. orientális.
3. obováta.

B. Natives of North America.

4. álba.
5. nigra.
6. (n.) rubra.

C. Native of Nepal. 7. Khútrow.

§ ii. Leaves flat, generally glaucescent beneath, imperfectly 2-rowed.

D. Natives of North America.

8. Douglássü.
10. canadénsis.

E. Native of Nepal. 11. dumósia.

§ i. Leaves tetragonal, awl-shaped, scattered in insertion.

A. Natives of Europe and the Caucasus.

† 1. A. excélsa Dec. The lofty, or Norway, Spruce Fir.


Spec. Chor. &c. Leaves scattered, quadrangular. Cones cylindrical, terminal, pendent; scales naked, truncate at the summit, flat. Crest of the anthers rounded. (Lois.) Cone from 5 in. to 7 in. long, and from 1½ in. to 2 in. broad; scale from 1 in. to 1½ in. long, and from ½ in. to ¾ in. broad. Seed very small, scarcely ¼ in. long, and ⅒ in. broad; with the wing, ⅜ in. long, and ¼ in. broad. Cotyledons 7 to 9. A lofty tree. North of Europe, more particularly Norway. Height 80 ft. to 100 ft. Cultivated since 1548. It flowers in May; its cones are ripened in the spring of the following year, soon after which they commence shedding their seeds.

Varieties.

† A. e. 1 commúnis. The common Spruce, or White Fir of Norway.—The foliage is shorter, more slender, and lighter-coloured, than in the following form; though the difference may be in part owing to soil and situation.

† A. e. 2 nigra. The black-leaved Spruce, or Red Fir of Norway.—There is a tree in Studley Park, known there as the black spruce, of which a portrait is given in Arb. Brit., 1st edit., vol. viii. In the foliage, it answers to the description given of the red fir of Norway; its leaves being very thick, strong, and dark-coloured; its bark red; and its cones longer than those of the common spruce. The leaves, in the specimen sent to us, are 1½ in. in length; and the cones from 5½ in. to 6 in. long, and from 1¼ in. to 1½ in. broad. The scales (see
Fig. 1922.) are much more pointed than those of the common spruce, and longer.

* A. e. 3 carpática. A. carpática Hort. — This variety has vigorous shoots, and foliage as dense and long as that of the preceding, but lighter.

* A. e. 4 pendent. A. communis pendent Booth. — Distinguished from the species by the drooping habit of its branches; and also by the darker glossy green colour, and greater length, of its leaves.

* A. e. 5 folis variegatis. — Leaves blotched with yellow, and a more compact dwarf-growing tree than the species.

* A. e. 6 Clanbrasiliàna. — A low, compact, round bush, seldom seen higher than 3 or 4 feet, and never, that we have heard of, producing either male or female blossoms. The annual shoots are from 1 in. to 4 in. in length; the leaves from $\frac{1}{2}$ in. to 4 in. long, and their colour is lighter than in the species.

* A. e. 7 Clanbrasiliàna stricta. — More erect than the preceding variety.


* A. e. 9 temiformia. A. temiformia Smith of Ayr.— Very slender leaves and shoots.

* A. e. 10 gigantea. A. gigantea Smith of Ayr. — Leaves rather larger and stronger than those of the species.

* A. e. 11 monstrósa. A. monstrósa Hort.— Shoots and leaves thicker than those of the species, with few or no lateral branches.

* A. e. 12 nueronuta Hort. — Leaves disposed on the branches like those of Arancária imbricàta. The only plant that we know of is in the nursery of the Grand Trianon. (See Gard. Mag. for 1841.)

Other Varieties may be found in the nurseries and in books; for the tree is very liable to sport, both in its branches and in the seed bed. Bosc mentions a variety which had been sent to him from the Vosges, with the leaves flatter and more pointed than the common spruce, and with different cones. Hayes speaks of a seminal variety of the spruce, which has been denominated the long-coned Cornish fir, the cones being frequently nearly 1 ft. long; and of which, in the year 1790, there was a fine tree in the park of Avondale, in the county of Wicklow. (Pract. Treat., p. 165.) Pinus viminalis Alstrewm, the Höngatanne (weeping fir) of Sweden, with long slender pendulous leafless twigs, is frequently found there in fir woods (see Link, Abhand., p. 182), but has not yet been introduced. There is a very beautiful variety at Harewood Hall, in Yorkshire (see Arb. Brit., 1st edit., p. 2399), which we believe has not been propagated. Linnaeus has five varieties in his Flora Suecica. According to Gertner the species is exhibited in two forms, called the white and the red Norway spruce; one with pale, and the other with deep-coloured, cones; but the timber of both is white.

The wood of the spruce fir is light, elastic, and varying in durability according to the soil on which it has grown. Its colour is either a reddish or a yellowish white, and it is much less resinous than the wood of P. sylvestris. According to Hartig, it weighs 64 lb. 11 oz. per cubic foot when green, 49 lb. 5 oz. when half-dry; and 35 lb. 2 oz. when quite dry; and it shrinks in bulk one seventieth part in drying. The ashes furnish potash; and the trunk produces an immense quantity of resin, from which Burgundy pitch is made. The resin is obtained by incisions made in the bark, when it oozes out between that and the soft wood; and the mode of procuring and manufacturing it will be found detailed in our 1st edition. The principal use to which the wood is applied is, for scaffolding-poles, ladders, spars, oars, and masts to small vessels; for which purposes, the greater proportion of the importations of spruce fir timber from Norway are in the form of entire trunks, often with the bark on, from 30 ft. to 60 ft.
in length, and not more than 6 or 8 inches in diameter at the thickest end. The planks and deals are used for flooring rooms, and by musical instrument makers and carvers; they are also used by cabinet-makers for lining furniture, and for packing-boxes, and many similar purposes. The wood, being fine-grained, takes a high polish, and does well for gilding on; and it will take a black stain as well as the wood of the pear tree. The spruce fir is one of the best nurses for other trees, not only from its dense mass of foliage, which may be considered as a reservoir of heat, but because, from its conical form, and its being abundantly furnished with branches on the surface of the ground, it acts as a non-conductor, and keeps the soil from cold and drought; and, while it protects the plant to be sheltered from high winds, it admits the top of that plant to the free enjoyment of light and air. It makes excellent hedges for shelter, bearing the shears well. All agree that it requires a soil somewhat moist. It will thrive in soils of very different qualities; but it never attains large dimensions in shallow soils and exposed places. On dry soils, it invariably becomes stunted, produces a great number of cones at an early age, and soon dies. The check given to large trees by transplanting also throws them into bearing; by which means, even in the most suitable soils, the progress of the tree in making wood is much impeded. Hence, in the case of the spruce, as in all other Abietine, the great advantage of transplanting the tree when young. The spruce fir grows most luxuriantly in deep loams and low situations; or on acclivities with a north-east aspect, and a moist sandy soil; in which last situation, at Blair and other places in Scotland, it is found to produce timber as strong and durable as that imported from Norway. The mature cones may be gathered any time between the November of the first year and the following April: they should be chosen from healthy vigorous trees, and exposed to the heat of the sun, placed in a warm room, or slightly dried on a kiln; after which, the seeds will drop out by merely shaking the cones, or gently thrashing them. Fifteen gallons of cones will produce 2 lb. of seeds with their wings, or 1 lb. 4 oz. without them. After being collected, the seeds may be kept three or four years, and will still preserve their vitality; but it is always safest to sow them immediately after taking them from the cones, or in the course of the following March or April. The seeds of the spruce fir, being nearly of the same size as those of the Scotch pine, may be treated in the nursery in a similar manner; but, as the plants, when they come up, are more
prolific in fibrous roots, and less so in shoots and leaves, they may be kept in the nursery, by frequent transplanting, till they attain a much larger size. The most convenient time for planting them where they are finally to remain is after they have been two years in the seed-bed, and one year transplanted; and the operation should never be performed but in mild weather, and when the air is somewhat moist.

2. A. orientalis Tourn. The Oriental Spruce Fir.

Identification. Tourn. Cor., 41
Engravings. Lamb. Pin., ed. 2., 1. t. 39.; and our figs. 1924. and 1925.

Spec. Char., &c. Leaves solitary, sub-quadrangular. Cones cylindrical; scales broader than long, rhomboid ovate, rounded at the apex, sub-entire. (Steven.) Leaves half as long as those of A'bies excélsa, and, like them, quadrangular, acute, but not pungent; neither are they two rowed, as Tournefort states, but cover the branches on all sides, as in the common spruce. Cones 3 in., long, subcylindrical; scales more laxly imbricated as the seeds ripen, inferior broadly rounded, superior somewhat acute. A lofty tree. Tauria and Caucasus, on the loftiest mountains of Imeretia, and frequent in Upper Mingrelia, especially in the neighbourhood of churches, and forming whole forests between Guriel and the Adshar mountains. (Gard. Mag., 1839, p. 227.)

Described by Lambert, after Tournefort, and from dried specimens; but cones with fertile seeds do not appear to have been introduced till 1837. Of late many plants have been raised in Knight's Exotic Nursery, from seeds received from Mingrelia and the neighbourhood of Teflis.

3. A. obova'ta D. Don MS. The obovate-leaved Spruce Fir.

Engravings. Our fig. 1926. and 1927. from Ledebour.

Spec. Char., &c. Leaves arranged in many series, curved upwards. Cones erect, cylindrical. Scales abruptly dilated from the cuneate base into a quadrangular lamina, broader towards the point. Bracteas somewhat quadrangular, mucronate, not half the length.
of the scale, scarcely broader than the wing of the fruit, which is straight on both margins towards the apex. Found on the Altai Mountains, at an elevation of 3272 ft. Flowering in May; not yet introduced.

Professor Don informs us that he strongly suspects this tree to be only a northern form of *A*bies *smithiana*. Ledebour, he says, has committed the same error in regard to his *P. obovata*, as Dr. Wallich did in the case of *A*bies *smithiana*; that is, he has described the cones as erect, while, from the other parts of his description, the tree must belong to the genus *A*bies.

**B. Natives of North America.**

4. *A. alba* Michx. The white Spruce Fir.


*Spec. Char., &c.* Leaves somewhat glaucous, scattered round the branches, erect, quadrangular. Cones oblong-cylindrical, pendulous, lax; scales with entire margins. (Michx.) Cones from 1 1/3 in. to 2 1/3 in. long, and from 5/8 in. to 1/3 in. broad; on the tree at Dropmore, 1 in. long. Seed very small; with the wing, 3/8 in. long, 2/3 in. broad. Leaves 3 in. long; on the tree at Dropmore, twice the length of those of *A. nigra*, very glaucous when they first come out. A tree. Canada to Carolina, throughout the tracts of high mountains. Height 40 ft. to 50 ft. Introduced in 1700. It flowers in May and June, and the cones are ripe in the April following.

*Variety.*

2. *A. a. 2 nana* Dickenson of the Chester Nursery.—A low-growing plant, apparently somewhat distinct.

*Other Varieties.* Loiseleur Deslongchamps states that, according to the specimens of *A. orientalis* which Tournefort brought from the Levant, this alleged species cannot be separated from *A. alba*. He therefore introduces *A. orientalis* Tourne., Poir. Dict. vi. p. 508., and Lamb. Pin. ed. 1. ii. t. 39., as a variety of *A. alba*. We have retained it as a species (No. 2.), though we have great doubts as to its distinctness.

The general aspect of the white spruce is much lighter than that of any other species of the genus. The bark is considerably lighter in colour than
that of any other spruce; the leaves are also less numerous, longer, more pointed, at a more open angle with the branches, and of a pale bluish green. The male catkins are pendulous, on long footstalks, and of a brownish yellow. The female catkins are ovate and pendulous. When ripe, the cones are small, of a lengthened oval in shape, and a light brown colour; the scales are loose and thin, round or bluntly pointed, with entire edges. The seeds are minute, with a very small wing, and ripen a month earlier than those of the black spruce. When the tree is agitated with the wind, or when the cones are gently struck with a stick, the seeds drop out, and fall slowly to the ground with a tremulous fluttering motion, resembling a cloud of small pale brown moths. The rate of growth, in the climate of London, in sandy soil somewhat moist, is, from 12 ft. to 15 ft. in 10 years. In 30 years, the tree will attain the height of from 30 ft. to 40 ft.; but in dry soils it seldom reaches either this age or height; indeed, all the American spruces may be considered, in England, as short-lived trees.

5. A. nigra Poir. The black Spruce Fir.


Spec. Char., &c. Leaves solitary, regularly disposed all round the branches; erect, very short, somewhat quadrangular. Cones ovate, pendulous; scales somewhat undulated; the apex of the scale crenulated or divided. (Michx.) Cones from 1½ in. to 1⅜ in. long, and from ⅜ in. to nearly 1 in. broad. Seed rather larger than that of A. alba, but the wing smaller. Leaves from ⅛ in., to ½ in. long. A large tree. Canada to Carolina, throughout the tracts of high mountains. Height 60 ft. to 70 ft. Introduced in 1700. Flowering in May or June, and ripening its cones in the following April.

Varieties. The kind generally designated as A. rubra (P. rubra Lamb.) is asserted by Michaux to be only a variety, or rather variation, of A. nigra, produced by the influence of the soil on the wood, but we have treated it as a subspecies, as it is tolerably distinct, and, at present, not common.

The branches spread more in a horizontal than in a drooping direction, like those of the Norway spruce; and, consequently, the black spruce (notwithstanding the darkness of its foliage) has not the gloomy aspect of the European tree. The bark is smooth and blackish. The leaves are of a dark sombre green; they are short, being scarcely ⅛ in. long, thickly set, stiff, and are attached singly to the branches, which they cover all round. The male catkins are cylindrical, erect, and on peduncles; about 1 in. long; yellowish, with red-tipped anthers. The female catkins are oval, and at first erect, but soon become pendulous; they are purplish, and almost black, when young; but become, when ripe, of a dusky reddish brown. When full-grown, they are about 1½ in. long, and ¾ in. in diameter at the middle. The scales are blunt, rounded, very thin, and, when ripe, ragged and torn on the margin, and sometimes half through the scale. The seeds are small, scarcely more than a line
in length, with rather a small rigid wing. The rate of growth of A. nigra is more rapid than that of A. alba under similar circumstances.

6. A. (n.) rubra Poir. The red Spruce Fir, or Newfoundland red Pine.


Varieties. A. (n.) v. 2 cerulea. A. cerulea Booth.—Has glaucous leaves, and appears to us to differ from A. (n.) rubra only in the colour of the cones.

The cones are rather longer and redder than those of A. nigra, and covered with resin. Michaux says that the red spruce is in no way inferior to the black spruce in the quality of its timber, which "unites in the highest degree all the good qualities that characterise the species." He also states that, instead of being a low tree, it is superior in size to the black spruce, as it generally grows in richer soil; and that the wood is reddish, instead of being white. In Lawson's Manual, it is stated that A. rubra differs essentially both from A. nigra and A. alba in all its parts; and particularly in its leaves, which are more slender and sharper-pointed than in either of these species.

C. Native of Nepal.

7. A. KHUTROW. The Khutrow Spruce Fir.


Engravings. Wall. Pl. As. Rar., t. 246.; Royle ill., t. 81. f. 4.; and our fig. 1931. from Royle; and fig. 0003. in p. 0000.

Spec. Char., &c. Leaves compressed, tetragonal, straight, awl-shaped, sharp-pointed. Cones ovate-oblong; scales obovate-roundish, coriaceous, rigid, smooth on the margin. Crest of the anthers roundish, irregularly crenated. (D. Don.) Leaves, in Royle's specimen, and in the Horticultural Society's Garden, from 1 in. to 1½ in. in length. Cone, in Royle's figure, 6 in. long, and 2½ in. broad; scale 1½ in. in length, and the same in
breadth at the widest part. Seeds about the size of those of the common spruce; with the wing, \(\frac{2}{5}\) in. long, and \(\frac{2}{5}\) in. broad. A pyramidal drooping-branched tree. Himalayas, in Kamaon and Sirmore. Height 50 ft. Introduced in 1818. The tree has not yet flowered in England.

Varieties. Dr. Royle observes that the leaves in his figure are much narrower than those of *A. Smithiana* in Wallich's figure; and that the plants may probably be different species or varieties. Judging from the leaves, the tree in the Horticultural Society's Garden appears to be Dr. Royle's tree.

The rate of growth of this tree in British gardens is almost as rapid as that of the common spruce, to which it bears a very close resemblance, but the leaves are longer and paler. It is readily propagated by cuttings, and abundance of seeds have lately been imported. Some doubts having been expressed as to whether this plant is the *A. Smithiana* of Wallich (see *Bot. Reg.* for 1841), but none as to its being the *P. Khutrow* of Royle, we have in this edition preferred the latter name.

§ ii. Leaves flat, generally glaucous beneath, imperfectly 2-rowed.

D. Natives of North America.

† 8. *A. Douglasii* Lindl. The trident-bracted, or Douglas's, Spruce Fir.


Engravings. Lamb. Pin., ed. 2. 2. t. 47., and vol 3. t. 90.; the plate of this tree in Arb. Brit., 1st edit., vol. viii.; our fig. 1932, from a specimen and sketch sent to us by Mr. McNab, jun., of the Caledonian Horticultural Society's Garden; and our fig. 1933.

Spec. Char., &c. Leaves flat, blunt, entire, pectinate, silvery beneath. Cones ovate-oblong. Bracteae elongated, linear, 3-pointed. (D. Don.) Leaves from 1 in. to 1½ in. long. Cones from \(\frac{3}{4}\) in. to 4 in. long, and 1½ in. to 1½ in. broad; scales, without the bracteae, 1½ in. long, and the same broad; with the bracteae, 1½ in. in length. Seed, with the wing, \(\frac{3}{4}\) in. long, and \(\frac{3}{4}\) in. broad; without the wing, \(\frac{1}{4}\) in. long, and \(\frac{3}{4}\) in. broad. The seeds are about the same size as those of *Picea pectinata*, but more oblong. Cotyledons, 2. A tall tree. North-west coast of North America, in forests. Height 100 ft. to 180 ft. Introduced in 1826. It flowers in the climate of London in May, and its cones are matured in the June or July of the following year.

Varieties. Cones of different sizes, and somewhat different in the shape and size of the scales, have been sent home by Hartweg and others; because, doubtless, this species of spruce is liable to vary as well as every other; and the slightest variation in any species of plant which is comparatively rare is immediately constituted a named variety. Only one variety, that we have heard of, deserves notice.

‡ A. D. 2 *taxifolia*.—Stem and side branches straight; while in *A. Douglasii* they are always, when young, more or less in a zigzag direction, though they become eventually straight. Leaves twice the length of those of *A. Douglasii*, and of a much deeper green. Fig. 1932, is from a specimen and a sketch received from Mr. McNab, showing the foliage and manner of branching of *A. Douglasii* in the Caledonian Horticultural Society's Garden, and which corresponds exactly with the trees of this name in the Chiswick Garden.
A large conical tree, with a rugged greyish brown bark, from 6 in. to 9 in. thick, and abounding in balsamic resin. Leaves somewhat pectinate and spreading, narrow-linear, obtuse on the margin and apex, quite entire, flat; dark green above, marked on the middle with a depressed line, and silvery beneath; 1 in. long. The bark, in young trees, has its receptacles filled with a clear yellow resin, in the same manner as that of the balm of Gilead; and the bark of old trees is said to make excellent fuel. The timber is heavy, firm, with few knots, about the same yellow colour as that of the yew, and not in the least liable to warp. The rate of growth of this tree, in the climate of London, appears to be nearly as great as that of the common spruce; but, as it has a tendency to send out a profusion of side branches, it does not increase in height so much as it does in width and bushiness.

**A. Menzie's** Douglas. Menzies's, or the warred-branched, Spruce Fir.

**Identification.** Doug.

**Synonyme.** Pinus Menzie'sii Lamb. Pin. 3.

**Engravings.** Lamb. Pin., 3. t. 89., and our fig. 1934. from Lambert, and the seeds from specimens in the Horticultural Society's herbarium sent home by Douglas.

**Spec. Char., &c.**
Leaves acute, flat; silvery beneath, turned in every direction. Cones cylindrical; scales scarios, gnawed on the margin. (*D. Don.*) Leaves \(\frac{3}{4}\) in. long. Cones from \(\frac{2}{3}\) in. to 3 in. long, and from 1 in. to 1\(\frac{1}{2}\) in. broad; scales \(\frac{3}{4}\) in. long, and \(\frac{3}{8}\) in. broad. Seed very small, scarcely \(\frac{1}{2}\) in. long; with the wing, \(\frac{3}{8}\) in.
long. A tall tree. North of California. Height, ?. Introduced in 1831. There are only small plants in British gardens.

A tree with the general appearance of A. Douglassii. Branches and branchlets tubercled. Buds ovate, acute, covered with resin. Leaves turned in every direction, resupinate from being twisted at the base, linear, mucronulate, incurved; silvery beneath, articulated with an elevated tubercle, very short, not more than 2 in. long, rigid, rather sharp-pointed, and very soon falling off the dried specimens. Cones pendulous, cylindrical, 3 in. long. Only a very few plants of A. Menziesii were raised in the Horticultural Society’s Garden in the year 1832; so that the species is at present extremely rare in this country. Readily propagated by cuttings.

210. A. canadensis Michx. The Canada Pine, or Hemlock Spruce Fir.


Spec. Char., &c. Leaves solitary, flat, slightly denticulate, obtuse, two-ranked.

Cones oval, terminal, pendent, naked, scarcely longer than the leaves. Leaves from $\frac{1}{2}$ in. to $\frac{3}{4}$ in. long, and $\frac{1}{10}$ in. broad. Cones from $\frac{3}{4}$ in. to $\frac{1}{2}$ in. long, and $\frac{1}{5}$ in. broad; scales round-oblong, $\frac{1}{2}$ in. long, and $\frac{1}{4}$ in. broad. Seed very small, scarcely $\frac{1}{4}$ in. long; and with the wing, $\frac{1}{4}$ in. long. A tall tree in America, in England of middle size. Canada to Carolina, on the highest mountains. Height 60 ft. to 80 ft. rarely 100 ft. Introduced in 1736. It flowers in May and June, and its cones are matured in the June of the following year.

The hemlock spruce, in Europe, is a most elegant tree, from the symmetrical disposition of its branches, which droop gracefully at their extremities, and its light, and yet tufted, foliage. When the tree is young, the branches are quite pendulous, and remarkably elegant. The rate of growth, in the climate of London, is rather slow; but plants, in 10 years, will attain the height of 6 or 8 feet; and, in 20 years, of 15 or 20 feet. The wood of the hemlock spruce is less valuable than that of any other of the large resinous trees of North America; but the bark is inestimable, in that country, for the pur-
poses of the tanner. In England, the hemlock spruce forms one of the most ornamental of the fir family; being among needle-leaved evergreen trees what the weeping willow is among the willows. As it bears the knife, and is extremely hardy, it might be employed as hedges; for which purpose it is used in the American nurseries, along with the Thuja occidentalis. Seeds are annually imported, and even produced by old trees in this country.

E. Native of Nepal.

† 11. A. dumosa. The bushy Alpine Spruce Fir.


**Spec. Char., &c.** Leaves solitary, linear, obtuse, mostly on one side of the branches; glaucous beneath, denticulated. Cones ovate, terminal, solitary; bracteoles wedge-shaped, plicate, emarginate, glabrous. (Lamb.) Leaves \( \frac{1}{2} \) in. long. Cones, scales, and seeds scarcely different from those of _A._ canadensis. A dense and very bushy tree, with the appearance of _A._ canadensis. Nepal. Height 70 ft. to 80 ft. Intro. 1838.

Other Species of _A._bies.— _A._ Mertensiana Bong. and _A._ sitchensis Bong. are mentioned by M. Bongard in his observations on the Island of Sitcha, on the west coast of North America, in _N._ Lat. 57°, as indigenous there. The article is quoted in the _Annales des Sciences Naturelles_, 2d ser., tom. iii. p. 237.; but no description is given. _A._ trigôna, _A._ heterophylla, _A._ aromatica, _A._ microphylla, _A._ obliquata, and _A._ falcata are mentioned by Rafinesque as being found in the Oregon country; but, as he gives no description of these trees, it is uncertain whether they belong to _A._bies or _Picea_. The same observations will apply to _A._ hirtella Humboldt et Kunth Nov. Gen. et Sp. Plant. pl. 2. p. 5., of which nothing is known either of the flowers or cones; to _A._ Kaempferi and _A._ Thunbergii, mentioned by Thunberg; and to _A._ Môrni, _A._ Torônó, and _A._ Ararâgi, enumerated by Siebold in _Verhand. Botan. Gewoottsch._, xii. p. 12., as quoted in _Pen. Cyc._

**Genus III.**

**PICEA D. Don.** The Silver Fir. _Linn. Syst._ Monoc'cia Monadélphia.

**Identification.** D. Don MS.


**Derivation.** From _pix_ or _pitch_; the tree producing abundance of resin. Loiseleur Deslongchamps observes that the silver fir was called by the ancients _Abies_, and the spruce _Picea_; and that Linnaeus has created much confusion by reversing the application of the names. He proposes, therefore, to call the silver fir _A._bies vêra, and the spruce fir _A._bies _Picea_. (N. Du Ham., v. 214. note.) Link has divided the spruces and silver firs into two genera, and given the classical names of _Picea_ to the first genus, and _A._bies to the second (see _Abhauad. Akad. der Wissenfchaften_, 1857, p. 157.); and in this he has been followed by _Nees von Esenbeck_ and _Ledebour_. We have followed Lambert and D. Don, as already stated under _A._bies, p. 1025.

**Gen. Char.** The same as in _Pinus_ and _A._bies, but differing in having the cones erect. Strobile cylindrical, with its carpels not thickened at the tip. Both carpels and bracteoles separate from the axis of the strobile. The leaves are obviously 2-ranked in direction.
Leaves simple, 2-ranked, exstipulate, evergreen; linear. *Flowers* yellowish. — Trees, natives of Europe, Asia, and North America, generally in regions more temperate than those in which the species of spruce abound. Remarkable for the regularity and symmetry of their pyramidal heads; readily distinguished from the genus *A*bies, by their leaves being more decidedly in two rows; by their cones being upright, and having the scales deciduous; and by the seeds being irregular in form. The nucleus of the seed is exposed at the inner angle, through a considerable opening in the outer testa, as if the junction of the two sides had been ruptured by the rapid enlargement of the nucleus. (D. Don.) In Britain, with the exception of *P. pectinata*, they are solely to be considered as ornamental trees.

The species in British gardens may be thus arranged:

A. Natives of Europe, *Siberia*, and the North-west of Asia.

1. *pectinata*.
2. cephaloníca.
3. *Pinus*.
4. *P. plicata*.

B. Natives of North America.

6. *balsamea*.
7. *Fraseri*.

C. Natives of California.

8. *grandidis*.
9. *amabilis*.
10. *nobilis*.
11. *bracteata*.

D. Natives of Mexico.

12. *religiosa*.
13. *hirtélla*.

E. Natives of Nepal.

15. *Pindrow*.

A. Natives of Europe, *Siberia*, and the North-west of Asia.

*Ế* 1. *P. pectina'ta*. The Comb-like-leaved Silver Fir.


**Engravings.** Lamb. Pin., ed. 2, t. 40; *N. Du Ham., 5, t. 82*; the plate of this species in Arb. Brit., 1st edit., vol. vii.; our fig. 1939. of the natural size, and fig. 1958. to our usual scale.

**Spec. Char. &c.** Leaves solitary, flat, obtuse; 2-ranked, with their points turned up. Cones axillary, cylindrical, erect; scales with a long dorsal bractea. Anthers with a short crest, with two teeth. Buds short, egg-shaped, blunt; of a reddish yellow, with from 16 to 20 blunt scales. Leaves from \(\frac{1}{2}\) in. to 1 in. long, stiff, turned up at the points; of a shining dark green above, and with two lines of silvery white on each side of the midrib beneath. Cones from 6 in. to 8 in. long, and from 1\(\frac{1}{2}\) in. to 2 in. broad; cylindrical; green when young, afterwards reddish, and when ripe brown. Scale \(\frac{1}{2}\) in. to \(\frac{3}{4}\) in. long, and \(\frac{1}{2}\) in. broad. Seeds variously angular, \(\frac{1}{8}\) in. long, and \(\frac{3}{16}\) in. broad. Cotyledons 5. A lofty tree. Central Europe, and the West and North of Asia; rising on mountains to the commencement of the zone of the Scotch pine. Height 80 ft. to 100 ft., rarely 150 ft. Introduced in 1603. The blossoms appear in May, and the cones are matured in the October of the following year.

**Varieties.**

*† P. p. 2 tortuosa* Booth.—Branches and branchlets remarkably twisted or crooked.

*‡ P. p. 3 foliis variegátis.* — Leaves variegated.

*‡ P. p. 4 cinérea.* *Pinus Picea* cinérea Baum. Cat. ed. 1835. — *A* low plant with greyish bark, not yet introduced.

The silver fir is the noblest tree of its genus in appearance, and the only species worthy of cultivation in Britain for its timber. The rate of growth
of the tree is slow when young, but rapid after it has attained the age of 10 or 12 years. Cones with fertile seeds are seldom produced before the tree has attained its 40th year; though cones without seeds often appear before half that period has elapsed. The female catkins are often produced for years together, without any males appearing on the same tree. Young trees are apt to lose their leaders by very severe spring frosts; and, hence, we frequently find old silver firs with forked trunks and branchy heads. The wood of the silver fir is elastic, and the colour is whitish. The grain is irregular, as the fibres which compose it are partly white and tender, and partly yellow, or fawn-coloured, and hard. The narrower the white lines are, the more beautiful and solid is the grain of the wood. The wood of a tree 80 years old weighs 66 lb. 14 oz. per cubic foot green, and 41 lb. 5 oz. when dry; while that of a tree 40 years old weighs only 37 lb. 9 oz. when dry. It shrinks considerably in drying, like all white woods. It is used for planks and carpentry of all kinds, for the masts of small vessels, for joists and rafters, and for building the boats used for navigating rivers. It is said to endure a long time when used as piles, and to be much employed in Holland for that purpose. From the resin of this tree are manufactured Strasburg turpentine, colophony, and white pitch. The silver fir, like all the other Abétines, will attain a large size on soils of a very opposite description; but a loam, rather rich and deep than otherwise, appears to suit it best. The silver fir requires a low situation, comparatively with the spruce fir, not being nearly so hardy as that tree, either when in the nursery or full grown. The cones, which are produced in abundance in Britain, are apt to shed their seeds in spring; they ought to be gathered in October or November, and kept in a dry place till the sowing season. The
seeds may be easily separated from them by a very slight exposure to the sun, and then by thrashing them, without having recourse to the kiln. The seeds should be sown, according to Sang, in March, and at such a distance as to allow the plants to rise 1 m. apart; and the covering, he says, should be a full inch thick. When the plants are 2 years old, they may be transplanted into nursery lines; and, after being 2 years in that situation, they may either be again transplanted in the nursery, to a greater distance apart, or removed to where they are finally to remain.

1. 2. P. (p.) cephaloonica. The Cephalonian Silver Fir.

Engravings. Our figs. 1840 to 1844.

Spec. Char., &c. Cones erect. Leaves subulate, flat; dark green above, and silvery beneath; tapering from the base to the summit, which terminates in a sharp spine. Petioles very short, dilated lengthwise at the point of their attachment to the branches; the dilated part of a much lighter green than the rest of the leaf. Scales of the cones closely resembling those of P. pectinata. A tree. Cephalonia, on the Black Mountain, the highest point of which is the Mount Enos of the ancients, between 4000 ft. and 5000 ft. above the sea. Height 50 ft. to 60 ft. Introduced in 1824.

The bristle-pointed leaves and dilated petioles of young plants render the Cephalonian fir very distinct in appearance from the common silver fir, but we doubt very much if it can be considered a different species; it is, however, at all events, a marked and most beautiful variety. Fig. 1940. is a portrait of one of the branches of this tree, imported by H. L. Long, Esq., of Hampton Lodge, Surrey, to whom the seeds were first sent from Cephalonia by General
LXXVII. CONIFERÆ: PYCEA.

Sir C. J. Napier. Fig. 1942. is a cone of the natural size; fig. 1941. scales and seeds of the natural size; fig. 1944. terminal buds of the natural size; and fig. 1943. a seedling plant of the natural size just emerged from the soil. A great quantity of cones this fir is now extensively distributed.

§ 3. P. (p.) Pinsapo. The Pinsapo Silver Fir.

Engravings. Our figs. 1947. and 1948. from scales and seeds received from M. Vilmorin; and fig. 1949. from a young plant raised from one of these seeds.

Spec. Char., &c. Leaves disposed around the branches, from 3 to 5 lines long, nearly terete, and entire at the apex. Cones ovate, with the bracts concealed by the scales or carpels, and much shorter than these are. (Bois.)

A tree. Sierra de la Nieve, and on other mountains between Ronda and Malaga, 3500 ft. above the level of the sea. Height 60 ft. to 70 ft. Introduced in 1839, by seeds, which have been extensively distributed. (Gard. Mag.)

Apparently a variety of the common silver fir.


**Derivation.** Named in honour of Professor Nordmann of Odessa, who discovered it on the summit of Adshar.

**Engravings.** Bull. Soc., &c., l. c.; Gard. Mag., l. c., fig. 43; and our fig. 1950.

**Spec. Char., &c.** Leaves solitary, curved upwards, of unequal length. Strobiles erect, ovate; scales very obtuse; bracts cuneate, with the apex reflexed, obcordate, long-mucronate, incumbent on the lower scale. (Steven.) An evergreen tree. North of Asia, on the summit of Adshar, above Guriel, towards the sources of the Kur, on the banks of the Nataneb, at the height of 6000 ft. Height 80 ft. to 90 ft., with a trunk 3 ft. in diameter, and a smooth bark. Probably a variety of the silver fir. Not yet introduced.

---

*Figures:* a, b, c, d.
This is said to be a finer tree than the common silver fir, from its silvery leaves and abundant strobiles. The branches are dense, about 2 in., scarcely ever 3 in., thick, and regularly disposed; the lower horizontal, the upper springing at a more acute angle. At from 1½ to 17 years old the tree begins to bear fruit at top. When full-grown, the whole crown is covered, from a fourth part of its height, with large, conical, erect strobiles, solitary or in twos or threes, and coated over with a resinous exudation. The seeds ripen about the end of September, when they immediately fall off with the scales, the axis often remaining for the whole year. The wood is harder than that of the common silver fir. The male catkins have not been seen. The female strobiles are sessile, or on very short peduncles, erect, 5 in. long, and 2½ in. in diameter. Rachis 2 or 3 lines thick, gradually attenuated, ligneous, rough with tubercles spirally disposed for the insertion of the scales. There are 12 or 13 of these spiral lines, each containing 8 tubercles in its circumference, making a total of about 100 florets, or 200 seeds, in each strobile. Scales closely adpressed; superior (fig. 1950. a, c) cup-shaped, narrow at the base for about 2 lines in length, then suddenly dilated into a laminia, at first straight and of 3 lines broad, afterwards greatly expanded, somewhat recurved, and nearly 1½ in. in breadth, which is also the length of the scale itself; inferior (fig. 1950. b, d) much shorter, lamina with a subreniform base, triangularly crenate. Lateral margins of the lamina eroded, dentate, upper entire; inner surface slightly keeled, outer smooth. Bract adnate to the narrow base of the scale, then free, about a line broad at the middle, spreading by degrees into a lamina, rarely ovate, often cordate, reflexed at the apex, and incumbent on the lower scale; muro 1½ line long; lamina equal to the scale in length. Nuts two, triangular ovate, 1½ line long, above a little broader, smooth. Wing obliquely expanded by degrees to ¾ in. in length and breadth, membranous; inner margin straight, and close to the other wing (fig. 1951. c.). This species is sufficiently distinguished from Picea balsamea and P. sibirica by the size of the strobile, and long reflexed point of the bractea; and it differs still more from Picea pectinata, in the shape of the bract, and its upward curved lines.

5. P. (p.) Pičháta. The Pitch Silver Fir.


forests; towards an elevation of 5272 ft., it gradually becomes more rare. Height 30 ft. to 50 ft. Introduced in 1820.

It differs from a silver fir chiefly in having the leaves closer set on the branches, and not so silvery beneath. Professor Don suspects it to be only the Siberian variety of *Picea pectinata*, which ranges from the Atlantic to the Pacific.

**B. Natives of North America.**

6. *P. balsamea*. The Balm of Gilead, or American, Silver Fir.


*Engravings.* Lamb. Pin., ed. 2., 1. t. 41. f. 2.; Mich. N. Amer. Syl., 3. t. 190.; and our fig. 1954. to our usual scale; and figs. 1952. and 1953. of the natural size.

*Spec. Char., &c.* Leaves solitary, silvery beneath, apex emarginate or entire; somewhat recurved, and spreading. Cones cylindrical, violet-coloured; and pointing upwards. (*Michx.*).

Leaves 3/4 in. long. Cones 1 in. to 4 1/2 in. long, and 3/4 in. broad; scales from 1/2 in. to 1 1/2 in. broad, and 1/2 in. long. Seed, with the wing, 1/2 in. long, and 1/2 in. broad. Seed very small, irregular; about half the size of that of the common silver fir. Cotyledons,? A tree. Canada, Nova Scotia, New England, and on the Alleghany mountains, in high and cold situations. Height 20 ft. to 30 ft., rarely 40 ft. Introduced in 1696. Flowering in May, and ripening its cones in the autumn following.

**Variety.**

*†* *P. b. 2 longifolia* Booth. — Leaves longer than in the species, with the branches somewhat more upright.

A pyramidal tree, in general appearance resembling the silver fir of Europe; but seldom found, even in America, above 20 or 30 feet in height, and not of more than the same number of years in duration. The rate of growth, in the climate of London, is rather more rapid than that of the silver fir, the tree attaining the height of 10 1/2 ft. in as many years, and arriving at maturity in 20 or 25 years; soon after which it dies. Seeds are generally imported, and cones are sometimes ripened in this country.

7. *P. (b.) Fraseri*. Fraser’s, or the double Balsam, Silver Fir.


Spec. Char., &c. Leaves linear, emarginate, silvery beneath. Cones oblong, squarrose. Bracteoles somewhat leafy, obcordate, mucronate, half-exserted, reflexed. (Don.) A tree so closely resembling the preceding kind, that it is unnecessary to describe it. Pursh found it on high mountains in Carolina, resembling, he says, *P. balsamea* in several respects,

but differing, at first sight, in being a smaller tree, the leaves shorter and more erect, and the cones not one fourth the size. Introduced in 1811.

The original tree is in the Hammersmith Nursery, where, in 1837, it was 15 ft. high, and had, for two or three years, produced cones, but no male catkins. This last circumstance has given rise to the idea that the male and female are produced by different trees, which is exceedingly improbable. Propagated by cuttings.

C. Natives of California.

8. *P. grandis.* The great Silver Fir.

*Synonymes.* *Pinus grandis* Doug. *MS. Lamb. Pln. 3. t. 94.* ; *Abies grandis* Lindl. in *Penny Cycl.* No. 3.; the great Californian Fir.

*Engravings.* *Lamb. Pln., 3. t. 94; our fig. 1950. from Lambert's *Pinus,* vol. iii. ; and figs. 1557, and 1558, from Douglas's specimens in the herbarium of the Horticultural Society, and from the tree in the garden.

Spec. Char., &c. Leaves flat, obtuse, emarginate, pectinate, silvery beneath. Cones cylindrical; bracteoles ovate, acuminate, irregularly dentate, very short. (D. Don.) Leaves from \( \frac{3}{4} \) in. to 1 in. long. Cones,

according to Lambert, 6\( \frac{1}{2} \) in. long, and 3\( \frac{1}{2} \) in. broad; but in Douglas’s specimens the largest cones are only 3\( \frac{1}{2} \) in. long, and 2 in. broad, the others being much smaller. Scale \( \frac{3}{4} \) in. long, and \( \frac{3}{4} \) in. broad. Seed small; with

\[ 3 \times 3 \]
1046 ARBORETUM ET FRUTICETUM BRITANNICUM.

A noble tree. Northern California, in low moist valleys, where it attains the height of 200 ft. Introduced in 1831, and as yet rare in England.

A noble tree, akin to P. balsamea, with a brown bark. Leaves pectinate and spreading, linear, roundish at the apex, emarginate, callous on the margin, quite entire; green and shining above, silvery beneath, somewhat dilated towards the apex; 1 in. long. Cones lateral, solitary, cylindrical, obtuse, very similar to those of P. Cédrus, but larger, 6 in. long, of a chestnut-brown colour. Scales transverse, very broad, lamelliform, deciduous, stalked, incurved on the margin, much shorter than the scales. Seeds oblong, with a coriaceous testa, and a very broad wing.


Synonyme. Picea amábilis Douglas MS.


Spec. Char., &c. Leaves flat, obtuse, entire. Cones cylindrical; bracteoles very short, pointed. Scales triangular; the upper margin rounded, entire. Leaves, on Douglas's specimen, 1½ in. long; and on the young plant in the Horticultural Society's Garden, ¾ in. long. Cones 6 in. long, and 2½ in. broad. Scales 1½ in. broad, and about 1¼ in. long. Seed, with the wing, 1 in. long;
wing $\frac{5}{6}$ in. broad. The cone in Douglas's specimen is about twice as large as those sent home by him of P. grandidis, and the leaves are entire, instead of being emarginate; but, in other respects, we have been quite unable to discover any difference, either between the dried specimens or the young plants, worthy of being considered specific. The cones were sent home by Douglas in 1831, without any further information than the name. As there are young plants in the Chiswick Garden, all that is here said must be considered as provisional, till these plants have shown some characteristic features by which they may be either distinguished from, or associated with, other species.

10. P. nobilis. The noble, or large-bracted, Silver Fir.


Spec. Char., &c.
Leaves mostly on one side of the branches, falcate, short, acute, silvery beneath. Cones cylindric; the bracteoles elongated, spatulate, gnawed, and imbricated backwards. (D. Don.) Leaves 1$\frac{1}{2}$ in. long. Cone 6$\frac{1}{2}$ in. long, sessile; 2$\frac{1}{2}$ in. broad. Scale triangular; without the bractea, 1$\frac{1}{2}$ in. long, and the same in breadth; bractea $\frac{5}{6}$ in. long. Seed small, irregular; with the wing, 1$\frac{1}{4}$ in. in length. Wing 5 in. broad in the widest part. Cotyledons, ?. A majestic tree. Northern California, forming vast forests on the mountains. Height, ?. Introduced in 1831, and very rare in British gardens.

Leaves crowded, 2-rowed, linear, 


3 x 4
1048 ARBORETUM ET FRUTICETUM BRITANNICUM.

Falcate, for the most part acute, compressed trigonal; flat above, marked with a depressed line; silvery beneath; scarcely 1 in. long. Cones solitary, lateral, cylindrical, thick, brownish; 6 in. to 7 in. long, and 8 in. to 9 in. in circumference; scales lamelliform, stipulate, copiously covered with minute down; incurved, and quite entire on the margin. Bracteoles much exerted, spathulate, adpressed backwards, imbricated; laminae dilated, membranaceous; points elongated, awl-shaped, rigid. Seeds oblong, with a coriaceous testa; wing broad, axe-shaped, thinly membranaceous, pale-coloured; nearly allied to P. Fraseri, but with cones five times as large. (Lamb.) According to Douglas (Comp. Bot. Mag., ii p. 147.), this is a majestic tree, forming vast forests upon the mountains of Northern California, and producing timber of excellent quality. "I spent three weeks in a forest composed of this tree," he says, "and, day by day, could not cease to admire it."

11. P. bracteata. The leafy-bracted Silver Fir.

Lxxvii. CONIFERÆ: PI'CEA.

Engravings. Lamb. Pin., 3. t. 91.; and our fig. 1964. from Lambert.

Spec. Char., &c. Leaves 2-rowed, linear, mucronate, flat, silvery beneath. Cones ovate. Bracteoles 3-lobed; the middle division very long, leaf-like, recurved. (D. Don.) Cones 4 in. long. Bracteae nearly 2 in. long. Leaves 2 in. long. A large tree. California. Height 121 ft. Discovered by Douglas in 1832, and about the same period by Dr. Coulter, but not yet introduced.

The trunk rises to the height of 120 ft.; is very slender, not exceeding 2 ft. in circumference; and as straight as an arrow. The upper third of the tree is clothed with branches, giving it the appearance of an elongated pyramid. The branches are spreading; the lower ones are decumbent. The bracteas are low and recurved, and but little changed from the ordinary leaves, which gives the cones a singular appearance. When on the tree, being in great clusters, and at a great height withal, the cones resemble the inflorescence of a Banksia.

D. Natives of Mexico.

† 12. P. RELIGIO'SA. The sacred Mexican Silver Fir.


Engravings. Lamb. Pin., 1. t. 43., and vol. 3. t. 95.; and our figs. 1965. to 1967. from specimens sent home by Hartweg.

Spec. Char., &c. Leaves linear, acute, quite entire, somewhat pectinate. Cones roundish-oval; scales trapezioide-cordate, lamelliform; bracteoles the length of the scales, spatulate-oblong, sharply dentato-serrate; wings of the seed plicate. (D. Don.) Leaves 1 ½ in. long. Cones 2 ½ in. long, and 2 ½ in. broad. Seed small and irregular. Cotyledons, ?. A tall tree. Mexico, on the mountains of Anganguco, at 8000 or 9000 feet above the sea. Height 100 ft. to 150 ft., with a trunk 5 ft
to 6 ft. in diameter. Introduced in 1839, by seeds sent to the Horticultural Society by Hartweg.

Easily recognised from every other species of silver fir by the shortness of its cones, which, in form and structure, bear a marked resemblance to those of the cedar of Lebanon, although they are considerably smaller. From the elevated situation on which the tree grows, there can be little doubt of its proving perfectly hardy in Britain.


This species, which is the Abies hirtella Lindl. in Penn. Cyc. No. 11., Pinus hirtella Humb. et Kunth l. c., has the young branches covered with hairs. Leaves arranged in 2 rows, flat, acute, glaucous beneath: about 1½ in. long.
Flowers and cones unknown. Found on the mountains of Mexico, at an elevation of 8000 or 9000 feet. A low tree, from 18 ft. to 20 ft. high; not yet introduced.

E. Natives of Nepal.


**Engravings.** Lamb. Pin. ed. 2., t. 44; Monog., 2, t. 2; and our figs. 1968. and 1969.

**Spec. Char.**, &c. Leaves 2-rowed, linear, flat, obtusely emarginate, silvery beneath. Cones cylindrical; scales kidney-shaped, roundish; bracteoles oblong, apiculate. (D. Don.) Buds round, pointless, thickly covered with a yellow resin, by which alone the tree may be readily distinguished from every other species of Picea.

Cones from 6½ in. to 7 in. long, and above 2 in. broad. Leaves of young plants, in the Horticultural Society's Garden, from 1½ in. to 2½ in. long. Scale above 1 in. long, and 1½ in. broad. Seeds, with the wing, ½ in. long; wing ¾ in. broad in the widest part. Seeds ½ in. long, and ¼ in. broad. In general they are smaller, but longer, and with a sharper point, than those of the common silver fir; and, like the seeds of the common silver fir, they are of a brownish purple colour.

Cotyledons, ?. A large, handsome, pyramidal tree. Nepal, on the Alps of Gossainthan. Height 80 ft. to 90 ft., with a trunk from 3 ft. to 4 ft. in diameter near the base. Introduced in 1822. Cones purple, in one or two instances produced in England.

Branches numerous, spreading horizontally, much divided; densely clothed with leaves disposed in whorls; covered with a pale, ash-coloured, rough, scaly bark; bent upwards at
the apex. Wood compact, white rose-colour. The plant, in the climate of
England, appears rather more tender than the silver fir; being liable, from
its vegetating very early in spring, to have its leading shoots pinched by
the frost. After a series of years, however, and propagation from seeds
ripened in this country, it will, in all probability, accommodate itself in a
considerable degree to the peculiarities of our climate. When once the tree
begins to bear cones, they may be fecundated with the male blossoms of the
common silver fir, and thus a hybrid produced somewhat harder than the
female parent.

15. **P. PINROW.** The Pindrow, or Tooth-leaved, Silver Fir.

**Synonyms.** *Pinus Pindrow* Royle III. t. 86.; *Táxus Lambertiana* Wall. Cat.;

Spec. Char., &c. Leaves 2-rowed, linear, flat, of the same colour on both sides; sharply 2-toothed at the apex. Crest of the anthers 2-horned. Cones oval; scales trapezoido-cordate; bracteoles roundish, emarginate, irregularly crenulate. (D. Don.) Leaves 3 in. long. Cone 4¼ in. long, 3½ in. broad, of an intense purple. A large tree. Kamaon. Height 80 ft. to 100 ft. Introduced in 1837.

Professor Don observes that P. Pindrow is liable to be confounded with P. Webbiana; but that the former is readily distinguished from the latter by its longer and acutely bidented leaves, of nearly the same colour on both surfaces; and by its shorter and thicker cones, with trapezoid-formed scales, and rounded notched bracteoles.


Plants were raised in Knight's Nursery in 1840. Closely resembles P. cephalonica, but is without the twist in the petioles of the leaves.

**Genus IV.**

**L'ARIX** Tourn. The Larch. **Liu. Syst. Monot'ca Monadéphiia.**


**Synonyms.** Pinus of Liu. and others; *A'bies Rich.; Melçze, Fr.; Lerchenbaum, Ger.; Larice Ital.*

**Derivation.** From lar, fat, Celtic; the tree producing abundance of resin.

**Gen. Char.** The same as in *A'bies*; but with the cones ovate-conical, erect, and the carpels and bracteas adherent to the axis. Leaves annual, and disposed in groups.

**Leaves** simple, in alternate fascicles, exstipulate, deciduous; linear. Flowers reddish or yellowish.—Trees deciduous, some of them of large dimensions; natives of the mountainous regions of Europe, the West of Asia, and of North America; highly valued for the great durability of their timber. The common larch is found extensively on the alpine districts of the South of Germany, Switzerland, Sar'dinia, and Italy; but not on the Pyrenees, nor in Spain. The Russian larch (*L. e. sibirica*) is found throughout the greater part of Russia and Siberia, where it forms a tree generally inferior in size to *L. europaea*. The black, or weeping, larch (*L. americana pendula*) is a slender tree, found in the central districts of the United States; and the red larch (*L. americana rubra*), also a slender tree, is found in Lower Canada and Labrador. In Britain, all the species are ornamental; but the first is the only one at all deserving of culture as a timber tree.

**T 1. L. Europaea Dec. The European, or common, Larch.**

**Identification.** De Cand. Fl. Fr. No. 2664.


**Engravings.** N. Du Ham., t. 75, f. 1.; Lamb. Flin., ed. 2, t. 49; the plates of this tree in Arb. Brit., 1st edit., vol. viii; and our fig. 1672.
Spec. Char., &c. Leaves fascicled, deciduous. Cones ovate-oblong; scales reflexed at the margin, lacerate; bracteoles panduriform. Leaves linear, soft, 1 in. long. Cone from 1 in. to 1½ in. long, erect. A tall, pyramidal, deciduous tree. Alps of the South of Europe. Height 80 ft. to 100 ft. In cultivation in Britain since 1629. Flowering in March or April; and ripening its cones in the autumn of the same year.

Varieties. All the larches in cultivation are, probably, only different forms of the same species; but, as the American larches, which have small fruit, come tolerably true from seed, we shall treat them as one species, and the European larch as another. The latter is characterised by large cones, rapid growth, and robust habit; and the former by small cones, slow growth, and slender habit.

* L. c. 1 *communis* Laws. Man. p. 386. — Branches “aspiring towards their points; branchlets very numerous, and forming a dense conical or pyramidal top; foliage of a light grassy or vivid green; and bark rather more rugged than that of *L. c. 2* làxa.”

* L. c. 2 *làxa* Laws. I. c. — “True specimens of this variety may easily be distinguished from the others when in nursery rows, by their more rapid growth, more horizontal and less crowded branches, and by the darker green, or somewhat glaucous, colour of the foliage.”

* L. c. 3 *compacta* Laws. I. c. — “In habit of growth, the tree is conical or pyramidal, like the common larch; but its branches are very brittle, or easily broken from the trunk; numerous, horizontal, or slightly bent down near the base; aspiring afterwards, and the larger ones are finally erect towards the point, with pretty regularly verticillate branchlets; towards the centre of the tree, however, these are pendulous, and remarkably thickly interwoven with one another.”

* L. c. 4 *pèndula* Laws. I. c. — “Distinguished by the very pendulous habit of its branches, which somewhat resemble those of *L. americana pèndula*; from which, however, it differs in the greater length of its leaves, and the larger size of its cones.” A native of the Tyrolean Alps.— *L. c. pèndula* Godsdllii Gard. Mag. vol. xv. p. 549, and the figure there given, is a sub-variety; or, more probably, identical with this variety. It was selected by Mr. Godsdll from a bed of seedlings of the common larch.— *L. c. répens* Laws. I. c. is another sub-variety. The branches spread along the ground to a great distance. A tree at Henham Hall, Suffolk, planted about 1800, at the height of 8 ft. sends out its branches horizontally, and these, being supported, extend north and south over a covered way more than 80 ft. in length, and 16 ft. in width. Another branch extends to the west about 8 ft.; and on the east the branches droop to the ground and form a perfect curtain, as they do also on the west side. (See Gard. Mag., vol. xv. p. 626.)

* L. c. 5 *flore rubro* Hort. Trans. iv. p. 416. — The flowers vary in shade of red or pink, and some of them are more or less mixed with yellow. The cones are also red, or reddish yellow. The majority of the trees in the Duke of Athol’s plantations at Dunkeld and Blair have red flowers.

* L. c. 6 *flore albó. Larch from the Tyrol, with white Flowers, Hort. Trans. I. c. — The leaves of this variety are not different from those of the common larch; but the shoots are said to be much stronger; and the cones white, as well as the flowers.

* L. c. 7 *sibirica. L. sibirica Fisch. &c. L. archangélica Laws. Man. p. 389; L. rosseia Sab. in Hort. Soc. Gard.; Pinus L. sibirica Lodd. Cat.; the Russian Larch, Hort. Trans. iv. p. 416. — There are trees of this variety in the Duke of Athol’s plantations, raised from seeds procured from Archangel in 1806. The appearance of the tree is said to be coarser than that of *L. c. communis.* It is of much slower growth than the larches of the Tyrol; and the leaves

See Gard. Mag., vol. xv. p. 626.)
come out so early in spring, that they are liable to be injured by frost. The female catkins do not expand their flowers till some time after those of the European larch appear. The cones are like those of the American larch.


* L. 9 intermédia. L. intermédia Laws. *M.* p. 389; *Pinus intermédia* Lodd. *Cat.* ed. 1836; the Altaian Larch. — A very strong luxuriant habit of growth, with pendulous branches, and very large leaves. Introduced in 1816, or before. Lod.

**Other Varieties.** L. *Fraseri Comp.* Bot. *Mag.* vol. ii. p. 304, was discovered and introduced by J. Fraser and his son, between 1785 and 1817; but it is apparently lost.

The wood of the larch is compact, and of a reddish or brown tinge; and, on favourable soils, is said to be fit for every useful purpose in 40 years' growth; while that of the pinaster requires 60 years, and the Scotch pine 80 years. The greatest drawback to the wood of the larch is its liability to warp. The rate of growth of the larch, in the climate of London, is from 20 ft. to 25 ft. in 10 years from the seed; and nearly as great on the declivities of hills and mountains in the Highlands of Scotland. In the course of 50 years, the tree will attain the height of 80 ft. or upwards; and, in its native habitats, according to Willdenow, it lives from 150 to 200 years. The wood, according to Hartig, weighs 68 lb. 13 oz. per cubic foot when green, and 36 lb. 6 oz. when dry; and, according to Kasthoffer, it lasts four times longer than that of any other species of *Abies.* Though the wood of the larch ignites with difficulty, and a fire made of it will, if not attended to, extinguish itself before the wood is half-consumed, yet, if properly managed, the wood of old trees is capable of producing an intense heat. The charcoal is more rich in carbon than that of the spruce or the silver fir, but less so than that of pine or beech. It is very heavy, and weighs 164 lb. per cubic foot; it is said to be excellent for iron founders. The bark of young larches is astringent, and it is used in the Alps for tanning leather; where the leaves and young shoots are sometimes given to cattle. The resinous products of the larch are, Venice turpentine, and the manna de Briançon; and both are used in the state in which they are procured from the tree. To obtain the turpentine, trees are chosen
which are neither too young nor too old; and auger holes are made in different parts of the trunk, from which the turpentine flows through slender tubes or gutters to a bucket at the bottom of the tree. The manna is collected from the young shoots and leaves. The larch will grow rapidly upon almost any soil, and in any situation, for the first 20 or 30 years; but it is only in a clear dry atmosphere, on a cold-bottomed soil, somewhat moist on the surface, that its timber is brought to perfection. In plains, and near the sea, it grows rapidly for 30 or 35 years; but, when felled in such situations, the wood is found rotten at the heart, and unfit for any purpose except fuel. This decay of the wood is much aggravated when the larches are planted thick, so as to expose but a small portion of their foliage to the sun, and to retain among their lower branches an atmosphere surcharged with moisture. The larch will grow, and become valuable timber, at a much greater elevation above the sea than the Scotch pine, thriving at the height of 1800 ft. in the Highlands, where the Scotch pine does not attain a timber size at a greater elevation than 900 ft. In Switzerland, Kasthofer informs us, it is found in the highest perfection in soil composed of the debris of calcareous rocks, as well as in granitic, argillaceous, and schistose soils. An immense mass of valuable matter on the culture and uses of the larch, with a detailed account of the Duke of Atholl's plantations in the Highlands of Scotland, will be found in our 1st edition, vol. iv. p. 2353. to 2399.

† 2. L. americana Michx. The American Larch.

Identification. Michx. N. Amer. Syl. 3. p. 213

Spec. Char., &c. Leaves short. Cones small, ovate-roundish, with few scales. Leaves from 1/2 in. to 2 in. long. Cones from 2 in. to 3 in. long, and from 3 in. to 4 in. broad. A deciduous tree, with a slender trunk. North America, Newfoundland to Virginia. Height 80 ft. to 100 ft. Introduced in 1739. Flowers red or yellow. Cones small, brown, or brownish red; May.

Varieties. None of the forms of this species can be at all compared with the European larch, in point of utility, or even ornament.

† L. a. 1 viridis. L. microcarpa Laws. Mon. p. 388.; Pinus microcarpa Pursh Fl. Amer. Sept. p. 645.; Lodg, Cat.; E'pinette rouge, Canada. —Tree medium-sized, upright, of a slender, conical, or pyramidal habit of growth, but not so much so as in L. a. pendula. Branches horizontal, or slightly pendulous, except the upper, which are rather aspiring; branches also pendulous, and, together with the branches, more numerous and dense than those of L. a. pendula. The wood is so ponderous that it will scarcely swim in water.


† L. a. 3 prolifera. L. prolifera Malcolm.—In this variety, the axis of the cones is prolonged in the form of a shoot; a kind of monstrosity or morphology which is found in all the varieties of L. americana, and also, occasionally, in some species of Abies and Picea.

Michaux describes the American larch as a tall slender tree, with a trunk
80 or 100 feet high, and only 2 or 3 feet in diameter. Its numerous branches, except near the summit, are horizontal or declining. The bark is smooth and shining on the trunk and larger branches, but rugged on the smaller branches. The leaves are flexible, and shorter than those of the European species. The cones are small and erect; green in spring, and generally brown when ripe, but sometimes they are found of a violet colour. The wood, Michaux says, is equal to that of the European larch, being exceedingly strong, and singularly durable. In Britain, it can only be considered as a curious or ornamental tree. Seeds are sometimes ripened in this country, and are also sometimes imported; in consequence of which, both varieties are not uncommon in the nurseries.

**Genus V.**


Synonymes. *Pinus Lin. in part; Abies Parl. in part; Lärix Tourn. in part; Cedre, Fr.; Ceder, Ger.; Cedro, Ital.*

Derivation. Some suppose the word Cedrus to be derived from *Cedron*, a brook in Judea, on the banks of which the cedar of Lebanon was once plentiful: others from *kânê*, I burn; from the wood of some of the kinds of cedar being burned as incense: and others, from the Arabic *kedroun*, or *kêdrê*, power.

Gen, Char. The same as in *Lärix*; but with the carpels separating from the axis, and the leaves evergreen. Cones erect, large, solitary. Anthers crowned by an elliptical scabrous crest. Carpels coriaceous, compressed, deciduous.

Leaves simple, in alternate fascicles, extispulate, evergreen; linear. Flowers yellowish, powdery. — Trees majestic in form, and evergreen; natives of Asia and Africa, with large spreading branches. Extremely ornamental, and one species producing excellent timber.

1. **C. Libani Barr.** The Cedar of Lebanon.

**Identification.** Barrell, loc. 499.; Edw. Ornith., t. 183.


Spec. Char., &c. Leaves tufted, perennial. Cones ovate, abrupt; their scales close-pressed. Crest of the anthers ovate. flat, erect. (Smith.) Cones ovate, from 3 in. to 5 in. long, and from 2 in. to 2 1/2 in. broad. Seeds of an irregular triangular form; nearly 1/2 in. long, with a very broad membranaceous wing. Cotyledons 6. A large, spreading evergreen, tree. Syria, on Mount Lebanon; and the North of Africa, on Mount Atlas. Height 50 ft. to 80 ft. Introduced before 1683. Flowers yellow; May. Cones purplish brown, ripening in the autumn of the third year, and remaining on the tree for several years.

Varieties.

† C. L. 2 fōlis argéntinis.—Leaves of a silvery hue both above and below. These are very large trees of this variety at Whitton and Pain’s Hill, and a dwarf bushy one, remarkable for its silvery aspect, at the Countess of Shaftesbury’s villa (formerly the residence of Thomson the poet), on the banks of the Thames at Richmond, of which there is a portrait in Arb. Brit., 1st. edit., vol. viii.

† C. L. 3 nana.—Very dwarf. A plant at Hendon Rectory, Middlesex, 10 or 12 years old, is only from 2 ft. to 3 ft. high, making shoots from 2 in. to 3 in. in a year.

The leading shoot, in young trees, generally inclines to one side, but it becomes erect as the tree increases in height. The horizontal branches, or limbs, when the tree is exposed on every side, are very large in proportion to the trunk; they are disposed in distinct layers, or stages, and the distance to which they extend diminishes as they approach the top; thus forming a pyramidal head, broad in proportion to its height. The extremities of the lower branches, in such trees, generally rest on the ground, bent down by their own weight; but they do not root into it. The summit, in young trees, is spiry; but in old trees it becomes broad and flattened. When the cedar of Lebanon is drawn up among other trees, it produces a clean straight trunk, differing only in appearance from that of the larch in the colour of its bark. The wood of the cedar is of a reddish white, light and spongy, easily worked, but very apt to shrink and warp, and by no means durable. The tree, as an ornamental object, is most magnificent; uniting the grand with the picturesque, in a manner not equalled by any other tree in Britain, either indigenous or introduced. On a lawn, where the soil is good, the situation sheltered, and the space ample, it forms a gigantic pyramid, and confers dignity on the park and mansion to which it belongs; and it makes an avenue of unrivalled grandeur, if the trees are so far apart as to allow their branches to extend on every side.

If planted in masses, it is, like every other species of the pine and fir tribe, drawn up with a straight naked trunk, and scarcely differs in appearance from the larch, except in being evergreen. This is exemplified at Kenwood, at Claremont, and other places near London. On the other hand, where the cedar is planted in masses, and a distance of 50 or 60 feet allowed between each tree, nothing in the way of sylvan majesty can be more sublime than such a forest of living pyramids. This is exemplified around the cedar tower at Whitton, and on the cedar bank at Pepper Harrow. The cedar will grow in every soil and situation suitable for the larch. We are not certain that it will grow equally well with that tree at great elevations; though we have little doubt of it, provided it were planted in masses. In the neighbourhood of London, it has certainly attained the largest size in deep sandy soil, as at Syon, Whitton, and Pain’s Hill; but the sand at these places is not poor; and at Whitton, where the tree has attained the greatest height and bulk, the
roots are within reach of water. The cones, which, as already observed, are not ripe till the autumn of the third year, will keep five or six years after being taken from the tree, so that there is never any risk of getting seeds too old to vegetate, in purchasing the cones that are imported from the Levant. If cones produced in Britain are kept a year after being gathered, they may be opened with greater ease than when recently taken from the tree. To facilitate the operation of extracting the seeds, the cones may be steeped in water for a day or two, and afterwards split by driving a sharp conical iron spike through their axis. The scales being then opened with the hand, the seeds readily come out. The seeds ought to be committed to the soil immediately after being taken out of the cones; more especially if the latter have been steeped, because in that case the seeds have swelled, and might be injured, if left to shrink. If the seeds are sown in March or April, they will come up in a month or six weeks; and still sooner if they have been steeped. Like the other Abietinae, they should be sown in light rich soil, and covered thinly. Sarg recommends the covering to be ¼ in. deep; and this depth may be diminished or increased, according to the lightness or heaviness of the soil. The seeds may be either sown in beds in the open garden, or in large flat pots or boxes; but the latter is the more convenient mode, as it admits of preserving the whole of the roots in transplanting. The plants rise 3 or 4 inches high the first year, with scarcely any taproots; but these increase afterwards, as the plants advance in size. At the end of the first year, the seedlings may be transplanted into nursery lines, or, what is more convenient, into small pots; and, in commercial nurseries, they should every year be shifted into pots a size larger, till they are sold. In private nurseries, where the plants are not likely to be sent to any distance, they may be planted in the free soil in nursery lines, like the pinaster and other of the more rare pines and firs; and, when they are removed to their final situation, their roots may be protected from the air, by immersing them in mud or puddle. In the nursery culture of the cedar, care must be taken not to injure the leading shoot, which is said not to be readily renewed when broken off. In general, it is advisable to tie the leader to a stake, till the plants are placed where they are finally to remain; after which they may be left to themselves. In their progress from young plants to full-grown trees they require very little pruning, and suffer severely when large branches are cut off.

2. C. DEODARA Roxb. The Deodara, or Indian, Cedar.


Synonymes. Pinus Deodara Lamb. Pin. ed. 2, t. 52; Abies Deodara Lindl. in Penn. Cyc.; De-
vadara, or Deodara, Hindostan; the sacred Indian Fir.

Engravings. Lamb. Pin., ed. 2., t. 52; our fig. 1877. to our usual scale; and figs. 1875. and 1876. of the natural size.

Spec. Char., &c. Leaves fascicled, evergreen, acute, triquetrous, rigid. Cones twin, oval, obtuse, erect; scales appressed. (Lamb.) Cones from 4½ in. to 5 in. long; and from 3½ in. to 3⅓ in. broad. Seed, with the wing, nearly 1½ in. long; scale about the same length, and 2 in. broad. A large evergreen tree. Nepal and Indo-Tataric mountains, at 10,000 or 12,000 feet above the level of the sea. Height 50 ft. to 100 ft., rarely 150 ft. Introduced in 1822, and apparently as hardy as the cedar of Lebanon, from which it is readily distinguished at a distance by its general aspect being comparatively whiter.

Varieties. Two varieties, or perhaps nearly allied species, called the Shinlik and Christa rooroo, are mentioned by Moorcroft as natives of the forests of Ladakh. (Lindl. in Penn. Cyc.)

The branches are ample and spreading; ascending a little near the trunk of the tree, but drooping at the extremities. The wood is compact, of a yellowish white, and strongly impregnated with resin. The bark is greyish, and, on the young branches, covered with a glaucous bloom. The leaves are either solitary or tufted, and are very numerous; they are larger than those of C. Libani, and of a bluish but dark green, covered with a light glaucous bloom.
The male catkins are upright, without footstalks; cylindrical somewhat club-shaped; and yellowish, tinged with red. The cones are upright, generally in pairs, on short, thick, woody footstalks; of nearly the same shape as those of the cedar of Lebanon, but broader and longer; slightly tapering at the base, and somewhat more pointed at their summit. They are of a rich reddish brown, very resinous, and with the margins of the scales slightly marked with green; about 4 in. in length, and from 1 in. to 2½ in. broad. The scales are nearly of the same size and shape as those of C. Libani; but they fall off when ripe, like those of the silver fir. The seed is light brown, and irregularly shaped, with a large bright brown wing. The rate of growth, in the climate of London, appears to be much the same as that of the cedar of Lebanon; and it is equally hardy. The wood of the Cedrus Deodara possesses all the qualities attributed by the ancients to that of C. Libani. It is very compact and resinous, and has a fine, fragrant, refreshing smell, like that felt when walking in pine groves towards evening or in moist weather; and very
different from that of the cedar of Lebanon. The grain is remarkably fine and close, and is capable of receiving a very high polish. It is particularly valued for its durability; and is much used in the construction of Himalayan buildings, both public and private, and for bridges and boats. Strips of it are also employed for candles. In England, the specimens of the tree are at present small; but the feathery lightness of its spreading branches, and the beautiful glaucous hue of its leaves, render it, even when young, one of the most ornamental of the coniferous trees; and all the travellers who have seen it full grown agree that it unites an extraordinary degree of majesty and grandeur with its beauty. The tree thrives in every part of Great Britain where it has been tried, even as far north as Aberdeen; where, as in many other places, it is found harder than the cedar of Lebanon. It is readily propagated by seeds, which preserve their vitality when imported overland in the cones, but scarcely otherwise. It also grows freely by cuttings, and by grafting on the common cedar, and the plants appear as handsome and free-growing as those raised from seed. It has been grafted on the larch; but, the latter tree being deciduous, it may be doubtful whether plants so propagated will attain a large size, and be of great duration. It has been grafted, in the wedge manner, on the common cedar, in considerable numbers, by Mr. Barron, gardener to the Earl of Harrington, at Elvaston Castle. Mr. Barron has given a detailed account of his process, and of the success which attended it, in Gard. Mag., vol. xiv. p. 80. The nursery culture of the deodara cedar, and the soil and situation in which it is to be finally planted, may be considered, in all respects, the same as those of the common cedar.

**Genus VI.**


**Synonyms.** Eutassa Sal., Columbëa Sal., Dombëya Lamb., Cuprëssus Forst., the Southern Pine.

**Derivation.** From Araucanos, the name of the people in whose country Araucaria imbricata grows in Chili.

**Gen. Char.** Male flower with the pollen contained in from 10 to 20 cases, pendent from the apex of the scale. Ovule solitary, connate with the carpel or scale.
Leaves simple, alternate, exstipulate, evergreen; imbricate.—Trees of magnificent dimensions, and evergreen; natives of South America, Polynesia, and Australia; only one of which, the Araucaria imbricata, is hardy in the climate of Britain.

2. A. IMBRICA'TA Pav. The imbricate-leaved Araucaria, or Chili Pine.


The Sexes. There is a tree at Kew which bore female catkins in 1837; and a male plant at Beyton which blossomed in the same year.

Engravings. Lamb. Pin., ed. 2., t. 56, and 57.; Rich. Mém. sur les Conif., t. 29, and 21.; and our figs. 1978, to 1986. Fig. 1978, is a cone or female catkin in a young state, from Lambert; fig. 1984, is a specimen of the female tree at Kew; fig. 1983, is a portion of the male tree with the full-grown catkin, from Lambert's Monograph; and fig. 1980, is the full-grown female cone; all to our usual
scale, that is, a sixth part of the natural size. Fig. 1978. is a portion of a cone of the natural size. Fig. 1981. a is a seed with the scale and wing of the natural size, and b is the kernel; and fig. 1982 is a leaf of the natural size.


![Image](1979. A. imbricata: fem. catkin, young.)


A very remarkable tree; the female of which, according to Pavon, is about 150 ft. high, while the male is seldom more than 40 or 50 feet high. The trunk is quite straight, and without knots, with a strong arrow-like leading shoot, pushing upwards. It is covered with double bark, the inner part of which, in old trees, is 5 or 6 inches thick, fungous, tenacious, porous, and light; and from it, as from almost every other part of the tree, resin flows in great abundance; the outer bark is of nearly equal thickness, resembling cork cleft in different directions, and equally resinous with the inner bark. In young trees, the bark of the trunk is studded with leaves from the base of the tree upwards, which remain attached for 12 or 15 years. The branches are produced in whorls of 6, 7, and sometimes 8, in a whorl, the greater number being nearest the ground; and the branches diminish in length as they ascend higher up the tree; till, at the top, they terminate in a kind of pyramidal head. They are horizontal, inflexed, and ascending at the extremities. These large horizontal arms, clothed with closely imbricated leaves, resemble, in young trees, snakes partly coiled round the trunk, and stretching forth their long slender bodies in quest of prey. The leaves are sessile, somewhat thickened at the base, ovate-lanceolate, stiff, straight, somewhat keel-shaped below, and strongly mucronate at the apex; verticillate, with 7 or 8 in a whorl; imbricate, and closely encircling the branches; concave, rigid, glabrous, shining, marked with longitudinal lines, dotted on

![Image](1981. A. imbricata.)

![Image](1982. A. imbricata.)
both sides; leathery, with a cartilaginous margin, and remaining attached to the tree for several years. The male and female catkins are on separate trees; the males are 6 or 7 in a cluster, pedunculate, terminal, yellow, and oval, with numerous scales; imbricated, long, and recurved at the points: the female catkins are oval, with numerous imbricated wedge-shaped scales, with narrowed oblong brittle points; and they are produced at the ends of the branches, where they look at first sight like an unnatural thickening of the leaves. The cones, when fully ripe, are globular, from 3 in. to 4 in. in diameter, and of a dark brown colour. The scales are deciduous, and easily detached. The seeds are 2 to each scale, wedge-shaped, and very large, being more than 1 in. long, with a thick hard shell surrounding an eatable kernel: wings short and obsolete. The male tree has its leaves somewhat differently shaped from those of the female tree, and very much resembling those of A. brasiliéna in shape, though of a different texture and colour. The wood is red where it has been affected by the forest fires; but otherwise it is white, and towards the centre of the stem bright yellow. It yields to none in hardness and solidity, and might prove valuable for many uses, if the places of growth of the tree were less inaccessible. Of the rate of growth of this tree in its native country very little is stated by travellers. It is probably slow, as appears to be the case with plants in the climate of London; though scarcely any of these have yet had full justice done to them. Young plants established in the open ground at Dropmore and Bayfordbury make shoots, occasionally, of above a foot in length. It may be remarked of the araucaria
in Britain, that young plants sometimes remain a whole year without making any shoot whatever; and that, at other times, the same plants require two years to perfect one shoot, that is, the shoot continues slowly increasing in length from the midsummer of one year to that of the year following. The treatment of this tree, when raised from seeds, may be considered in all respects the same as that of the cedar; regard being had to the different size of the seeds, which will, of course, require a thicker covering. Abundance of seeds have lately been imported, from which many young plants have been raised, and extensively distributed. Fig. 1986. shows the manner in which the seeds germinate; a, the first appearance of the radicle; b, the plumular, or young, shoot, in an advanced state.

A. brasiliàna Rich., A. excélsa Ait., and A. Cunninghamii Ait., are half-hardy species, which will be found described at length, accompanied by numerous figures, in our first edition, p. 1440. to p. 1445.

**Genus VII.**


**Synonymes.** Pinus Lamb., Belis Salisb.

**Derivation.** Named, by Mr. Brown, in honour of *Mr. James Cunningham, “an excellent observer in his time, by whom this plant was discovered; and in honour of *Mr. Allan Cunningham, the very deserving botanist who accompanied Mr. Oxley in his first expedition into the interior of New South Wales, and Captain King in all his voyages of survey of the coast of New Holland." (Bot. Mag., t. 2743.)

**Gen. Char.** Male flowers in grouped catkins. *Pollen* contained in 3 cases that depend from the scale. Female with 3 ovules. Strobile ovate.

Leaves simple, alternate, exstipulate, evergreen; solitary, scattered in insertion, more or less 2-ranked in direction; flat, acuminate, and serrulate.

— Only one species has been discovered, which is an evergreen moderate-sized tree, a native of China.


For many years this tree was kept in the greenhouse; but, in 1816, a plant was turned out into a sheltered part of the pleasure-ground at Claremont, where it has continued to live without protection; and, though injured more or less by severe winters, it was, in 1837, 18 ft. high, the diameter of the trunk 7 in., and of the head 16 ft., which height it had not exceeded in 1841, in consequence of the top having been frequently broken off by heavy snow. It is very readily propagated by cuttings; and there are some trees at Dromore, raised in this manner, which have thrown up erect stems from the collar, which will doubtless form as handsome trees as seedlings.

Dāmmara orientālis Lamb. (fig. 1890.), native of Amboyna, and D. austrālis Lamb. (fig. 1900.), native of New Zealand, are described and figured in our first edition, but they are too tender for the open garden.
Tribe II. Cupressinae.

The Cupressinae differ from the Abietine in being, for the greater part, shrubs or low trees, instead of lofty trees. They are all evergreen, with the exception of one species of Taxodium (T. distichum, the deciduous cypress); and none of them have the branches disposed in whorls, as is the case with all the pines and firs without exception. The greater part of the species are natives of warm climates, and comparatively few of them are perfectly hardy in British gardens. One only, the common juniper, is a native of Britain; but between 30 and 40 foreign species and varieties endure the open air in England; and 8 or 10 of these (exclusive of Taxodium), which have been not less than 30 or 40 years in the country, and which have had time to display their shapes, form very handsome or remarkable evergreen low trees or tall shrubs; such as the red cedar, the white cedar, the eastern and western arbor vitae, the Phoenician and tall juniper, the cedar of Goa, the common and spreading cypress, &c. The greater number of the species, or alleged species, have, however, been but a short time in Britain; and are only to be seen as very young plants in the nurseries, or in very choice collections. These lately introduced kinds are so imperfectly known among cultivators, that little dependence is to be placed on the names which are applied to them; and therefore all that we can recommend is, that they should be as extensively introduced into collections as possible, in order that they may grow up to some size, and be examined in various situations by different botanists. It may be observed of all the species of Cupressinae, that it is not easy to describe by words, and scarcely practicable to illustrate by figures without the fruit, many of the different species of this family; nevertheless, to a practised eye, it is easy to distinguish the three leading genera, viz. Thuja, Cupressus, and Juniperus, by a portion of the branch, without either flowers or fruit. The flattened, two-edged, scaly, imbricated shoots of all the thujas, including Callitris (which may, if the reader chooses, be considered a sub-genus), are two-edged, whether the specimen be young or old; those of Cupressus are scaly and imbricated, but angular or roundish, and never two-edged; and those of Juniperus, in the young state of the plants, have distinct acerose leaves, generally glaucous above, and often in threes joined at the base. All the kinds may be propagated by layers and cuttings; and the more common species ripen seeds in Britain in abundance. The seeds, which generally lie a year in the ground, may be sown in spring; and the young plants may be treated in all respects like those of the pine and fir tribe. When the seeds are sown in autumn, immediately after being gathered, they sometimes come up the following year. Cuttings should be made in autumn, of the wood of the same year, with a small portion of the preceding year's wood attached; and they should be planted in sand, or in a very sandy loam, in a shady border, and covered with hand-glasses. Cuttings put in in September will form callosities at their lower extremities the same autumn, and should be protected by mats during severe frosts in winter; the following autumn they will be ready to transplant. Layers may be made either in autumn or spring. The genera have been thus arranged:

**Thuja.** Catkins terminal, solitary. Pollen in 4 cases. Ovules 2. Leaves scale-like, imbricate.

**Callitris.** Catkins terminal, solitary. Pollen in 2 to 5 cases. Ovules 3 or more. Leaves scale-like, opposite or whorled.

**Cupressus.** Catkins solitary. Pollen in 4 cases. Ovules 8 or more. Leaves imbricate.

**Taxodium.** Catkins disposed in compound spikes, female ones 2 or 3 to-
gether. Pollen in 5 cases. Ovules 2. Leaves linear, in 2 ranks, deciduous in the only species yet introduced.

**Juniperus.** Male catkins terminal, female ones axillary, few. Pollen in 3 to 6 cases. Ovule one. Fruit pulpy. Leaves opposite or ternate, rigid.

**Genus VIII.**

**THUJA L. THE ARBOR VITÆ. Lin. Syst. Monœcia Monadóphila.**


**Synonyms.** Thuya, or Arbre de Vie. Fr.; Lebensbaum, Ger.; Tuja, Ital.

**Derivation.** From *thyos*, sacrifice; in consequence of the resin of the Eastern variety being used instead of incense in sacrifices. Why it was called Arbor Vitæ is uncertain. Parkinson says the American species was presented to Francis I. under this name, and that it has been continued ever since, though for what reason he knows not. It was called the Arbor Vitæ by Chasius. Boyle mentions that, in the East, the cypress is called the tree of life; and that its berries, &c., are considered a cure for all diseases.

**Gen. Char.** Male flowers in a terminal solitary catkin. Pollen of each flower included in 4 cases, that are attached to the inner face of the scale, towards its base. Female flower in terminal catkins. Ovary conuate with the bractæ; the two conjoined may be termed a receptacle. Ovules 2 to each receptacle. Receptacles semi-peltate, imbricated, smooth, or, in some, having a recurved beak near the tip. Seeds inconspicuously winged, or not winged. Cotyledons 2. Branchlets compressed.

Leaves simple, alternate or opposite, exstipulate, evergreen; 2-rowed, scale-like, closely imbricated, compressed. Flowers yellowish. Trees narrow, pyramidal, and evergreen; or large fastigate shrubs; natives of Asia, Africa, and North America, and for the most part hardly in British gardens. The species have been divided by Professor Don into the following sections:—

i. *Thuja vëra.* Cones oblong-compressed; scales consisting of a definite number (4 or 6), coriaceous, smooth, with one tubercle under the apex; two exterior ones shortened, boat-shaped. Seeds compressed, winged. To this belong *T. occidentalis* L., *T. plicata* Donn, and *T. chilensis* D. Don. In *T. occidentalis* the seeds are flattened, winged all round, emarginate at the apex.

ii. *Biota.* Cones roundish, squarrose; scales indefinite in number, peltate, woody. Seeds bellying, crustaceous, without wings. To this belongs *T. orientalis* L.

iii. *Cyparissus.* Cones roundish; scales indefinite in number, peltate, woody. Seeds winged at the apex. To this belong *T. cupressoides* L., *T. pensilis* D. Don, and *T. pędula* D. Don.

§ i. *Thuja vëra.*

1. *T. occidentalis* L. The Western, or American, Arbor Vitæ.


**Synonyms.** *Thuja Theosophi* Bank. Pin., 488; *A d r i o V i t æ C l a r . H i s t . 1 , p. 36; white Cedar; Ger.; Cedro americain, Cedre blanc, Arbre de Vie, Fr.; gصنچی Lebensbaum, Ger.; Alberro de Vima, Ital.


**Spec. Char., §c.** Branchlets 2-edged. Leaves imbricated in 4 rows, ovate-rhomboid, adpressed, naked, tuberculated. Cones obovate; interior scales truncate, gibbous beneath the apex. (*Widld.* A moderate-sized evergreen tree, or large shrub. Canada. Height 40 ft. to 50 ft. In cultivation in England since 1596. Flowering in May, and ripening its cones in the following autumn.
Variety.


The frondose-like foliage is numerously ramified, and flattened, or spread out laterally. The leaves are small, opposite, imbricated scales: when bruised, they diffuse a strong aromatic odour. The sexes are separate upon the same tree. The male catkins are in the form of small cones, which, when ripe, are yellowish, about 4 lines in length, and composed of oblong scales, which open throughout their whole length for the escape of several minute seeds, each of which is surmounted by a short wing. Compared with the Oriental, or Chinese, arbor vitae, the American species is a loose irregular-headed tree, with the branches much more horizontal than in that species. The rate of growth, in the climate of London, is from 6 in. to 1 ft. in a year. In ten years, in favourable soils, it will attain the height of 10 or 12 feet; and in 30 or 40 years, in moist sheltered situations, drawn up by other trees, it will attain the height of 30 or 40 feet. The most common use of this tree in America is for rural fences, for which it is highly esteemed. The posts last 35 or 40 years, and the rails 60 years; or three or four times as long as those of any other species. The posts remain undecayed twice as long in argillaceous as in sandy soils. In Britain, the American arbor vitae can only be considered as an ornamental shrub or low tree; thriving well in any soil, even in the most exposed situations, but attaining its largest size in low, sheltered, and moist places. It grows much faster than the oriental arbor vitae, bears the knife and the shears, and is frequently employed to form hedges for shelter in gardens and nursery grounds. Readily propagated by seeds, which are procured in abundance from America or gathered from British trees, or by cuttings.

♀ 2. T. (o.) plicata Donn. The plicate, or Nee’s, Arbor Vitæ.


Engraving. Our fig. 2108. in p. 1110.

North America, at Nootka Sound. Height 20 ft. to 30 ft. Introduced in 1796, and frequent in collections.

A very branchy, spreading, light green tree. Branches crowded, covered with a reddish brown bark; branchlets dense, often divided, pectinate compressed.


synonyme. Cupressus thyoides Pavon MSS.

Engraving. Our fig. 2110, in p. 1110.


3. T. orientalis L. The Oriental, or Chinese, Arbor Vitae.


Spec. Char., &c. Branchlets 2-edged. Leaves imbricated in 4 rows, ovate-rhomboid, adpressed, furrowed along the middle. Cones elliptic; interior scales blunt, mucronate beneath the apex. (Willd.) A low evergreen tree, or fastigate shrub. China and Siberia, in rocky situations; and also on the mountains of Japan. Height 18 ft. to 20 ft. Introduced in 1752. Flowering in May, and ripening its brown cones in the following autumn.

Varieties.


3. T. o. 3 tatarica. T. tatarica Lodd. Cat. ed. 1836; T. Warcina Booth Cat. 1839.—Leaves, and the entire plant, rather smaller than in the species.

A low tree or large shrub; distinguishable, at first sight, from the American
arbor vitae, by its more dense habit of growth, by its branches being chiefly turned upwards, and by its leaves or scales being smaller, closer together, and of a lighter green. It is a more compact-growing and handsomer species than the American arbor vitae, and quite hardy in the climate of London, where, in fine seasons, it ripens seeds. These are generally sown in pots immediately after they are gathered in autumn, in which case the plants come up the following summer; but, if the seeds are not sown till spring, they frequently do not come up for a year. Layers generally require two years to root sufficiently; and cuttings are rather more difficult to strike than those of *T.* occidentalis. In a young state, the plants are somewhat tender; but they become quite hardy when old, even in the climate of Edinburgh.

§ iii. *Cupressa.*

*T.* cupressoides L., a native of the Cape of Good Hope, and *T.* pennisilis *Lamb.* , a native of China, exemplify this section, and are described at length in our first edition, but they are too tender for the open garden.

**5. *T. pendula* Lamb.** The pendulous, or weeping, Arbor Vitæ.

**Identification.** Lamb. Pln., ed. 2., 2. t. 67.

**Synonyms.** ? *T.* filifòrmis Lodd.; ? Juniperus flagelliformis Hort. (See Nos. 4. and 5. in p. 1076.)

**Engravings.** Lamb. Pln., ed. 2., 2. t. 67.; our fig. 1994. to our usual scale; and fig. 1993. of the natural size.

**Spec. Char., &c.** Leaves opposite and decussating, spreading, lanceolate, mucronulate, keeled, somewhat distant. Cones globose. Scales convex, smooth. Branches filiförm, pendulous. (*Lamb.*) Branches very long, hanging down in the most graceful manner; light green. Cones globose, about the size of a wild cherry, 6-valved; valves roundish, very thick, fungous, externally convex, smooth. A low evergreen tree. Chinese Tartary. Height?. Introduced in 1800, or probably before.

Only two large plants are known to be in Britain, one in the Chelsea Botanic Garden, and the other in the arboretum at Kew; from both of which cuttings have been struck in 1837 and 1838. A very remarkable and very desirable species; quite hardy, and not very difficult to propagate.

*T.* filifòrmis *Lodd.* (probably *T.* pendula *Lamb.* ), of which there are young plants in the collection at Hackney, is noticed in our first edition; and *T.* dolabrata *L.*, a large lofty tree, a native of Japan, is described at length, but not yet introduced.
Genus IX.


Gen. Char. Male flowers in terminal solitary catkins. Pollen of each flower contained in 2-5 cases, attached to the lower part of the scale, which is peltate. — Female flowers in terminal catkins, of 4-6 ovaries; or else receptacles, each spreading at the tip, and disposed upon so short an axis as to seem, in the state of fruit, the valves of a regular pericarp, at which time each has a mucro near the tip. Oecules 3 or many to each ovary, or receptacle. Seed winged. (G. Don.)

Leaves simple, opposite or whorled, exstipulate, evergreen; linear, scale-shaped, situated under the joints of the branches. Flowers yellowish. — Trees evergreen, low, or shrubs, with jointed branches; natives of Africa, with the habit of Cupressus or Thuja.

This genus was established from the Thuja articulata of Desfontaines. It differs from the genus Thuja in having the scales of the female catkins constantly from 4 to 6, all opening like the valves of a regular pericarp; and in having, at the base of each of these scales, a number of seeds, winged on the margin, whereas in Thuja they are wanting, or inconspicuous.

♀ 1. C. quadrivalvis Vent. The four-valved Callitris.


Spec. Char. fœc. Leaves flattened, articulate. Female catkin tetragonal, with 4 oval valves, each furnished with a point, and 2 of which bear seeds. (Desf.) A low evergreen tree. Barbary. Height 15 ft. to 20 ft. Introduced in 1815, and flowering from February to May.

Rather tender in the open air in the climate of London, but may be kept against a wall.

♀ C. Fothergillii. ? Cupressus Fothergillii.—There are young plants of this name at Elvaston Castle, and in some of the nurseries, which in general appearance resemble the common evergreen cypress.

♀ C. triqueta. Cupressus triqueta Lodd. Cat. ed. 1836.—A native of the Cape of Good Hope, introduced in 1820. There are plants at Messrs. Loddiges', and al-o at Elvaston Castle, where it has stood out three years, and appears quite hardy.


♀ C. macrostächya Hort.—There is a plant at Elvaston Castle.
Genus X.


Synonyms. Cupres, Fr.; Cupresse, Ger.; Cipresse, Ital.; Ciprose, Port.; Cypres, Hungarian.

Derivation. According to some, from kun, to produce, and parisca, nearly resembling; in allusion to the regularity of the branches; or from Cypparisus, a beautiful youth of the Island of Cezo, who was changed into a cypress; or, according to others, from the Isle of Cypress, where one species of the tree was found in abundance.

Gen. Char. Male flower in terminal solitary catkins. Pollen of each flower contained in 4 cases, attached to the scale on the inner face at the lower edge. Scales peltate. Female flowers with the ovaries connate with the bractea, and constituting a receptacle. Ovules to each receptacle 8 or more. Strobile globose. Receptacles, as included in the strobile, peltate, having an obscure tubercle at the tip; disposed collaterally, not imbricately. Seeds compressed, angular; affixed to the narrow basal part of the receptacle. 

Cotyledons 2.

Leaves simple, alternate, extipulate, evergreen; adpressedly imbricated, linear. Flowers yellowish. Evergreen trees, or large shrubs; natives of Europe, Asia, and North America; remarkable for the fine grain and durability of their wood; propagated by seeds, which require the same soil and treatment as the Abietinae.

1. C. sempervirens L. The common, or evergreen, Cypress.


(Wild.) A fastigiate evergreen tree. South of Europe, Greece, Turkey, Persia, and Asia Minor. Height, in its native country, 50 ft. to 60 ft.; in the climate of London, 30 ft. to 40 ft., rarely 50 ft. Introduced before 1518. Flowering in April and May, and ripening its dark brown cones in the following March or April.

Varieties.

1. C. s. 1 stricta Mill. Dict. Cupres mâle, Fr. — Branches upright, and closely pressed towards the trunk. It is the most common form of the species. (See the plate of C. sempervirens in Arb. Brit., 1st edit., vol. viii.)


(See the plate of this tree in Arb. Brit., 1st edit., vol. viii.) There is an old tree of this variety in the Chelsea Botanic Garden, which by some is considered a species; and in the Gard. Mag. for 1839, p. 696., an engraving is given of the Cypress of Mistra, which appears to be of this variety. The latter, when measured by the Earl of Aberdeen in 1803, had a trunk 26 ft. in circumference at 4 ft. from the ground, and appeared to be 150 ft. high.

The cone of the cypress is composed of large, angular, corky scales, slightly convex on the outside, streaked in rays, and mucronate in the centre; becoming woody and separating when ripe; on the inside, ending in a thick angular peduncle, to the extremity of which adhere 4 little nuts, which are bony, obovate, compressed, or irregularly angular, and covered with a thin membranaceous skin of a dun colour. The seed is of a bay colour, and of a linear-oblong shape. The wood is hard, fragrant, and of a remarkably fine

3 z
close grain, very durable, and of a beautiful reddish hue, which Pliny says it never loses. The rate of growth, in the climate of London, will average, for the first 8 or 10 years, from 1 ft. to 1 ft. 6 in. a year; after which the tree grows more slowly; and, when it has attained its full size, and is between 30 ft. and 40 ft. high, it will live many years without any perceptible increase in dimensions. Any common garden soil suits the cypress; but it attains its largest size in such soils as are rather dry and deep, and in situations sheltered rather than exposed. It may be propagated either by cuttings or seeds; the former being put in in autumn, and treated like those of Thúja. The cones, which appear to be ripe in autumn, are not perfectly so, but require to hang on the trees till the following March or April. They may then be gathered, and placed in a warm room, or in a box or basket, and set in a dry stove. In a few days the scales will open, when the cones may be thrashed and the seeds collected; they may be immediately afterwards sown, and treated like those of the Abétine. In England, it is common to sow the seeds in flat pans or in boxes; because, as they are somewhat tender when they first come up, they admit of being more readily protected by being carried to a pit. Unlike the seeds of the genus Thúja, which commonly lie in the ground a year, those of the cypress come up in three or four weeks. They grow to the height of 3 or 4 inches the first season, and may be transplanted into pots, and kept in a pit through the winter. At the end of the second autumn, they may be planted where they are finally to remain; but, if it be thought necessary, they may be kept three or four years in pots; shifting them frequently, or allowing them to remain in the pot unshifted, according as the object may be to produce large plants, or to concentrate the roots in a small ball, so as to occupy less space in sending the trees to a distance. When the cypress is planted where it is finally to remain, and the situation and soil are suitable, it may be said to require no farther attention during the whole of its existence. It always grows erect, so that no care is requisite to train up a leading shoot; and, as its branches occupy little space, it seldom or never requires pruning.

2. C. thýoides L. The Thuja-like Cypress, or White Cedar.


Varieties.

* C. t. 2 foliis variegatis. — Leaves variegated, or blotched with white.
* C. t. 3 nana Hort. — Habit dwarf. Exeter Nursery.

The white cedar, in the climate of London, is of slow growth, seldom exceeding the height of 4 or 5 feet in 10 or 12 years, and but rarely found above that height. Cones are sometimes imported; and the seeds may be sown early in spring, and treated in all respects like those of Cupressus sempervirens: it may also be propagated by cuttings; and, in the London nurseries, it is sometimes raised by layers.

* 3. C. lusitanica Tourn. The Cedar of Goa, or Portuguese Cypress.


Leaves imbricated in 4 rows, acute, keeled, glaucous, adpressed. (Lamb. Pin.) A branchy evergreen tree; in England a shrub. Goa, in the East Indies, and for many years cultivated in Portugal. Height 50 ft.; in England, 15 ft. to 30 ft. Introduced in 1683. Flowering in April and May, and ripening its cones in the following spring.

This species, in the climate of London, attains the height of 10 or 12 feet in twelve years, and forms a remarkably handsome low tree, with spreading branches, somewhat pendulous, and covered with fine glaucous foliage. In the winter of 1837–8, however, it was every where killed to the ground. The tree is abundant at Bussaco, near Coimbra, in Portugal, whence cones might be imported, and thus so fine a tree rendered frequent in collections. Its seeds may be treated like those of the white cedar; or it may be propagated by cuttings, as in Thúja.

4. C. torulosa Lamb. The Bhotan, or twisted, Cypress.


Engravings. Our figs. 1999, to 2001, of the natural size, from specimens taken from the plant in the Hort. Soc. Garden, and showing the very different appearance that the shoots assume on the same plant, and that even a young one.


Branches crowded, ascending; branchlets much crowded, round, divaricate, spreading, knotted, 2 in. to 6 in. long, very closely imbricated with leaves. Leaves small, ovate-obtuse, convex, smooth, imbricated in 4 rows, adpressed, green; adult ones persistent, and falling off with the bark. Only young male catkins seen. It appears tolerably hardy, and is remarkably handsome; and there are now abundance of plants in the nurseries.

5. C. pendula Thunb. The weeping Cypress.


Engravings. Lamb. Pin., ed. 2., t. 66; Staunt. Embass., t. 41.; our fig. 2003, to our usual scale; fig. 2004, of the natural size; and fig. 2005, showing parts of the shoots magnified.

Spec. Char., &c. Branchlets 2-edged, leafy; the oldest very long, pendulous; the younger short, alternate, 2-rowed, spreading. An evergreen tree. China, said to have been introduced in 1808, but respecting which we know nothing with certainty. The pendulous cypress, or Thúja, at Chelsea and in the Kew arboretum, may possibly be the same as Thunberg's plant.
Other Kinds of \textit{Cupressus}, some of which have been introduced, but of which little is known.

\textit{C. horizontalis} Audibert.—This plant has been already alluded to (p. 1073.) as being considered by some to be the same as the spreading variety of \textit{C. sempervirens}; and by others as a distinct species.

\textit{C. thurifera} H. B. et Kunth, Linnaea, vol. xii. p. 493.—A tree from 50 ft. to 60 ft. high, with leaves ovate-lanceolate, acuminate-pointed, scarcely a line in length; those on the young shoots about \(\frac{1}{2}\) of a line long. Mexico, at the height of 5000 ft. Introduced in 1838. Hort. Soc.

\textit{C. Tournefortii} Audibert.—The plant bearing this name in the Horticultural Society’s Garden, received from Audibert in 1834, is 2 ft. high.

\textit{C. bacciformis} Willd.—A hardy tree, 20 ft. high. Introduced in 1818.

\textit{C. australis} Pers.—A shrub with slender branches, a native of New Holland, and rather tender.

\textit{C. sabinioides} H. B. et Kunth. — A very doubtful species.


\textit{C. fastigiata} Hort., Pin. Wob. p. 186., Gard. Mag. 1839 p. 271. \textit{Juniperus fastigiata} Hort.—Said to be distinguished from \textit{C. sempervirens} by its “very blue glaucous leaves”; but apparently nothing but \textit{C. sempervirens} (of which it is the common name in many parts of the Continent), as indicated under that species.

\textbf{Genus XI.}


\textit{Synonyms.} \textit{Cupressus} \textit{L.}, Schubertæ Mirb., Condylócarpus \textit{Salisb.}

\textit{Derivation.} From \textit{taxus}, the yew, and \textit{eidos}, like; the trees resembling the yew.

\textbf{Gen. Char.} \textit{Male flowers} in catkins, disposed in a compound pyramidal spike. \textit{Pollen} of each flower borne in 5 cases, attached to the scale at its inner base.—\textit{Female flowers} in catkins, 2—3 together; near the base of the spike of catkins of male flowers; each consisting of a small number of flowers. \textit{Ovules} 2 to an ovary. \textit{Strobile} globose. \textit{Scales} peltate, angled. \textit{Seed} angled in outline, and having angular projections on the surface; its integument very thick. \textit{Cotyledons} 6—7.
Leaves simple, alternate, extispulate, deciduous; 2-ranked, linear.

Flowers yellowish, powdery, inconspicuous.

Lofty deciduous trees, natives of the southern part of North America; separated from the genus Cupressus, principally because the male catkins are disposed in loose spreading bunches, instead of being solitary and terminal; and because the female catkins are roundish and scaly, like the male, and each scale has only 2 perfect flowers. The genus is also distinguished by the embryo from 5 to 9 cotyledons. The species are generally propagated by seeds, and the varieties by cuttings, layers, or inarching.

1. T. dīstīchum Rich. The two-ranked-leaved Taxodium, or Deciduous Cypress.


Spec. Char., &c. Leaves 2-rowed, flat, deciduous. Male flowers leafless and panicled. Cones somewhat globose. (Willd.) A lofty deciduous tree. Florida, and on the Delaware and Mississippi, in swampy ground. Height 100 ft. to 150 ft.; in England, 50 ft. to 80 ft. Introduced before 1640. It flowers in May, and the cones, which are brown, are ripened in the spring of the following year.

Varieties.

T. d. 1 patens Ait. Hort. Kew. ed. 2. v. p. 323.—Leaves approximate, and strictly 2-rowed. This is the most common form.

T. d. 2 nutans, l. c. T. d. pendula Loud. Hort. Brit.—Leaves much longer than those of the species, and drooping, but more remote and thinner in texture, with a tortuous curly appearance when they first appear in spring. A specimen of the early shoots is shown in fig. 2005.

T. d. 3 excelsum Booth.—Horticultural Society, in 1837.

T. d. 4 sinense T. sinense Noisette.—How far it differs from T. d. nutans, or whether it differs at all, we are uncertain. H. S., in 1837.

T. d. 5 s. pendulum T. sinense pendulum Hort.—H. S., in 1837.

The deciduous cypress is one of those trees that sport exceedingly in the seed-bed; and, hence, wherever a number of them are found growing together, scarcely any two appear to have precisely the same habit. This is strikingly the case at White Knights, where there are several scores of trees, presenting a variety of forms and foliage almost as great as their number. They may all, however, as well as those enumerated in the above list, be reduced to the following four forms.

1. The species, or normal form, in which the branches are horizontal or somewhat inclined upwards.
2. T. d. pendulum, with the branches pendulous.
3. T. d. nutans, with the branches horizontal, and the young shoots of the year pendulous; the leaves being twisted and compressed round them in the early part of the season, but fully expanded, like those of the species, towards the autumn. Most of these shoots have their points killed every winter, and many of them are entirely destroyed.
4. T. d. tortuosum pendulum, with the leaves on the young shoots tortuous, and the branches pendulous. There is a very elegant specimen of this tree at White Knights. With respect to the T. sinense of cultivators, we have not been able to discover in what it differs from T. nutans; and of T. d. excelsum we have only seen very small plants.
The deciduous cypress, in America, attains its largest size in the swamps of the southern states and the Floridas, on the deep miry soil of which a new layer is every year deposited by the floods. The roots of large trees, particularly in situations subject to inundation, are charged with conical protuberances, commonly from 1 ft. 6 in. to 2 ft. high, and sometimes from 4 ft. to 5 ft. in thickness: they are always hollow, smooth on the surface, and covered with a reddish bark, like the roots, which they resemble also in the softness of their wood. Michaux says that "no cause can be assigned for their existence: they are peculiar to the deciduous cypress, and begin to appear when it is only 20 ft. or 25 ft. high." The Rev. J. Mitford has suggested that the absorption of air is the probable purpose for which the knobs protrude above the water. They are made use of by the negroes for beehives. The wood is universally employed, throughout the United States, for the best kind of shingles; and in Louisiana it is used for almost every other purpose to which timber is applied. A rich moist soil is required to produce the deciduous cypress of any size, and it will not thrive in elevated situations. The species is increased by seeds, which are procured from imported cones: they may be treated in all respects like those of the common evergreen cypress, and, like them, come up the first year. The tree may also be propagated by cuttings, put in in autumn, in sand or heath soil, in the shade, and kept moist; a practice which, Bose observes, is in use in the nurseries at Orleans, but not in those at Paris. Cuttings of the winter's wood, or of the
summer's shoots with the leaves on, will root in a vessel of water in a very few weeks; and, if an inch of soil be placed at the bottom of the vessel, the fibres will root into it, and the plants may be used as if they had been struck in the usual manner. Layers, put down in moist soil, root the first year.

* T. sempervirens* Lamb. Pin., ed. 2., 2. t. 64. Our fig. 2007.—Leaves distichous, linear, acute, evergreen, coriaceous, glabrous, opaque. (Lamb.) An evergreen tree. Discovered by Mr. Menzies, on the north-west coast of America, in 1796; and immense trees of it were seen by Dr. Coulter in 1836; but it has not yet been introduced. It will probably prove hardy; and, in that case, its introduction would be exceedingly desirable.

**Genus XII.**

**Juniperus L. The Juniper. Lin. Syst. Diœcia Monadélphia.**


Synonyms. Sabina Bank.; Cedrus Town.; Genévrier, Fr.; Wacholder, Ger.; Ginopro, Ital. Derivation. From Juniperus, rough or rude, Celt., the plants of this genus being stiff shrubs; or from juniores parcus, from the young and old leaves being on the tree at the same time, or with reference to the young fruit being produced before the old fruit drops off.

Gen. Char. Male flowers in axillary or terminal catkins. Pollen of each flower in 3–6 cases, attached to the basal edge of the scale, and prominent from it.—Female flowers in axillary catkins, resembling a bud; consisting of 13 fleshy ovaries; bracteated at the base. Ovules 1 to an ovary. The ovaries coalesce, and become a fleshy juicy strobile, resembling a berry. Seeds 1–3, each obscurely 3-cornered, and having 5 gland-bearing pits towards the base. (G. Don.)

Leaves simple, opposite or ternate, exstipulate, evergreen; narrow, rigid, and not rarely minute and scale-shaped. Flowers yellowish, from the colour of the pollen.—Trees evergreen, low, or shrubs; natives of Europe, Asia, Africa, and North America; mostly hardy in British gardens.

The wood of all the species is more or less aromatic, and very durable. The species, with the exception of three or four, which have grown to some size, and ripened fruit in England, are very imperfectly known to British cultivators; and, probably, some of those kinds which we have given as distinct species may prove not to be so. We could not, however, avoid this, from the impossibility of seeing any plants of many of the kinds, but those which were quite young. All the species are readily propagated by seeds, which retain their vitality, when kept in the berry, for several years; and, when sown, lie one year, and often two years, before they come up. They may also be increased by cuttings, planted in sandy soil, in a shady situation, in the autumn, and covered with a hand-glass during winter; or by layers. The species in British gardens are thus arranged:

§ 1. *Oxýcedri.*—Leaves spreading in the adult Plants,

A. **Native of Europe**

1. communís. 2. Oxýcedrus. 3. macrocárpa.

B. **Native of Asia.**

4. drupácea.

C. **Nature of North America.**

5. virgínica.
§ ii. Sabina. — Leaves imbricated in the adult Plants.

A. Natives of Europe.


B. Natives of Asia.


C. Native of South America.

14. uvifēra.

§ iii. Species of which little is known.


17. mexicānē. 20. gossanthēnē.


A. Natives of Europe.

1. J. commūnīs L. The common Juniper.


Engravings. Engl. Bot., t. 1106.; N. Du Ham., t. 13. f. 1.; our fig. 2014. to our usual scale; and fig. 2013. of the natural size.

Spec. Char., &c. Leaves in threes, spreading, mucronate. Berries longish. (Willd.) An evergreen shrub. Europe, on the sides of hills and in sandy plains, and also in North America and Asia. Height 5 ft. to 10 ft., rarely 15 ft. Flowers whitish yellow, from the pollen; ripening in May. Fruit purple or black; ripe the following spring.

Varieties.


= J. c. 2 suēcīs Ait. Hort. Kew. ed. 2. v. p. 414. J. c. fastīgītā Des Molins Cat, des Plantes de la Dordogne; J. strīcta Hort.; J. suēcīs Mill. Dict. No. 2.; J. vulgaris arbōr Bauh.; the Swedish, or Tree, Juniper. (fig. 2008.) — Leaves spreading and acute, 1 in. in length; branches erect, with oblong fruit. This kind was supposed by Miller to be a species because he found it always come true from seed. It generally attains the height of 10 or 12 feet, and sometimes of 16 or 18 feet; in the Forest of Fontainebleau, it has attained the height of 50 ft., and tables, cabinets, and other pieces of furniture have been made from its timber. The branches are more erect than those of the common juniper; the leaves are narrower, they end in more acute points, and are placed farther asunder on the branches; the berries are also larger and longer. It is a native of France, Sweden, Denmark, and Norway, and is in common cultivation in British nurseries.


J. c. 4 oblōnga. J. oblōnga Hort. (fig. 2010.)—Leaves longer than in any other variety; fruit small, oblong. Horticultural Society's Garden.

J. c. 5 o. pėndula. (fig. 2011.)—We apply this name to a plant at Kew which resembles J. c. oblōnga in the Horticultural Society's Garden in every respect; except that the habit of the main branches is fastigate, and the points of the shoots pendulous. It forms a very graceful plant, about 5 ft. high.

J. c. 6 canadēnis. J. canadēnis Lodd. Cat. ed. 1836. (fig. 2012.)—A handsome vigorous-growing variety, coming near in foliage to J. c. nāna; but, as we have only seen a small plant of it in the collection of Messrs. Loddiges, we are unable to depict the particular feature in which it differs from the species.

J. c. 7 depreśsa Pursh Pl. Amer. Sept. ii. 646. —A native of North America, and does not grow above 1 or 2 feet high; though its root will sometimes cover a space of from 15 ft. to 20 ft. in diameter. It does not appear to have been introduced. Possibly this may be the J. canadēnis of Lodd. Cat., No. 6. above.

Other Varieties. In Loddiges's Catalogue, there are J. cracōvia and J. hibēnica, very small plants, but obviously belonging to J. communis. There can be no doubt of this, though, as in the case of J. c. canadēnis in the same collection, we cannot point out in
what the difference from the species consists. There are other names current
in the nurseries, in some of which they are applied to J. communis, in others
to J. Sabina, and in others to J. virginiana.

The rate of growth of the
taller-growing varieties, in the
climate of London, is from
6 in. to 9 in. a year, till the
plants are 6 or 8 feet high,
after which they grow more
slowly; and their duration is
more than a century. The
wood is finely veined, of a
yellowish brown, and very
aromatic. It weighs, when
dry, above 42 lb. per cubic
foot. The berries are, how-
ever, the most useful product
of the juniper, being used for
flavouring gin. The plant
makes good garden hedges, and may be clipped into any shape.

2. J. OXYCEDRUS L. The Sharp-Cedar, or brown-berried, Juniper.


Engravings. N. Du Ham., 6,
t. 15. r. 2; our figs. 2016. to
our usual scale; and fig. 2015.
of the natural size.

Spec. Char., &c. Leaves
in threes, spreading,
mucronate, shorter
than the berries.
(Wildl.) An evergreen
shrub. Spain, Portu-
gal, and the South of
France. Height 10 ft.
to 12 ft. Introduced
before 1739. Flower-
ing in May and June.

Variety,
2. J. o. 2 laurica Hort.—Tolerably distinct; and, according to Mr. Gor-
don, possibly J. drupacea. (Gard. Mag., 1840, p. 10.)

Closely allied to J. communis. The branches are small
and taper, without angles. Berries very large, of a
brownish red, and marked with two white lines. Hand-
some when allowed sufficient space; and rather more
tender than J. communis.


Engravings. Lob. Icon., 2. p. 223. f. 1; and our fig. 2017. of the natural
size, copied from the figure of L’Obel.

Spec. Char., &c. Leaves ternate, spreading, mucronate,
sharply keeled, one-nerved. Berries elliptical, longer
than the leaf. (Smith, Fl. Gr., 2. p. 267.) An evergreen
shrub. Greece. Height 10 ft. to 12 ft. Introduced in 1838, or before; flowering in May and June.

The leaves are like those of J. Oxycedrus, but the berries are twice as large, and black, covered with a violet bloom; a handsome plant, though very probably only a variety of J. Oxycedrus.

B. Native of Asia.

J. drupa'cea Lab., N. Du Ham. The drupaceous, or large-fruited, Juniper.

Species. Char., &c. Leaves in threes, spreading, acute, three times shorter than the fruit. Nut 3-celled. (Labillard.) An evergreen shrub. Syria. Introduced in 1820; but we have only seen young plants.

C. Native of North America.

J. virginiana L. The Virginian Juniper, or Red Cedar.

Species. Char., &c. Leaves in threes, the three growing together at the base; young ones imbricated, old ones spreading. (Willd.) An evergreen tree. Maine to Georgia, in woods and plains. Height 40 ft. to 50 ft.; in England, 30 ft. to 40 ft. Introduced before 1664; flowering in May, and ripening its dark blue fruit in October.

Varieties.  
† J. v. 2 humilis Lodd. Cat. ed. 1836. — Habit dwarf.  
† J. v. 3 caroliniana. J. caroliniana Du Roi, Mill. Dict. No. 2. — Miller says that the lower leaves of this kind are like those of the Swedish juniper; but that the upper leaves are like those of the cypress; while in the Virginian cedar all the leaves are like those of the juniper. (See p. 1082.)

Other Varieties. The red cedar varies exceedingly from seed. At White
Knights, where there are some hundreds of trees, some are low and spreading, and others tall and fastigate; some bear only male blossoms, and others only female ones. The foliage, in some, is of a very light hue; in others, it is glaucons; and in some a very dark green. The fruit, also, varies considerably in size; but, perhaps, the most striking variety is one in which the branches are decidedly pendent. Miller mentions a variety which has leaves like a cypress. There are a great many varieties at Elvaston Castle; and some with glaucous foliage of very great beauty.

The rate of growth, in the climate of London, is 10 or 12 feet in ten years; and the duration of the tree is upwards of a century. The name of red cedar has reference to the heart-wood of this tree, which is of a beautiful red, while the sap-wood is perfectly white. It is imported into England for the manufacture of black-lead pencils; though the Bermuda juniper is preferred for that purpose. In Britain, the red cedar is not planted as a timber tree; though, from the size which it attains in deep dry sandy soils, it might be worth while to plant it in masses for this purpose. As an ornamental tree or large shrub, it is highly valued, either for planting singly on lawns, or in groups along with other trees and shrubs. It is more especially adapted for grouping with other Cupressinae, the pine and fir tribe, and the yew.

J. bermudiana L. and J. nepalensis Hort. (Cupressus nepalensis Hort.) are described in our first edition.


A. Natives of Europe.

6. J. SABINA. The common Savin.


Engravings. Pall. Fl. Ross., t. 56. f. 2.; and our fig. 2026.

Spec. Char., &c. Leaves oval, opposite, imbricated, somewhat acute, convex on the back; the male catkins pedunculate. Berries of a blackish blue, generally monospermous. (N. Du Ham.) A low evergreen shrub. South of Europe and Tauria. Height 7 ft. to 8 ft. Introduced before 1548; flowering in March and April, and ripening its blackish blue fruit in the spring of the following year.

Varieties.


b. J. S. 2 tamariscifolia Ait. l. c. J. Sabina Mill. Dict. No. 10. la Sabine femelle (fig. 2022.)


2. J. S. 4 prostrata. J. prostrata Michx.; J. repens Nutt.; J. hudsonica Lodd. Cat. 1836. (fig. 2023.)—A low trailing plant, seldom rising above 6 or 8 inches in height, but rooting into the soil, and extending its branches to a great distance.

d. J. S. 5 alpina. J. alpina Lodd. Cat. 1836. (fig. 2024.)—Procumbent, and more slender in its habit; but, in other respects, only slightly different from J. prostrata.

The savin, though generally seen, in British gardens, as a low spreading shrub, has sometimes an upright trunk, clothed in a reddish brown bark, and rising to the height of 10 or 12 feet, or even higher. Its branches are nearly straight, very much ramified, and form, with the trunk, a regular pyramid. Its young branches are entirely covered with imbricated leaves, which have a very strong and disagreeable odour, and a very bitter taste. The male flowers are disposed in small catkins, on peduncles covered with little imbricated leaves, and are dispersed laterally along the youngest branches. The female flowers are generally produced on separate trees, and are disposed in the same manner: they are succeeded by oval berries, of a blue so deep as to be almost black, and are about the size of a currant: they generally contain only one seed, which is long, oval, and somewhat compressed. A very common ornamental evergreen, thriving in the poorest soils, and in exposed situations; in the latter remaining an humble prostrate shrub, and in the former attaining a considerable size.


**Synonyms.** Cédrus phœnica media Lab. Icon. 2, p. 221; Oxycedrus lycia Dod. Pempt. 583.; Genevrier de Phénicie, Fr.; dichtnadliger Wachholder, Ger.; Cedro licio, Ital.

**Engravings.** Pall. Ross., t. 56; N. Du Ham., 2, pl. 17; and our fig. 2026.

**Spec. Char., &c.** Leaves in threes, obliterated, imbricated, obtuse. (Willd.)

An evergreen shrub or low tree. South of Europe, Russia, and the Levant. Height 10 ft. to 20 ft. Cultivated in 1683. Flowering in May and June, and ripening its pale yellow fruit at the end of the second year.

The young branches are entirely covered with very small leaves, which are disposed in threes opposite to each other, closely covering the surface of the branches, and laid one upon another like scales. These leaves are oval, obtuse, somewhat channeled, and convex on the back, perfectly smooth. On some of the branches, a few sharp linear leaves are found, which are about 3 lines long, and quite open. The male and female flowers are sometimes found on the same tree, but they are generally on different trees. The form and disposition of the male and female flowers closely resemble those of *J. Sabina*. The berries generally contain 9 bony seeds in each, of an irregular oval, slightly compressed and angular; the pulp is dry and fibrous, and in the middle of it are 3 or 4 bladders, filled with a sort of resinous fluid. Much less common than so fine a shrub deserves to be.

8. *J. (v.) lyc'ia* L. The Lycian Juniper.


**Synonyms.** *J. p. lycia* N. Du Ham, vi, p. 47; cipressen Wachholder, Ger.

**Engravings.** Pall. Ross., t. 56; N. Du Ham., 6, t. 17; and our fig. 2027, and fig. 2028, from Pallas.

**Spec. Char., &c.** Leaves in threes, imbricate on all sides, ovate, obtuse.

Male flowers at the ends of the branches, in a conical ament; and the fruit single from the axes below them, on the same branch. Berries large, oval, and, when ripe, brown. An evergreen shrub. South of Europe, Levant, and Siberia. Height 10 ft. to 15 ft. Introduced in 1739, but not common in collections.

According to Pallas, *J. lycia* is an entirely prostrate shrub, with the trunk branching from the very bottom, and often thicker than the human arm. This,
and the branches, are often variously deformed, with scarcely any outer bark. The wood smells very strong, like that of the Bermudas cedar. Branches and branchlets wand-like, and covered with a testaceous bark. Shoots dark green, dichotomous, and imbricate with scale-formed sharp leaves. Berries terminal, globular, middle-sized, nearly black when ripe, and covered with a glaucous bloom; containing 3 or 4 stones. Pallas adds that it greatly resembles the dwarf savin, and that it differs principally in the greater thickness of the shoots, and in the leaves being acute and less clustered. A very doubtful species.

† 9. J. thurifera L. The incense-bearing, or Spanish, Juniper.


**Synonymes.** J. hispánica Mill. Dict. No. 13.; Cedrus hispánica, &c.,

**Tourn. Inst.** p. 588.

**Engraving.** Fig. 2029. from a specimen received from Mr. Lambert.

**Spec. Char., &c.** Leaves imbricate in 4 rows, acute.

(Willd.) An evergreen tree. Spain and Portugal. Height 20 ft. to 30 ft. Cultivated in 1752. Flowering in May and June, and ripening its large black berries at the end of the following year.

The leaves are acute, and lie over each other in four rows, so as to make the branches appear four-cornered. Berries very large, and black when ripe. There is a tree at Mr. Lambert’s seat at Boyton, which, in 1837, was 28 ft. high, with a trunk 9 in. in diameter. It strikes readily from cuttings, and deserves to be extensively propagated.

**B. Natives of Asia.**

† 10. J. excelsa Willd. The tall Juniper.


**Engraving.** Fig. 2030. from a plant about 2 ft. high.

**Spec. Char., &c.** Leaves opposite, somewhat obtuse, with a central glanld; 4-ranked and imbricate; slender, acute, disposed in threes, and spreading. Stem arboreous. (Willd.) A tall evergreen tree. Siberia, Himalayas, and North America, on the Rocky Mountains. Height 20 ft. to 30 ft. rarely 40 ft. Introduced in 1806, but has not yet flowered in British gardens.

A very handsome and elegant tree, with an upright trunk and slightly pendulous branches. Leaves opposite, imbricated in 4 rows, and having a raised line on the back. It is a very free grower; and apparently as hardy as J. virginiana.

11. J. squamata D. Don. The scaled Juniper, or creeping Cedar.


**Synonymes.** J. squamosa Wall.; see Gard. Mag. 1840, p. 10.

**Engraving.** Our fig. 2107. in p. 1110.

**Spec. Char., &c.** Leaves in threes, closely imbricated, ovate-oblong.
more or less pointed; remaining on after they are withered; young ones
inflexed at the apex, as if obtuse. Berries ovate, umbilicate on the top.
Branches and branchlets crowded, round. Stem prostrate. (Lamb. Pin.)
A large, decumbent, much-branched evergreen shrub. Nepal, and on the
Bhotan Alps. Height 3 ft. Introduced in 1824. Flowering in August;
but only young plants are in British gardens.


*Engraving.* Our fig. 2031.


It forms a graceful bush, or low tree, from its pendulous habit; and it is readily distinguished from all the other species, not only by this circumstance, but by the mixture of its brown half-decayed chaffy leaves of the past year with its greenish grey leaves of the present year. The bark is rough, brown, and soon begins to curl up, when it has a rough appearance, and ultimately scales off. It is as hardy as the common juniper, and deserves to be as generally cultivated.


*Engravings.* Our figs. 2032 and 2033, from living specimens.

*Spec. Char., &c.* Leaves decurrent, imbricate-spreading, clustered; stem leaves in threes, branch leaves in fours. (Willd.) An evergreen tree.

China. Height 15 ft. to 20 ft. Introduced in 1820, or before. Flowers yellowish; May. Fruit blackish blue; ripe in November.

There are two plants in the Horticultural Society's Garden bearing the name of *J. sinénsis*, male and female, 12 ft. and 10 ft. high. The leaves are green, short, and imbricated; the fruit rough, angular, and dry.


*Engraving.* Our fig. 2107; in p. 1110.


*Other Species of Juniperus, of recent Introduction, but of which little is known.*

*J. tetragöna* H. B. & Kth. — A shrub with low-growing, almost flat, branches; the leaves are in 4 rows, and lie close on each other, rather thick,
obtuse, egg-shaped; the fruit globular and small. (*Linnaea*, vol. xii. p. 496.) Mexico, on mountains at from 10,000 ft. to 11,000 ft. elevation, where it grows to the height of 4 or 5 feet. Introduced in 1838. (*Gard. Mag.*, 1839, p. 242.)

**J. flaccida** Schiede.—A strong high tree with pendent shoots, with 4-rowed, scaled, egg-shaped, little lance-like leaves; the fruit globular, with projecting pointed scales. Introduced in 1838. (*Ibid.*, p. 241.)

**J. mexicana** Schiede. — A high pyramidal tree with twigs and leaves resembling those of Cupressus thurifera. The leaves do not always stand in threes on the twigs, but are often opposite; they are egg-shaped, and pointed; on the points of the youngest shoots they are only from $\frac{1}{2}$ to $\frac{3}{4}$ of a line long. (*Ibid.*, p. 241.) Had not been introduced in 1841.

**J. dealbata** Hort. — Supposed to be a native of North-west America. It has the habit of the common juniper, but with small, imbricated, sharp-pointed leaves, rather distant on the shoots; the latter are rather slender, and of a beautiful glaucous colour, more particularly in the early part of summer. The scent is as strong as that of *J. Sabina*. Quite hardy. Introduced in 1839. Hort. Soc. (*Gard. Mag.*, 1840, p. 640.)

**J. flagelliformis** Hort.—A native of China, with long, slender, closely imbricated shoots (both young and old), very much resembling fine whipcord. Shoots glaucescent, with sharp lanceolate leaves. The fruit is small, globular, but sometimes slightly angular, and very glaucous. Quite hardy, and strikes freely from cuttings of the two-years-old wood. Introd. 1839. H. S. (*Ibid.*)

**J. gossainthænæ** Hort.—There are small plants bearing this name in the collection of Messrs. Loddiges, which closely resemble *J. chinensis*, but the shoots are more slender.

**J. Bedfordiana** Hort.—Closely resembles *J. virginiana*.

**J. Hudsoniana** Pin. Wob. p. 208. — A dwarf procumbent shrub, about 2 ft. high. Probably a variety of *J. Sabina*.

**J. barbadensis** L., described in our first edition, is here omitted as being rather tender.

**J. hemisphærica** Presl grows above the boundary line of trees on Mount Etna, as high as 7,100 ft.; but it is not yet introduced.

---

**Order LXXVIII. EMPETRACEÆ.**


**Ord. Char.** Flowers dicous. Perianth free, composed of imbricated scales, which are disposed in two series. Stamens equal in number to the inner series of scales, and alternating with them. Anthers roundish, of two distinct cells. Ovarium free, seated on a fleshy disk, 3–6- or 9-celled. Ovulum solitary, ascending. **Style** 1. Stigma radiating, with as many rays as there are cells in the ovarium. **Fruit** fleshy, surrounded by the persistent perianth of 3 to 9 bony cells. **Seed** solitary. **Embryo** terete, in the centre of the albumen. **Radicle** inferior.

**Leaves** simple, exstipulate, alternate or subverticillated, evergreen; linear, heath-like. **Flowers** axillary, minute. — Evergreen undershrubs; natives of Europe and North and South America.

The genera in British gardens are three, which are thus contradistinguished:

**Em**petrum. — Calyx 3-leaved, with six scales at the base. Petals and stamens 3. Berry depressed, containing 6–9 stones. (*G. Don.*)

**Corema.** — Calyx 3-leaved, naked at the base. Petals and stamens 3. Berry globose, containing 3 stones. (*G. Don.*)

**Ceratïola.** — Calyx 2-leaved, with 4 bracteas at the base. Petals and stamens 2. Berry globose, containing 2 stones. (*G. Don.*)
Genus I.


**Identification.** Lin. Gen., 515; Jess., 136; Fl. Br., 1072.; Tourn., t. 421.; Lamb., t. 803., Gertn.; t. 106

**Derivation.** From em, upon, and petros, a rock; in allusion to the place of growth.


Leaves simple, alternate, exstipulate, evergreen; linear, tongue-shaped, obtuse; flat above, convex and marked with a membranaceous line beneath; dark green, shining. Flowers axillary, solitary, sessile, dark red. Berries black or red.—Shrubs small, branchy, procumbent; natives of the North of Europe, North America, and the Straits of Magellan. Propagated by cuttings or seeds, and thriving best in peat soil.

1. **E. nigrum L.** The black Crowberry, or Crakeberry.


**Engravings.** Eng. Bot., t. 526.; our fig. 2034. to our usual scale; and fig. 2035. of the natural size.

**Spec. Char., &c.** Leaves linear-oblong. Berries black and clustered. (Hook.)

A low procumbent evergreen shrub. Britain. Height 6 in. to 12 in. Flowers purplish white; June. Berries brownish black, like those of the common juniper; ripe in November.

**Variety.**


Rather smaller than the species.

Cattle do not browse on this shrub; but the berries are eaten by the Scotch and Russian peasants. It thrives very well in gardens, but requires a moist boggy soil and a shady situation. The seeds remain a year in the ground before they vegetate, and the plants are very slow in their growth. The crowberry is the badge of the clan McLean.

2. **E. rubrum L.** The red-fruited Crowberry.


**Synonyme.** Cranberry of Staten island.

**Engravings.** Bot. Reg., t. 1753.; our fig. 2037. to our usual scale, and fig. 2036. of the natural size.

**Spec. Char., &c.** Leaves and branches with woolly margins. Berries red. (Lindl.) An evergreen procumbent shrub. Southern point of South America, where it is found along the sandy coast, spreading over the stones, but especially thriving at the back of the low sand-hills by which the shore is often skirted. Height 6 in. to 12 in. Introd. 1833. Flowers brownish purple; July. Berries red; ripe in November.

According to Gaulichaud, the red berries are pleasant to eat. It grows freely in peat, and is quite hardy.
Genus II.


Synonyme. E'mpetrum, in part, L.
Derivation. From körëma, a broom; in allusion to the habit of the plant.


Leaves simple, alternate, exstipulate, evergreen; scattered, linear, obtuse, spreading, flattish above, and revolute on the margin. Flowers in terminal heads, sessile, situated on a hairy disk; white, large; heads having villous scales. Berries white.—Shrub small, erect, branchy, rigid, covered with resinous dots; native of the South of Europe.

Closely allied to E'mpetrum, from which it has been recently separated, and requiring the same soil and culture in British gardens.

1. C. a'1ba D. Don. The white-berried Corema.


Engraving. Our fig. 2038.


Much branched, rigid, sprinkled with resinous dots.


Synonyme. E'mpetrum Conræ'dii Torrey.

Engraving. Our fig. 2039, from Dr. Torrey.


Genus III.


Derivation. From keræ'ion, a little horn; in allusion to the shape of the stigma.


Leaves simple, alternate, exstipulate, evergreen; spreading, needle-shaped, obtuse, glabrous, and shining; marked beneath with a narrow
furrow; slightly canaliculate above; about \( \frac{1}{2} \) in. long; sometimes crowded as if verticillate. *Flowers* unisexual on the same plant; axillary, sessile, numerous (2—4), rarely solitary, brownish; sometimes (like the leaves) verticillate. *Berries* yellow.—Shrub small, upright, branchy, rigid; native of North America. Grown in British gardens, in peat soil; and propagated by cuttings.

1. **C. ericoides.** The Erica-like Ceratiola.


**Engravings.** Pursh, 1. t. 13.; Bot. Mag., t. 2755.; our fig. 2011. to our usual scale, and fig. 2040. of the natural size.

**Spec. Char., &c.** Flowers in the axils of the upper leaves, solitary, except a small abortive one by the side of the principal flower. An upright much branched evergreen shrub, greatly resembling a heath; very handsome, but somewhat tender in British gardens. South Carolina. Height 2 ft. to 8 ft. Introd. 1826. Flowers brownish; June. Berries yellow; ripe in October.

**CLASS II. ENDO'GENÆ.**

**Stems increasing from within; Leaves with parallel Veins.**

**ORDER LXXIX. SMILA'CEÆ.**


**Synonymes.** Liliaceae, in part, **Juss.**; Sarmentaceae, in part, **Nees**; Smilaceae, in part, **R. Brown.**

**Derivation.** From **Smila**, a beautiful youth, fabled to have been changed into this plant (see Ovid, **Met.**); or, from **smilé**, a scraper, from the roughness of the stems of most of the species.

**ORD. CHAR.** *Flowers* unisexual or bisexual. **Perianth** regular, usually 6-parted; but often 4—8-parted. **Stamens** equal in number to the segments of the perianth. **Ovarium** free. **Styles** 1 or more. **Fruit** either a capsule or berry, 3—4-celled, but of one cell by abortion. **Seeds** 1 to 3 in each cell, albuminous.

*Leaves* simple, alternate, exstipulate, mostly evergreen; reticulated, though the genus is considered monocotyledonous. *Flowers* corymbose, axillary.—Rambling shrubs, rarely attaining a large size in British gardens; natives of Europe, Asia, and North America.

**GENUS I.**


**Synonymes.** Smilax, Fr. and Ger.; Smilace, Ita.

Leaves as in the Order. Flowers corymbose, axillary. Shrubs, climbing by means of their tendrils, with stems that are generally prickly. Leaves with veiny disks. The tendrils are intrapetiolar stipules.

In British gardens, they grow in sandy loam, and are readily propagated by division of the root. They are not showy, but they are interesting from their climbing character, as being generally evergreen, and as being some of the few hardy ligneous plants which belong to the grand division of vegetables Monocotyledoneae.

§ 1. Stems prickly and angular.

1. S. ASPERA L. The rough Smilax.


Synonymes. Rough Bindweed; Rogo acerbone, Itali.

Engravings. Schk. Han., 3. 328.; and our fig. 2042.


Varieties.

a. S. a. 2 auriculata Ait. — Leaves ear-shaped at the base.

b. S. a. 3 mauritánica. S. mauritánica Poir. — Introduced in 1820, and there are plants in the Horticultural Society’s Garden, and in some private collections.

The roots are thick and fleshy, spreading wide, and striking deep; and they are sometimes sold by the druggists of the South of Europe for those of S. Sarsaparilla, as they possess nearly the same qualities, but in an inferior degree; they are also larger, and more porous. In British gardens, this species, which is perhaps the handsomest of those which are hardy, is commonly trained against a wall; but it will also attach itself to rough stakes or trelliswork, though it seldom flowers when so treated.

2. S. EXCELSA L. The tall Smilax.


Stems 4-cornered, and prickly; mounting to the tops of tall trees, by means of their clasping tendrils. Leaves 2 in. long, and 1¾ in. broad at the base, having 5 longitudinal nerves, but no spines on their margins. The roots resemble and possess the same qualities as those of S. aspera, but are inferior to those of S. Sarsaparilla.

3. S. RUÉENS Wats. The red-tendriled Smilax.


Engravings. Dend. Brit., t. 108.; and our fig. 2044.

Spec. Char., &c. Stem angular, prickly. Leaves ovate-subcordate, rather
obtuse, mucronate, coriaceous, 5-nerved; margin mucronate-denticulate near the base. (Wats.) A
handsome evergreen climbing shrub. North Amer-
ica, in woods and by streams. Height 3 ft. to
4 ft. Flowers greenish white; July.

§ 4. S. SARSAPARILLA L. The medicinal Smilax,
or Sarsaparilla.

Synonymes. S. puruviana Sarsaparilla Ger. Enum. 98th.; S. glauca
Michx. 2. p. 237.; flor. Fl. Car. 24th.; the glaucous-leaved Smilax;
Sals. parigla, Ital.
Derivation. Sarsaparilla is compounded of two Spanish words;
viz., zarza, red, and parila, a little vine.

Spec. Char., &c. Stem prickly, angular. Leaves unarmed,
ovo-lanceolate, ending in a long sharp point; 5-nerved, glaucous beneath.
(Willd.) An evergreen climbing shrub. North and
South America. Height 3 ft. to 4 ft. Introduced
in 1664. Flowers greenish white; August.

Stems shrubby, long, slender, and climbing. Roots
divided into several long slender branches, which are
somewhat thicker than a goose-quill, straight, brown
on their exterior, but white internally, and from 3 ft.
to 4 ft. long. Sarsaparilla, on its first introduction,
was considered as a specific against numerous dis-
orders, and it is still employed in rheumatic complaints
scrofula, and all cutaneous diseases.

§ 5. S. HASTA'TA Willd. The Spear-shaped Smilax.

Lodd. Cat., ed. 1836.
Encyc.
Engravings. Pluk. Alm., t. 111. f. 3.; and our fig. 2046.

Spec. Char., &c. Stem subarmed. Leaves
lanceolate, acuminate; auriculate, or spear-
shaped, at the base; ciliated or prickly
on the margin; 3—5 nerves. Berries
round. (Willd.) An evergreen climbing
shrub. Carolina and Florida, on the sea-
coast. Height 4 ft. to 5 ft. Introduced in 1820. Flowers
green; August and September.

§ 6. S. WATSONI Swt. Mr. Watson’s Smilax.

1st edit. p. 2512.

Spec. Char., &c. Stem prickly, angular. Leaves ovate, acu-
minated, somewhat cordate at the base, glabrous, 3—5-
North America. Height 3 ft. to 5 ft. Introduced in 1820,
or before. Flowers greenish; August.


Engravings. Our fig. in p.

Berries acuminate. (Pursh.) A climbing evergreen shrub. Virginia and
Carolina, on the river sides. Height 3 ft. to 5 ft. Introduced in 1820, or before. Flowers greenish white; August.

§ S. maculata Roxb. The spotted-leaved Smilax.

Engravings. Royle III., t. 94., fig. 1.; our fig. 2048.

Spec. Char., &c. Stem angular, prickly. Leaves cordate, somewhat hastately lanceolate, coriaceous, the under sides of the nerves and petioles prickly. (G. Don.) A climbing evergreen shrub. Nepal, 1819. Height 5 ft. to 10 ft. Flowers whitish; August.

§ ii. Stems prickly, round.


The root is very large, fleshy, and reddish: it is used for food, in some parts of China, instead of rice; and is considered extremely nourishing. Brown found it in abundance in Jamaica, where the roots are used to feed hogs. When first brought to England, it was cultivated in the stove: it was afterwards transferred to the green-house; and it has since been found hardy.

§ 10. S. rotundifolia L. The round-leaved Smilax.

Engraving. Our fig. 2050.


§ 11. S. laurifolia L. The Laurel-leaved Smilax.

Synonyms. S. altera, &c., Plum. t. 46.; S. levis, &c., Catesh. Car. 1. t. 15.
Engravings. Cat. Car., 1. t. 15.; Plum. t. 46.; and our fig. 2051.


LXXIX. 


13. **S. caduća L.** The deciduous Smilax.

**Spec. Char., &c.** Stem round, prickly. Leaves unarmèd, ovate, 3-nerved. (*Wilddie*) A deciduous climber, with a flexible stem, armed with a few short spines, black at the tip. Cartagena in New Spain, and Canada. Height 30 ft. Introduced in 1759. Flowers greenish white; July. Sparingly produced in British gardens.

14. **S. glauća Sims.** The glaucous Smilax.


§ iii. **Stems unarmèd, 4-angled.**

15. **S. Bo'naxo'x L.** The Bona-nox, or ciliated, Smilax.

**Spec. Char., &c.** Stalks unarmèd, angular. Leaves cordate-ovate, with an acute point, ciliated, 7-nerved. (*Wilddie*) An evergreen climbing shrub. Carolina and Georgia, in woods. Height 5 ft. to 10 ft. Introduced in 1739. Flowers greenish white; June and July.

Plukenet mentions a variety, which he has figured under the name of **S. B. carolīniana** Pluk. Phyt. t. 111. f. 3.

16. **S. latifōlia R. Br.** The broad-leaved Smilax.

**Spec. Char., &c.** Stem unarmèd, angular. Leaves ovate; base half-heart-shaped or obtuse, glabrous, 5-nerved; petioles bearing tendrils. (*Brown.*) An evergreen climbing shrub. New Holland. Height 3 ft. to 5 ft. Introduced in 1791.

It was first placed in the green-house, but has since been found to stand out at Kew.

17. **S. quadrangula'ris Muhl.** The four-angled Smilax.

**Spec. Char., &c.** Stem unarmèd, angular. Leaves ovate; base half-heart-shaped or obtuse, glabrous, 5-nerved; petioles bearing tendrils. (*Brown.*) An evergreen climbing shrub. New Holland. Height 3 ft. to 5 ft. Introduced in 1791.

It was first placed in the green-house, but has since been found to stand out at Kew.

**Synonyme.** **S. Bry'onia magna, &c., Catzeb.** Cat. 1. t. 53. Engravings. Cat. Car., 1. t. 53.; and our fig. 2052.

**Engravings.** Cat. Car., 1. t. 53. ; and our fig. 2052.

§ iv. Stems unarmed, round.

§ 18. S. lanceolata L. The lanceolate-leaved Smilax.

Synonyme. S. non-spinosa, &c., Cat. Car.
Engravings. Catesb. Car., 2. t. 84.; and our fig. 2057.


2057. S. lanceolata.


Engravings. Polk. Phyt., t. 110. f. 4.; and our fig. 2058.


This species is somewhat tender; but there are plants in the open ground at Messrs. Loddiges's.

2058. S. virginiana.


Synonyme. S. pumila Walt. Car. 244.
Engravings. Our fig. 2059.


2059. S. pubera.

Kinds of Smilax which are either not introduced, or of which we have not seen the Plants.

S. ovala Pursh Fl. Amer. Sept. 1. p. 249. — Stem subarmed; leaves smooth, ovate, 3-nerved, and very shining on both sides; berries black. A native of Georgia, near Savannah; flowering in July.

S. alba Pursh 1. c. p. 250. — Stem subarmed, slightly angular; leaves 3-nerved, lanceolate, coriaceous, glabrous; berries white. Found by Walter, in sandy ground on the edge of rivulets, in Carolina; flowering in June.

S. pandurata Pursh 1. c. p. 251. — Stem prickly; leaves ovate, fiddle-shaped, acuminate, 3-nerved; smooth and shining on both sides. Found by Pursh, in sandy woods, from New Jersey to Carolina; flowering in July.

S. nigra W. and S. catalonica Poir. are natives of Spain, from which country they were brought to England in 1817. The first is probably a black-berried variety of S. aspera.

S. hortido Desf. — A native of North America, introduced in 1820.

S. Villandia Ham., S. macrophylla Roxb., (Royle Ill. vol. 1. p. 384., and vol. 2. t. 94. fig. 2.; and our fig. 2109, in p. 1110.) has elliptical, mucronate, 3-nerved, smooth leaves. Mysore. Not yet introduced.

S. alpina W. — A native of Greece, introduced in 1820.
Order LXXX. *Lilium*ææ.


**Derivation.** It is said to have been anciently called Bruscus, from buex, box, and kelim, holly (*Cettio*), box holly; or from buxes, box. Some suppose it to be derived from ruscus, flesh-coloured; alluding to the colour of the fruit. The word ruscus was, however, applied to any prickly plant by the ancient Romans, as ruscus sylvestris, the holly, &c.

**Gen. Char.** *Perianth* 6-parted. *Stamens* 6, monadelphous. *Style* 1. *Capsule* 3-celled, 3-valved, with a loculicidal dehiscence. *Seeds* many, generally flat, packed one above another, in one or two ranks; testa spongy or dilated. *Albumen* fleshy. *Embyro* straight, having the radicle next the hilum. (*G. Don.*)

*Leaves* simple, alternate or opposite, stipulate or estipulate, deciduous or evergreen; with parallel veins. *Flowers* mostly white. — *Shrubs* mostly evergreen; natives of Europe, Asia, and America.

In British gardens, the only genera which contain hardy ligneous plants are two; which are thus contradistinguished: —


In our first edition the shrubby species of Asparagus are included, but they are here omitted as not being perfectly hardy.

**Genus I.**

---


**Derivation.** It is said to have been anciently called Bruscus, from buex, box, and kelim, holly (*Cettio*), box holly; or from buxes, box. Some suppose it to be derived from ruscus, flesh-coloured; alluding to the colour of the fruit. The word ruscus was, however, applied to any prickly plant by the ancient Romans, as ruscus sylvestris, the holly, &c.

**Gen. Char.** *Perianth* 6-parted. *Stamens* 6, monadelphous, antheriferous in the male flowers, but naked in the female ones. *Style* 1. *Berry* globose, 3-celled; *cells* 2-seeded. (*G. Don.*)

*Leaves* simple, alternate, estipulate, evergreen; alike green on both surfaces. *Flowers* rising from the midribs of the leaves; always dioecious, except in *R. racemosus*. — *Low evergreen shrubs*, natives of Europe and Africa.

Though, in a practical point of view, the species in British gardens are treated as evergreen shrubs, yet, in a strict sense, they are biennial plants, like the raspberry and the Bramble. They all thrive in sandy soil, and are readily increased by division of the root.

1. *R. aculeatus L*. The prickly, or common, Butcher's Broom.


**Engravings.** *Eng*, *Bot.*, t. 560.; and our fig. 2069.

**Spec. Char., &c.** *Leaves* ovate, sharp-pointed, flowering on the upper side, without a leaflet. (*Smith.*) *An evergreen suffrutescent plant*. Britain. *Height* 1 ft. to 3 ft. *Flowers* greenish white; *March* and *April*. *Berries* scarlet; ripe in the beginning of winter; very ornamental.

**Varieties.**


2. *R. aculeatus*. *R. laxus* *Smith*. *R. laxus* *Lodd*, *Cal*., ed. 1836. — *Leaves* elliptic,
Acute at both ends, branches loose. *R. flexuosus* Mill. No. 6, Professor Martyn thinks, is probably this variety.

The stems do not flower till the second year; after which they die down to the ground, like those of the raspberry, and some species of *Smilax* and *Asparagus*. The leaves are a continuation of the branches; equally firm and equally durable, as they never drop off, but die along with the branch, or frond. The roots are thick, fleshy, white, branching at the crown, and afterwards twining about each other, and putting out frequent fibres, like those of the asparagus; oblique, and striking deep into the ground. The female flowers are succeeded by bright red berries, which are almost as large as wild cherries, and of a sweetish taste; having two large orange-coloured seeds in each, gibbons on one side, flat on the other, and extremely hard. The green shoots are cut, bound in bundles, and sold to the butchers for sweeping their blocks; whence the popular English name of butcher's broom. It is also used, in London, by the manufacturers of cigars, &c., for sprinkling the saline liquor over the tobacco leaves. The tender young shoots, in spring, are sometimes gathered and eaten by the poor, both in England and France, like those of asparagus. Planted under trees or shrubs, the *Ruscus aculeatus* will spread into large clumps, especially in loamy soil; and, as it retains its leaves all the winter, it has a good effect as a low undergrowth, more especially as it will live in situations so shady as to be unfit for almost any other plant.

2. *R. hypophyllum* L. The under-leaf *Ruscus*, or broad-leaved *Butcher's Broom*.


*Engravings.* Bot. Mag., 240.; and our fig. 2061.

*Spec. Char., &c.* Flowers produced underneath the leaves. (Willd.) A low evergreen shrub. Italy and Africa. Height 2 ft. to 3 ft. Introduced in 1683. Flowers white; May and June. Berries red, about the size of those of the common juniper; ripe in September and October.

*Variety.*

*R. h. 2 trifoliatum.* R. trifoliatus Mill. No. 5.

—Leaves ovate-acuminate, placed by threes, with flowers on their upper sides. It is a native of Zante, and some other of the Greek islands, where it grows about 2 ft. high.


*Spec. Char., &c.* Leaves floriferous underneath, with leaflet. (Willd.) A low evergreen shrub. Italy, Idria, Hungary; and Africa, about Algiers. Height 8 ft. to 10 ft. Introduced in 1596. Flowers pale yellow; April and May. Berries red, almost as large as those of *R. aculeatus*; ripening in winter.
n. 4. R. racemo'sus L. The racemose Ruscus, or Alexandria Laurel.
Engravings. Dend. Brit., t. 119.; our fig. 2063. to our usual scale; and fig. 2064. of the natural size.

Spec. Char., &c. Flowers hermaphrodite, produced at the ends of the branches. (Willd.) A low evergreen shrub. Portugal. Height 4 ft. Introduced in 1739. Flowers greenish yellow; May. Berries red, with a round coriaceous white disk at the base; ripening during winter.

According to some, this species is supposed to be the plant with which the ancients crowned their victors; but, though the stalks are flexible enough to wreath easily, and the leaves resemble those represented on ancient busts, yet the fruit being terminal, does not agree nearly so well with the fruit represented in the crowns on these busts as that of the Laurus nóbilis, which is axillary, and resembles that shown in the coronal wreaths of classical sculpture.

Genus II.

YU'CCA L. THE YUCCA, or ADAM'S NEEDLE. Lin. Syst. Hexándria Monogónía.
Derivation. The name of the plant in Peru.
Leaves simple, alternate, exstipulate, evergreen; ensiform, pointed. Flowers large, white; disposed in spikes or panicles, terminal. — Shrubs evergreen, with the habit of palm trees; natives of North and South America, chiefly on the sea coast.

In British gardens, most of the species are somewhat tender. They prefer a dry and deep sandy soil, or a sandy loam; and they are readily propagated by suckers, which are thrown up by the roots, or by side shoots, which are occasionally produced on the stem. They sometimes ripen seeds, wh ich, if sown immediately after they are gathered, and placed in a moderate h t-bed, will come up in six weeks. In their native countries, their leaves, eaten like the stalks of hemp or flax, afford a fibre which may be used like that of those plants, in the manufacture of cloth or cordage; and the stems, mace ratted in water, deposit a feculent matter, from which starch may be procured. In a floricultural point of view, all the species are highly ornamental; and no lawn or flower border ought to be without some of them. As the yucca grows naturally on the sea shore, it is particularly adapted for marine gardens.

1. Y. glorio'sa L. The glorious Yucca, or Adam's Needle.
Engravings. Bot. Mag., t. 1260.; and our fig. 2063.

Variety.

Y. g. 2 folis variegatis Lodd. Cat. ed. 1836. — Leaves variegated.

The leaves are broad and stiff, but thin: they are of a very dark green, and end in a sharp black spine. The flower-stalk is generally about 3 ft. high, branching out on every side to a considerable distance; but the flowers are very wide asunder on the stalk. Sometimes the panicles of flowers spring at once from the centre of the leaves, without the intervention of a stalk. The flowers are bell-shaped, and hang downwards; and each petal is white within, but is marked with a purple stripe on the outside. They are scentless, and are seldom succeeded by seeds in England. The fibres of the leaves are used by the Indians to make a kind of cloth, and also cords, which they use to fasten their houses together, and to make their swing beds, called hammocks.

At Carthagen, a starch, or rather glue, is made from the stem, which may be eaten or made into paste.

Y. (g.) superba. The superb Yucca.


Spec. Char., &c. Stem arborescent. Leaves sword-shaped and plaited, with a very strong spine. Flowers ovate, bell-shaped, and drooping; pure white. (And.) A low evergreen shrub, resembling the preceding species, but rather larger in all its parts.

Y. aloifolia L. The Aloe-leaved Yucca, or Adams's Needle.


Engravings. Dil. Eth., t. 323. f. 416; Bot. Mag., t. 1760.; and our fig. 2067.

Spec. Char., &c. Leaves crenulate, stiff. (Willd.) A low tree, with the habit of a palm. South America. Height 10 ft. to 12 ft. Introduced in 1696. Flowers white; August and September.

Variety.


This species has a thick tough stem or trunk, crowned with a head or tuft of stiff narrow light green leaves, the edges of which are slightly serrated, and the points ending in sharp, strong, very hard spines. The flower-stalk rising from the centre of the leaves, and is 2 or 3 feet high, branching out so as to form a pyramid. The flowers grow close to the branches, and form a regular spike: they are purplish without and white within. When the flowers
have dropped, the head from which they sprang dies; but, generally, one or two young heads come out from the side of the stalk, below the old head. Rather more tender than *Y. gloriosa*.

**4. **Y. draco'nis **L.** The Dragon Yucca, or drooping-leaved Adam's Needle.


*Synonyme.* Dracôni fôrbi, &c., Buch. Pin. 506.


*Spec. Char., &c.* Leaves crenated, nodding. (Willd.) A low evergreen shrub. South Carolina. Height 3 ft. to 4 ft.; sometimes 6 ft. Introduced in 1732. Flowers white; October and November.

Leaves narrow, dark green, hanging down, serrated, and ending in acute spines. Flowers pendulous, milk-white, with a strong unpleasant smell. One of the most stately species of the genus, conveying no bad idea of a palm tree. The great peculiarity by which it appears to be distinguished is, the spreading of the flowers, the segments of which, instead of remaining closed in a globose manner, as in most of the other species, expand till they diverge from the flower-stalk nearly at a right angle.

**5. **Y. stri'cta **Sims.** The upright Yucca, or Lyon's narrow-leaved Adam's Needle.

*Identification.* Sims in Bot. Mag., t. 2222.

*Engravings.* Bot. Mag., t. 2222.; and our fig. 2069.

*Spec. Char., &c.* With a stem. Leaves linear-lanceolate, very stiff; elongated at the apex. Flower stem branched at the base; branches simple. Flowers orbiculate, bell-shaped. (Sims.) An evergreen shrub. Carolina. Height 4 ft. to 5 ft. Introduced in 1817. Flowers large, greenish white, with a purplish tinge; July and August.

The leaves are very long, straight, and tapering to a long point, with a very few scattered threads on the margin. They are of a deep green edged with yellow, and rigid in texture.

**6. **Y. recurvifo'lia **Salisb.** The recurved-leaved Yucca.


*Synonyme.* Y. recurvâ Hort.

*Engraving.* Our fig. in p. 


**7. **Y. filamento'sa. The filamentose Yucca, or thready Adam's Needle.


*Engravings.* Bot. Mag., t. 900.; and our fig. 2670.

*Spec. Char., &c.* Leaves serrated and thready. (Willd.) A low evergreen shrub, with the habit of a herbaceous plant. Virginia. Height of the leaves 6 in. to 12 in.; of the flower stem 3 ft. to 5 ft. Introduced in 1675. Flowers large, white; September and October.

The flowers are larger and whiter than those of *Y. gloriosa*, and sit close
to the stalk. On the sides of the leaves are long threads, which hang down. It is perfectly hardy.

8. Y. (f.) angustifolia Pursh. The narrow-leaved Yucca.

Spec. Char., &c. Without a stem. Leaves long-linear, rigid; margin slightly filamentose. Capsules large, obovate-cylindrical. (Pursh.) A low evergreen shrub, with the habit of a herbaceous plant. Banks of the Missouri River. Height of the leaves 6 in. to 12 in.; of the stem 3 ft. to 5 ft. Introduced 1811. Flowers greenish white, without any tinge of purple; September.

This species has been sometimes confounded with Y. stricta; but the leaves are narrower and more recurved, and the threads on the margin much longer. The whole plant is of humbler growth; the flower stem is not branched, and the flowers are more oblong than round.

9. Y. flaccida Haw. The flaccid-leaved Yucca.

Spec. Char., &c. Leaves all very flaccid, weak, bent below the middle and recurved, very long and lanceolate, flat, concave and mucronulate at the apex, roughish; marginal filaments strong, yellowish. (Haworth.) A low evergreen shrub. Georgia. Height of the leaves 1 ft. to 2 ft.; of the flower stems 3 ft. to 5 ft. Introduced in 1816. Flowers pale yellow; July.

A pretty and apparently distinct species, well marked by its thread-edged scabrous leaves and pale yellowish white flowers.

10. Y. glaucescens Haw. The glaucescent Yucca.


Leaves very stiff, concave, of a dull glaucous colour, terminating in a sharp horny spine; margin entire, with here and there a slender white thread, slightly twisted. It has the habit of Y. filamentosa, with larger and more numerous blossoms, and more elegant sharp-pointed foliage.
SUPPLEMENTARY FIGURES
REFERRED TO IN THE TEXT.

2074. Ceanothus thyrsiflorus.
2075. Ulex (e.) striatus.
2076. Genista umbellata.
2077. Cytisus ciliatus.
2078. Cytisus hirsutus.
2079. Cytisus polystachus.
2080. Rohinia dubia.
SUPPLEMENTARY FIGURES.

2090. *Pyrus* (Sorbus) microcarpa.

2091. *Aralia japonica.*

2092. *Rhabdanthus albinervum.*

2093. *Clethra* (a.) scabra.
2094. Bupleurum gibraltaricum.

2095. Rumelia oblongifolia

2096. Rhododendron maximum purpureum.

2097. K. (A. c.) cardecren.

2098. Fraxinus (p.) argentea.
2099. *Fraxinus púllida*.

2100. *Fraxinus (a.) caroliniana*.
1110 ARBORETUM ET FRUTICETUM BRITANNICUM.

2101 Phillyrea (m.) pendula.

2102 Lycium Trevisanum.

2103 Quercus myrtifolia.

2104 Quercus rigidia.

2105 Táxus canadensis.

2106 Táxus canadensis.

2107 Juniperus squamosa.

2108 Thúja plicata.

2109 Smáx Villánchies.
SUPPLEMENTARY SPECIES AND VARIETIES,

WITH CORRECTIONS.

In the following List we have omitted a number of garden names, as of doubtful application; and we have given few or no descriptions, because most of the plants are just raised from seed, or introduced from abroad. A similar list to the present has been given in the Gardener's Magazine every year since the publication of the large edition of the Arboratum, and will continue to be given yearly, so that, by referring to that work, the latest introductions of hardy woody plants may always be ascertained.

**Ranunculaceae:** Clematideae. Page 2.

1 **Clematis** californica Gard. Mag. 1841, p. 13., is a very doubtful species, said to resemble **C. florída**.

1 **Atragene** macropétala Ledebour MS. G. M. 1840, p. 631. A native of Siberia, resembling **A. alpína**, and probably only a variety of it.

Several suffruticose species of **Clematis** are described in Torrey and Gray’s *Flora of North America*, which remain to be introduced.

**Winteraceae.** Page 20.

1 **Illicium** religiosum Sieb. The Skimi of the Japanese. Probably a variety of **I. anísatum**, with which the Japanese ornament their temples. (G. M. 1842, p. 13.)

**Magnoliaceae.** Page 21.

1 **Magnolia** grandiflóra var. Hárweicus Hort. Said to be raised between **M. grandiflóra** exóníensis and **M. fuscátá**, and to be quite hardy. (G. M. 1842, p. 13.)

1 **M. purpureá** var. hybrída Hort. A dwarf variety, well adapted for a wall in a small garden. (G. M. 1842, p. 13.)

**Berberidaceae.** Page 41.

Several species of **Berberis** and Mahónia have lately been raised from Himalayan seeds in the Horticultural Society’s Garden, to which names cannot yet be given with certainty; but the following, chiefly raised since the printing of this work was commenced, are considered true to their names:—

1 **Berberis** vulgáris fol. purpúreis Hort. This is a very ornamental plant, with leaves as dark as those of the purple hazel. Lawson’s Nursery, Edinburgh.

1 **Mahónia** pállida. (Bérberis pállida Hartw. Benth. Plant. Hart. p. 34. No. 268.) Resembles **M. Aquífolium**, but the leaflets are smaller, less spiny, and from 11 to 15 in number. Flowers whitish; hence the specific name. Found in Mexico, where it grows from 6 ft. to 8 ft. high. (G. M. 1840, p. 631.)

1 **M. grácilis.** (B. grácilis Hartw. Benth. Pl. Hart. No. 271.) Pinnate, with 4 pairs of leaflets, slightly toothed. Mexico, where it grows about 6 ft. high. (G. M. 1840, p. 631.)

1 **M. trifoliatá.** (B. trifoliatá Hartw. Bot. Reg. Chron. 149. 1841.) Trifoliate, with small yellowish green prickly foliolas, and fruit of a yellowish green when ripe. Mexico, and about as hardy as **M. fascículáris**. (G. M. 1840, p. 631.)
The following species will probably be very shortly introduced, and, indeed, are perhaps already in a seedling state in the H. S. Garden:

- **M. lanceolatum.** (B. lanceolatum Benth. Pl. Hart. p. 34. No. 269.) Pinnae, with long slender leaves, and 13—17 leaflets, very spiny, and of a dark green. Mexico, on mountains, where it grows from 5 ft. to 6 ft. high. Considered the handsomest of all the Mexican species. (G. M. 1840, p. 632.)

- **M. angustifolia.** (B. angustifolia Hartw. Benth. Pl. Hart. No. 270.) Resembles *M. fasciculáris*, but is much smaller in all its parts. Leaflets 5—7, light green, and very spiny. Mexico, where it grows from 6 ft. to 8 ft. high, with purple fruit, sweet to eat.

- **M. Hartwegii.** (B. Hartwegii Benth. Pl. Hart. No. 272.) Pinnae, with 11—15 leaflets, which are nearly double the size of those of *M. Aquiliónum*, and of the same light green as those of that species. Mexico. Flowering in April.


- **Limo'nia Lauréola** Wall. Pl. As. Rar. t. 245., Royle Illust. vol. i. p. 343. The only species of this order found on the tops of cold and lofty mountains in the Himalayas, where it is for some months buried under snow. Raised in the H. S. Garden from seeds received from Dr. Royle in 1841, and probably hardly enough to endure our winters against a wall. (G. M. 1841, p. 608.)

**Hyperíca'cée.** Page 74.

- **Hyperíca rosmarínifólium** Lam. Dict.; Torr. and Gray, vol. i. p. 159. A pretty narrow-leaved species, from Kentucky, where it grows 2 ft. high, flowering in July and August. (G. M. 1842, p. 13.)

**Acer'cée.** Page 78.


- **A. cólchicum** Hartwiss. A very handsome and distinct plant, nearly allied to *A. platánoides* Lobélì; but with the lobes of the leaves more pointed, the bottom lobes lapping over the footstalk, their texture thinner, and their colour more glaucous than those of *A. p. Lobélìi*. Abchasien; whence it was imported by Booth of Hamburg in 1838, and introduced into England in 1840. (G. M. 1840, p. 632.)

- **A. cólchicum var. rubyrum** Booth M. S. From the beginning of the season till late in autumn the leaves are of a bright pinkish purple. The bark is brownish, while that of the species is of a pea-green, like the bark of *Négändo fraxínifólia*.

- **A. campéstre.** Add as Varieties: — "A. c. rubris Booth : samaras rdc. A. c. heterocárpum: samaras variously formed."

- **A. glábrum** Torr. and Gr. Flor. 1. p. 207. A shrub found in the Rocky Mountains, with leaves nearly similar to those of the common currant in size and shape. Not yet introduced.

- **A. trípartitum** Nutt. Torr. and Gr. Flora, 1. p. 247. A shrub found on the Rocky Mountains, nearly allied to the preceding species, and, like it, not yet introduced.

- **A. grandi'dentátum** Nutt. Torr. and Gr. Flora, 1. p. 247. (P. A. barbátum Dônglì, not of Michx.) A shrub or low tree from the Rocky Mountains, with leaves smaller than those of *A. sachánínum*. Not yet introduced.
ÆSCULÆÆ. Page 123.

Æsculus (H.) rubicunda, p. 126., was thus originated. M. Michaux received, in 1812, seeds of Pavia from North America, which were sown by M. Camuzet in the Paris Garden; and amongst the plants which came up was one different from all the others, which is the Æ, rubicunda of British Gardens. It flowered in three years, that is, in 1815. (Hort. Belge, 1836, p. 97.)


VITÆÆ. Page 135.

Vitis parvifolia Royle’s Illust. p. 145. A very curious species of vine, from elevated situations in the Himalayas, with exceedingly small leaves for the family to which it belongs. Tooting Nursery. (G. M. 1842, p. 13.)

V. heterophylla Sieb.? A beautiful and very desirable climber, from Japan, with variegated leaves. Probably the Vitis heterophylla of Thumberg, a native of Java. Mr. Gordon thinks it is nearly related to Cissus antarctica, but with the leaves much more jagged and variegated with white. It produces small blue fruit in clusters, which are very ornamental. Tooting Nursery. (G. M. 1842, p. 13.)

AQUIFOLIAÆÆ. Page 153.

Ilex Aquifolium. Add as a Variety:—“I. A. pendulum. A very remarkable variety, with shoots as decidedly pendulous as those of Sophora japonica pendula. The original tree is in a private garden in Derby, from which it has been propagated by Mr. Barron at Elvaston Castle.”

I. Perado, p. 161. Plants raised from seeds of this species in the Edinburgh Botanic Garden resemble so much, in all respects, those of the common holly, as to leave no doubt in our mind as to their being one and the same species. (G. M. 1842.)

I. latifolia Hort. (? I. aurifolia Hort.) A splendid hardy evergreen shrub from Japan. Leaves large, oval, sometimes 9 in. long. Introduced from the Continent in 1841, and quite hardy. (G. M. 1842, p. 13.)

RHAMNAÆÆ. Page 166.

Ceanothus velutinus, p. 151., is now introduced. C. a. 2 intervèdis, Mr. Gordon considers should be C. a. 2 var. pallidus.

Rhamnus Wicklès Jacquin. Resembles R. infectius, but has larger leaves. It was raised in 1839 in the H. S. Garden, from seeds received from Dr. Fischer, and is quite hardy.

R. prunifolius Booth (not of Smith, p. 178.). A low shrub from North America which has not yet flowered.

ANACARDIAÆÆ. Page 184.

Duvall’s longifolia Hort. Raised in 1839 in the Clapton Nursery, from seeds received from Chili. It is very distinct, with long bright green leaves, and it is hardier than any other species of the genus. (G. M. 1840, p. 632.)
**Leguminosae. Page 194.**

*Sophora [P. japonica] grandiflora* Hort. Introduced from the Continent in 1841, but whether hardy or not is uncertain. (G. M. 1842, p. 13.)

*S. japonica pubescens* Booth. A variety with the leaves rather more pubescent than those of the species.

*Genista thyrsiflora* Booth. A shrub growing to the height of 4 ft., prolific in large bunches of yellow flowers, raised from seeds received from the South of Europe. In all probability already described under some other name.

**Indicofera nepalensis** Hort. A free-growing shrub, apparently hardy. This is probably a garden name applied to one of the numerous species of Indicofera from the North of India, where they abound. There is frequently one species raised from these seeds which is much harder than the others, with rather large bright rosy pink flowers, which stood last winter without any protection in an open border; and Dr. Royle says that there are many which grow very high up the hills, which should be quite hardy in England. (G. M. 1842, p. 17.)

*Caragana* Gerardiâna Royle Illust. vol. i. p. 198. t. 34. fig. 1. The Tartaric Furze of travellers. A very distinct species, having all the leaves terminated by a spine, in the manner of *Astragalus* Tragacantha (p. 246.). It grows on the Himalayan Mountains, at an elevation of 16,000 ft., and is quite hardy in British gardens. H. S. in 1839. (G. M. 1840, p. 633.)

*Astragalus fruticosus* Dec. An under-shrub from Siberia, smooth, and scarcely ligneous; fit only for rockwork or to be kept in pots, as the moisture of autumn and winter soon destroys it. Raised in the H. S. Garden in 1839, from seeds received from Baron Jacquin. (G. M. 1840, p. 633.)

*A. vimineus* Dec. A pretty little shrubby species from Siberia, rather difficult to keep, except in pots or on rockwork. Hammersmith Nursery in 1839. (G. M. 1840, p. 633.)

**Rosaee. Page 261.**

*Amygdalus Pallâsiî Ledebour. (A. pedunculâta Pallas.)* A very pretty decumbent under-shrub, quite hardy. H. S. in 1839, or before. (G. M. 1840, p. 633.)

*Prunus Mûme Sieb.* The dwarf or creeping Plum of the Japanese. It bears yellow fruit, which the Japanese pickle as we do cucumbers or walnuts. There are many varieties. Tooting Nursery in 1841. (G. M. 1842, p. 18.)

*Cerasus Lawocerasus* var. cölchica and C. L. var. Emerélli (?) are varieties of the common laurel, received from Belgium in 1841. Tooting Nursery. (G. M. 1842, p. 14.)

*Spiræa fissa* Lindl. Bot. Reg. Misc. No. 170. 1840. A beautiful species resembling *S. arizéfolia*, introduced from Mexico, where it was found by Hartweg, growing from 15 ft. to 20 ft. high. It is expected to be quite hardy. H. S. in 1839. (G. M. 1840, p. 633.)


cuneifolia (p. 305.), but differs from it in the leaves being quite round and large. Raised in 1839, in the H. S. Garden, from seeds received from Cashmere. (G. M. 1840, p. 633.)

Several species of ligneous Spiræ'n are described by Torrey and Gray which are not yet introduced.

**NUTTALLIA cerasiformis** Torr. and Gray: A tree with the habit of *Amelanchier canadensis* found in the margins of pine woods in the back part of N. California, but not yet introduced.

**Rubus lasiocarpus** Royle Illust. (p. 203.) A free-growing hardy species from the Himalayas, which bears a grateful fruit. Considered by Mr. Gordon as a synonyme to *R. micranthus*, p. 312. Tooting Nursery. (G. M. 1842, p. 14.)


**Crataegus Oxyacantha oxyphylla** is the name given to a pendulous variety of the common hawthorn found in a bed of seedlings at Somerford Hall, and mentioned in p. 376.

**C. O. fructu coccineo** Hort. A variety with large scarlet fruit, of which there are plants in Backhouse's Nursery, York.

**C. Pyracantha fructu albo** Hort. A variety with white fruit. Tooting Nursery.

The following species are described in Torrey and Gray's *Flora*, but none of them are yet introduced:

**C. rivularis** Torr. et Gray. Arborescent, and nearly glabrous, with leaves about as entire as those of the apple.

**C. coccinea** var. *viridis*, C. c. var. *populifolia*, C. c. var. *obiloba* (few-anthered), and C. c. var. *moliss.*

**C. arboréscens** Torr. et Gray. Unarmed, with lanceolate leaves resembling those of *C. pyrifolia*. A tree 20 ft. to 30 ft. high in Georgia.

**C. estivális** Torr. et Gray. (C. opaca Hook.) A tree 20 or 30 feet high in South Carolina and Georgia.

**C. berberifolia** Torr. et Gray. A tree found in Louisiana, which grows from 20 ft. to 25 ft. high.

Besides these, there are several doubtful species.


Leaves obovate, drawn down into the petiole, glabrous. Cymes many-flowered. H. S. in 1841. (G. M. 1841, p. 608.)


**Amelanchier caudatius** Torr. et Gray. All the American kinds in British gardens are considered by Drs. Torrey and Gray as varieties of one species, in which opinion we concur, as indicated in the body of the work, both in this and in the large addition.


**Pyrus heterophylla** Booth. Leaves 3—5-lobed, about the size and shape of those of the common hawthorn, but finely serrated in the edges, and glabrous. A native of Dalmatia. H. S. (G. M. 1840, p. 634.)

**Philadelphaceae.** Page 460.

GROSSULA'CEÆ. Page 468.

Ribes tauricum Jacquin is apparently a variety of R. petraeum, p. 478.

ARALI'CEÆ.

HEDERA Helix. Add: "H. H. var. taurica Booth. A distinct variety, with very small dark green leaves. (G. M. 1842.)"

CORNA'CEÆ. Page 501.

CORNUS gràndis Benth. Fl. Hartw. p. 38. No. 298. Resembles C. sericea; but it forms a small tree in Mexico, with leaves 3—5 in. long, smooth, and deep green above and hoary beneath. The flowers are in small heads, and the fruit about the size of the sloe, and purplish black. H. S. (G. M. 1840, p. 634.)

C. macrophylla Wall. A beautiful sub-evergreen shrub or small tree from the Himalayas, found growing on similar heights with Benthamia fragifera. Leaves 6 in. long, and 2½ in. broad. H. S. (G. M. 1840, p. 634.)

SAMBU'CEÆ. Page 513.

VIBURNUM Awaufiki Sieb.? (? V. japonicum Hort.) Leaves opposite, shining, ovate, somewhat waved on the margin. A beautiful evergreen, which, it is expected, will prove quite hardy. Easily propagated by cuttings at any season. Tooting Nursery. (G. M. 1842, p. 14.)

V. sinènse Zeyh. Leaves ovate, acuminate, subdentate, opposite; margin subreflexed. A hardy evergreen, easily propagated by cuttings at any season. (Ibid.)

V. Mullâha Ham. Royle Illust. p. 236. (V. stellulatum Wall.) Leaves rotund, subrugose, bluntly dentate, woolly beneath. A shrub from elevated situations in the Himalayas, where the fruit is eaten. Nearly allied to V. cotinifolia D. Don. A very desirable species, and very likely to prove quite hardy. (Ibid.)

V. pycmar'a Royle. Leaves opposite, trilobate, subserrate. A very curious dwarf deciduous shrub, from 1 ft. to 1 ft. 6 in. in height; native of the Himalayas. A most desirable plant to represent the section Opulus in a miniature arboretum. Raised in the Tooting Nursery, from seeds received from Dr. Royle. Quite hardy. (Ibid.)

LONICÈREÆ. Page 525.

Lonicéra ciliósa Poir. Mr. Gordon suspects this to be only a variety of L. (p.) Douglasii, p. 530., with leaves ciliose, and the flowers not quite so bright.

ÉRICA'CEÆ. Page 555.

Andro'mèda rosmarinifo'lia, p. 561., is only a large-leaved variety of A. polifo'tia, but rather distinct.


A. nálda Benth. Plantæ Hartweg. No. 483. An erect evergreen shrub, with oblong lanceolate acute leaves, smooth on both sides and shining above. Mexico, on the Carmen Mountains.

Perent'tyta angustifolía Lindl. Bot. Reg. t. 63. 1840. (P. phillyreafolía Hort.) Leaves longer and narrower than those of the other introduced species. A very pretty evergreen from Chili. (G. M. 1840, p. 634.)

OLEÁ'CEÆ. Page 628.

SYRINGA Emôdi, p. 638. Add as a Synonyme: "S. indica Wall."

JASMINUM revolutum, p. 655. For the Synonyme "J. chrysâanthemum," read "J. chrysâanthemum;" and add "Wall." to the Identification.

POLYGONAÆE. Page 677.


ASCLEPIADÆÆ. Page 658.

MORRE'NIA odorâta Lindl. This curious plant has proved as hardy as the Physiánthus álbens, which it greatly resembles; but differs in having much larger corolde leaves, and smaller flowers, as well as in the botanical structure. The flowers are white, sweet-scented, and solitary. (G. M. 1840, p. 635.)

SOLANAÆÈ. Page 663.

FABIA'NA imbricàta R. et P. Lindl. Bot. Reg. 1839, t. 59. A small bright green shrub, with the habit of a tamarisk, or rather of a thuja; and when in flower loaded with snow-white blossoms, resembling those of a peach. Chili, in 1838. It has proved hardy in several collections last winter, and will make a great addition to the hardy heath border.

THYMELAÆÆ. Page 686.

DAPHNE Aucklándii Lindl. Allied to D. alpina. A fine evergreen species from the Himalayas, where it is found at an elevation of 12,000 ft., near the limits of perpetual snow. H. S. (G. M. 1840, p. 635.)

ELÆAGNUSÆE. Page 696.

ELÆA'GNUS parvifòlia Royle Illust. p. 323. t. 81, fig. 1. A very distinct species, with small round leaves, from the Himalayas, and quite hardy.

ULMAÆÈ. Page 714.

SPÔ'NIA canêscens H. et B. (Céltis canêscens H. et B.) Raised in 1840, in the H. S. Garden, from Mexican seeds, and bearing a close resemblance to C. austrâlis (G. M. 1840, p. 635.)

SALICAÆÈ. Page 744.

PO'PULUS canadênsis, p. 824. A much more spreading and picturesque species than P. monîlisera. (See G. M. 1842, p. 35.)

BETULAÆÈ. Page 831.

A'LNUS denticulâta Fischer. A tree of vigorous and rapid growth, and large dentate leaves; a native of Russia. (G. M. 1842.)


CORYLAÆÈ. Page 845.

QUÆ'RCUS Ilex Ballôta, p. 882. Plants raised in the H. S. Garden, from acorns procured from the original tree at Paris, prove it to be identical with Q. gramûntia.

Q. lanâta, p. 888. Add to the Synonymes: "Q. nepalânsis."

To the Mexican oaks, p. 898, add the following:—

Q. Skhmeri Benth. A very remarkable species, having the fruit of most unusual size, with the external appearance of an acorn, and with the internal structure of a walnut. A noble tree, from 50 ft. to 70 ft. high, on mountains. (Gard. Chron., vol. i. p. 116.) The foliage and male
flowers said to be precisely as described and figured in Q. acutifolia Nees, p. 904. fig. 1690.; and, consequently, the name Skinneri may be considered as a synonyme to Q. acutifolia.

† Q. pyrenaica, p. 853. Add, either as an allied Species or as a Variety:— "Q. pamônica Booth. Hungary. Introduced to the H. S. Garden from the Hamburg Nursery."

† Q. rubra, p. 868. Add as a Variety:— "Q. r. taraxacifolia Booth. A singular variety, with long narrow irregularly lobed leaves. H. S."

† Fagus sylvatica. Add as as a Variety:— "F. s. 9 cochleata Booth. Said to be a curious plant with spoon-shaped leaves. (G. M. 1842.)"

Platanaceæ. Page 927.

† Platanus [occidentalis] heterophylla Lindl. This American plane has hitherto been confounded in some collections with the Oriental species, Platanus acerifolia. It has the same kind of fruit as P. occidentalis, while P. acerifolia has fruit like that of P. orientalis. P. [o.] heterophylla is frequently imported from the southern states of America under the name of P. occidentalis, from which it is very distinct in foliage and stature; and it is also much tenderer. The young shoots frequently suffer during winter, and particularly if the plant is in a damp situation.

Confere. Page 946.

† Pinus (Laricio) australis Höss, p. 958., is treated as a sub-species, for the sake of keeping it distinct, though we had given above Delamarre’s arrangement, who considers it a variety of P. Laricio, which is also our opinion.

† P. Chilghóza, which is given p. 998., with a ?, as a synonyme to P. Gerardiāna, Mr. Gordon says is different from P. Gerardiāna, but nearly related to P. longifolia, p. 996.

† P. sinensis, p. 999. Add as Synonymes: “P. nepalensis Pin. Wob,” and “P. Cavendishiana Hort.”

Add after Pinus oocára, p. 1012.:—

† P. oocárapus Lindl. A pine from Guatemala, with very long slender leaves, five in a sheath, and cones about half the size of those of P. oocárapus, of which it is probably a variety.

† P. Ayacahuite, p. 1023. Mr. Gordon says there are two distinct pines under this name: the one Ehrenberg’s, described in the text; and another, sent home by Hartweg, the cones of which are about half the size of Ehrenberg’s plant, and the buds much smaller. Probably a variety.

† Abies Douglasii, p. 1033. Mr. Gordon says he has cones under this name of three distinct varieties or species; Hartweg’s are the largest, and Ehrenberg’s the smallest. Probably, Hartweg’s may be that doubtful species A. hirtella H. et K. : see p. 1036. and p. 1050.

† Thuja pendula, p. 1071. Omit the Synonyme “? Juniperus flagelliformis Hort.”

† Cupressus torulosa, p. 1076. Add “Wallich” to the Identification; and insert as Synonymes, “C. nepalensis Hort,” and “Juniperus nepalensis Hort.”

† C. Coulterii, p. 1077. Omit this as a species, and add it as a Synonyme to C. thrifera, in the same page.

† Taxodium distichum, p. 1078. Add to the Varieties:—

† T. d. 6 nucifera. (Taxus nucifera Hort.) A very distinct variety, or possibly species, which has been found quite hardy in the H. S. Garden.

§ Juniperus gossainthonea Hort., and J. Bedfordiána Hort., are names applied to the same species, which resembles a red cedar, but is rather more slender in habit.
LIST OF AUTHORITIES
FOR GENERIC AND SPECIFIC NAMES, &c.

A.
Ach. - - Acharius. A Swedish professor, and writer upon Lichens.
Adans. - - Adanson. A French systematic botanist.
Adans. - - Adanson. A French systematic botanist.
All. - - Allioni. An Italian botanist.
All. Ped. - - See Allioni.
Alpin. - - Prosper Alpinus. An Italian physician, and author of "De Plantis Aegypti et de Balsamo," &c.
Audibert. - - Audibert. A nurseryman at Tarascon, in the south of France.

B.
Bab. - - Babington. An English botanist.
Balt. - - Balbis. A French botanical writer.
Banks. - - Sir Joseph Banks.
Bartram. - - Bartram. Formerly a nurseryman at Philadelphia.
Bat. - - Basauri et Basurdi. A writer upon the Flora of France.
Batsch. - - Batsch. A writer upon Fungi.
Bauh. - - Bauhinius. A French author on Forestry.
Bauhin. - - Bauhin. Brothers, professors of medicine, published in 1620-1650.
Baum. - - Bauman. Brothers, nurserymen at Bollwyler, in France.

Benth. - - Bentham. An English botanist, secretary to the Horticultural Society of London.
Berger. - - Bergerus. A Swedish writer upon Cape plants.
Bergandi. - - Bergandieri. A German botanist.
Bert. - - Bertotti. A writer upon the Flora of France.
Bert. - - Bertoni. A Russian writer, resident in the Crimea.
Bes. - - Beser. A Russian professor, resident in the Crimea.
Biege. - - Jacob Bigelow, M.D. Professor of botany at Boston, U. S., and author of "American Medical Botanist," and "Florula Bostoniensis."
Blackw. - - Mrs. Blackwell. An English botanical artist.
Bliome. - - Bliome, M.D. A Dutch botanist.
Boerk. - - Boerhaave. An old Dutch botanist.
Bong. - - Bonavent. A French botanist.
Bonn. - - Bonpland. A French traveller in South America, and botanist.
Booth. - - Booth. Brothers, nurserymen at Hamburg.
Booth. - - W. Beattie Booth. Describer of the Camellias figured in Chandler's "Illustrations of the Camellias."
Bork. - - Borkhausen. A German botanical author.
Borrer. - - W. Borrer. A writer on British Plants, and one of the authors of "Lichenographia Britannica."
Bose. - - Bose. A French botanist, and traveller in North America.
Brogn. - - A. Brongniart. A French botanist.
Broth. - - Brotero. A Portuguese botanist.
Broussonet. - - Broussonet. A French botanist and traveller.
Brunfels. - - Brunfelsius. A German botanist.
Bunge. - - Bunge. One of the authors of "Flora Altaica."
Burnet. - - Professor Burnet. An English botanist.
Burgoz. - - Burgoz. A German botanist.
Buss. - - Buss. A German gardener, once a nurseryman at Brentford, Middlesex, and afterwards gardener to the Empress Catherine, at Zarzko-je-velo.

C.
Camb. - - Cambessedes. One of the authors of "Flora Brasiliensis meridionales."
Catesby. - - M. Catesby. A botanist, and traveller in North America.
Catros. - - Catros. A nurseryman at Bordeaux.
Cav. - - Cavanilles. A Spanish professor and botanist.
C. Baum. - - Caspar Bauhin. A celebrated botanist of the 17th century.
Cell. - - Celsus, D.D. Greek professor at Upsal, and friend of Linnaeus.
C. G. Nees. - - C. G. Nees. A German botanist.
LIST


Choisy. - Choisy. A Swiss botanist.

Chus. - Chusius. An old French botanist and traveller.

Colebrooke. - Colebrooke. A celebrated English writer upon Indian Plants.


Commelin. - Commelin. A Dutch botanist.

Cook. - Capt. S. E. Cook. A naturalist and traveller.

Correa. - Correa de Serra. A Portuguese botanist and diplomatist.

Crantz. - Crantz. An Austrian botanist.

Curtis. - Curtis. An English writer upon Plants.

D. Dalechamps. Author of "Historia generalis Plantarum." 1586, 1587.

Dan. - Danish.


D. Don. - David Don. "Professor of Botany in King's College, London, and librarian to the Linnean Society.

Deb. - See Delile.

De Bruyn. - De Bruyn. A botanist of Frankfort.


Delarb. - Ant. Delarbre. A French botanist, author of "Flore d'Auvergne."

Delile. - Delile. A French professor, and traveller in Egypt.

Descemet. - Descemet. Director of the Botanic Garden at Nikitka, in the Crimea.

Desf. - Desfontaines. A French botanical author, and traveller in Barbary.


Dill. - Dillenius. An English author.

Dios. - Dioscorides. An ancient classic author and botanist.

Dod. - Dodonaeus, or Dodonaeus. A botanist of the 16th century.

Dom. - Don. A French writer in South America.

Don of Forfar. - Don of Forfar. A Scotch botanist.

Dorn. - Dorn. Formerly curator of the Cambridge Botanic Garden.

Douglas. - David Douglas. The celebrated botanical collector and martyr.

Duby. - Duby. A French botanist.

Du Ham. - Du Hamel. A celebrated French author.

Dumont. - Dumont de Courcy. Author of "Le Botaniste Cultivateur."

E. Du N. - Du Nod. A French botanist.

Dunal. - Dunal. A French botanist.


Du Rozi. - Du Rozi. A German writer upon Plants.

Ellis. - Ellis. A London merchant and botanist.

Eng. - English.

Eschscholtz. - Eschscholtz. A German botanist.

F. Fischer. - Dr. Fischer. A Russian botanist.

Flügge. - Flügge. A German writer upon Grasses.


Forskold. - Forskold. A Swedish botanist.

Forsk. - Forskal. A Danish naturalist, and traveller in Arabia.

Forster. - Forsters (Father and Son). Travellers in the South Seas with Captain Cook.


Fr. - French.

Fries. - Fries. A Swedish botanist, and writer upon Úngi.

Fuchs. - Fuchs. A celebrated German botanist.

G. Gautier. - Gautier. A celebrated German carpologist.

Garden. - Garden. A Scotch physician resident at Charleston.

Gaudichaud. - Gaudichaud. A French botanist.


German. - German.

Gérard. - Gérard. A French botanist.

Gessner. - Conrad Gessner of Zurich, a famous botanist.

Gill. - Dr. Gillies. A botanist and traveller.

Gill. et Hook. - See Gill and also Hook.

Goethe. - Goethe. A Russian botanist, and traveller in Siberia.


Gouan. - Gouan. A French botanist.


Güldenstädt. - Güldenstädt. A Russian botanist.

Gussone. - Joanna Gussone, M.D. Director of the Royal Botanic Garden at Palermo, and a botanical author.

H. Hall. - Haller. A Swiss botanist.

Hall. fl. - Haller the younger.

Ham. - Hamilton. A botanist, and traveller in the East Indies.

Hart. - Hartweg. Author of "Hortus Carthusianus."

Hartweg. - Hartweg. Son of the above. A botanical traveller and collector.


H. B. - Humboldt and Bonpland. Famous travellers and botanists.


Herm. - Hermann. A Dutch botanist.


Hortus. - See Ehrenberg.
Physico-Économique, Instructive, et Amusante. 1794.


Blum. Biflor. See Blume Biflor. Fl. Ind.


Borrer MSS. Manuscript Information received from W. Borrer, Esq.


Botaniste Cultivateur; or Description, Culture, and Use of the greatest Part of the Plants, Foreign and Indigenous, which are cultivated in France and England, according to the Method of Jussieu. By Damouet De Courset. Paris, 1800—1803. 4to. Paris, 1811, 6 vols. 8vo. Supplement on vol. vii. 1814.


Boyters's Treatise on raising Forest Trees. Edinb. 1775. 4to.


Brotero's Fl. Obs. See 1618.


Bull. Herb. Herbier de la France. Id. 1790 et seq. fol. pl. 500.


C.

E.


Ell. Sketch. See Elliott Fl. S. Car.
Ell. Pt. See Essay of Plants


Eng. Fl. See English Flora.


Essays on Natural History. By Dr. Walker. London. 1804. 8vo.


F.


Fisch. M.Ss. Fischer's M.Ss.
Fl. Dr. Sir J. E. Smith's Flora Britannica. Lond. 1800—1804. 3 vols. 8vo.

Fl. Dan. See Flora Danica.
Fl. Fr. See Flora Francaise.
Fl. Gre. See Flora Graeca.
Fl. Hib. See Mackay Fl. Hibern.
Fl. Neapol. See Flora Neapolitana.


Flora of Berwick upon Tweed. See Johnston's Flora.
Flora Silicea. See Krock. Fl. Sil.


Franklin's First Journey. See Franklin's Narrative, &c.

Franklin's (Captain John) Narrative of a Journey to the Shores of the Polar Sea in the Years 1819—1822. Lond. 1823. 4to.

Franklin's Exp. Append. Appendix to the above various Subjects relating to Natural History. By Dr. Richardson and J. Sabine, Esq. Lond. 1823. 4to.

Fraser's Cat. See Fraser's Cat.

Fraser's Cat. A Catalogue of Plants cultivated in Fraser's Nursery, Chelsea.


Fried. M. Fries, Novitae Flora Sueciae. Lunda, 1814. 4to.


G.

Garr. fil. Corp. See De Fruct. et Sem.

Garr. Fr. See lhd.

Garr. Sem. See lhd.


Gat. Mont. Gaterau, Description des Plantes qui croissent aux Environ du Montauban. Montauban, 1780. 8vo.


LIST OF BOOKS REFERRED TO.

Ger. Prog. See Ger. Gallo-Prov.
Gran. Epid. Id. Epistola Medicinales. 4to, Wittenberga, 1581; 8vo, Basilia, 1591.
Gilles’s MSS. Dr. Gilles’s MSS.
G. See Gard. Mag.
Gmel. Itin. Gmelin (J. G.), Travels through Siberia, between the Years 1733—1743. In German, Göttingen, 1751, 1753. 8vo.
Gowan Hort. Id., Hortus Regius Monspeliensis, sistens Plantas tumult indigenas tum exoticas, &c. Lugduni, 1762. 8vo, pl. 4.
Gowan Fl. Id., Illustrationes Botanicae, Tiguri, 1773. fol.
Gowan Mons. See Gowan Fl. Mosnsp.
Gray’s Arr. Natural Arrangement of British Plants, according to their Relations to each other, as pointed out by Jussieu, De Candolle, Brown, &c., including those cultivated for use; with an Introduction to Botany, in which the Terms newly introduced are explained. Brut. F. Gray. Londond, 1821. 2 vols. 8vo, pl. 21.

II.

Ham. MSS. See Ham. MSS.
Hamit. MSS. Hamilton MSS.
Haworth Suppl. A. H. Haworth, Supplemen-
tum Plantarum seculorum. Lond. 1819 8vo.
Hayne’s Dendrologische Flora. Dendrologische Flora, oder Beschreibung der in Deutschland im freien ausdauernden Holzgewächse. Von Dr. T. C. Hayne, 1822. 4to.
Hem. Diss. See Herb. Diss.
Herb. Anarryl. The Hon. and Rev. W. Herbert’s Amaryllidaceae.
Herb. Lin. Soc. The Hon. and Rev. W. Herbert in the Linnean Society’s Transactions.
Histoire des Chênes de l’Amérique. See Michaux’s Histoire des Chênes, 8vo.
Histoire des Chênes de l’Amérique Septentrionale. See Bild.
Hook. Fl. Scotia. Flora Scotiae; or, a Description of Scottish Plants, arranged both according to artificial and natural Methods. Id. London, 1821. 8vo.
Hort. Brit. Hortus Britannicus. A Catalogue of all the Plants indigenous, cultivated in, or in-
LIST OF BOOKS REFERRED TO.

1129


Hort. Schott. Hortus Durandhurnensis; being a Catalo-

gue of Plants cultivated and sold in the Can-

terbury Nursery, 1831.

Hort. Eric. Woburn. Hortus Ericicus Woburn-

eensi. Lond., 1795. 4to.

Hort. Epyt. See Best. Epyt.


Hort. Par. Hortus Parisiensis.


cultivated in the Garden of the London Horticul-

tural Society. Lond., 1829. 4to.

Hort. Trans. Transactions of the London Horticu-

tural Society. Lond. 1815–1831. 7 vols. 4to. New series commenced in 1831, and con-

tinued.


Höss Anlet. See Anlet. die Bäume und Sträucher Oesterreichs, &c.

Höss. Generallässliche Anleitung, &c. See ibid.


Vienn, 1827–1831. 2 vols. 8vo.


1762, 1 vol. 8vo; Ed. 2., Lond. 1775, 

2 vols. 8vo.


Hunter’s Evelyn. Evelyne’s Silva, with Notes. 

By A. Hunter, M. D. York, 1776. 2 vols. 4to.

I.

Icon. Rar. See Jacq. Icon. Rar.

Iconographia Rautica. Iconographia; or, the 

Nobleman, Gentleman, and Gardener’s Recre-

ation, &c. By Stephen Switzer. Lond. 1718. 

3 vols. 4to.

Index Plantarum Agri Erfurdiensis. By J. 

Planter. Gotha, 1788. 8vo.

Itin. Curios. Stukely (W.), Itinerarium Curio-

sum; or, an Account of the Antiquities and Markable Curiosities observed in Travels 

through Great Britain. 100 plates. Lond. 

1721. 4to.

J.


Jac. Amer. Jacquin N. J. Stirpium Americana-

rum Historia. 1763. fol.

Jacq. Cal. I. von Jacquin, Florae Austriacae, 

sive Plantarum selectarum in Austria Archi-

ducatui sponte crescentium Icones, ad vivam 

colore, et Descriptionsbus ex Synonymis illi-


pl. 290.


Jacq. et Boccone in Schussh. Mar. Schousbee 


Vindobone, 1786–1790. 4 vols. 4to. 

Vol. V, sive Supplementum. 1795.

Jacq. et Bocone in Schoussh. Mar. Schousbe 

(An). Schonis ad vivam colore, et Descrip-

tionibus ex Synonymis illustrata. Globen- 

hausen, 1800; ed. Germ. Leipzig, 

1801, 4to.


Jacq. Hort. Schön. Id., Plantarum rario-

runt Horti Czevescl Schenbrunensis. Vienna, 1797 

4to. 4 vols. 4to.

Jacq. Hort. Vitr. Id., Hortus Botanicus Vind-

oboniensis. Vindobone, 1770–1776. 3 vols. 

Jacq. Icon. See Jacq. Icon. Rar.


Vindobone, 1788–1793. 3 vols. fol.

Jacq. Misc. Id., Miscellanea Austriaca ad Botan- 


2 vols. 4to.

Jacq. Obs. Id., Observationes Botanicae. 

Vindobone, 1761–1761. 4 fasc. fol.


Johnston’s (Dr.) Flora of Berwick upon Tweed. 

Flora of Berwick upon Tweed. By G. Johnston, 


Tomentosae, and Vol. II. the Cryptogamous, 

Plants.


Journ. de Physique. Paris, 1773, and con-

tinued.


Musée.


Turfei. 1791. 8vo.


K.

Kemp. Amen. Exoticq. Engelbert Kempii, 

Amenitatum Exoticarum Politico-Physico-Med- 

carum Faedrique, &c. See Lengow, 1712. 

4to.

Kalm Amen. See Amen. Acad.

Kalva H. Kalm (P.), Travels into North Ame-

rica. Translated by J. Forster. Lond. 1770, 

1771. 8vo.


Key to Structural, Physiological, and Systematic 

Botany. See Lindley’s Key.


Ed. Holl., Leeuwarden, 1775; Ed. Gall., 

Amsterdam, 1771. 4to.

Kock’s Comm. De Salicibus Europaei Commenta-

tario. Autore G. D. J. Koch. Erlangen, 

1823. 12mo.


8vo.


Gen., &c.


Genera. (Ann. des Sciences Nat. tom. i.,) 


Gen., &c.

L.


Labill. Fl. Syr. See ibid.


Labill. Fl. Syr. See ibid.


Species Plantarum aut nova aut nondum 

recte cognoscuntur. Madrid, 1816. 4to.


Lamb. Pitt., cd. 2. See ibid.

Lamberti’s Monograph of the Genus Pinus. 

A Description of the Genus Pinus. By Ayler 

Bonpland, Lambert, Esq., F. R. S. Pres. Linn. Soc., 

Lond. 1832. 2 vols. 8vo.

Lanth Ac. Lanth. (Th.), Dissertatio de Acerce. 

Strasbourg, 1781. 4to.

Lap. Hist. des Pl. des Pyrénées. See La Peyr. 

Abr.

R.


S.


LIST OF BOOKS REFERRED TO.


Torrey Fl. U. S. Torrey’s Flora of the Northern and Middle States. New York, 1826.


Trag. Hort. mem. &c. See Delamarre’s Tractat., *svo.*


Tratt. Id., See Bouchier’s Tractate on raising Forest Trees.

Trew Eur. See Trev Sel.

Trew Sel. C. J. Trew, Plants selecte ab Ehret pictae. 1750–1755. 1 fol.

V.


Vill. Delph. See Villars’s Plants of the Dauphiné.


W.


Walt. Cat. Waldich’s MS. Catalogue of the Plants contained in the Herbarium of the East India Company, now in the possession of the Linnean Society.


Walt. M8S. See Walt. Cat.


Watt Car. See Walt. Fl. Car.


Wangenb. Amer. See ibid.


Weder Hispan. Webb’s Iter Hispaniense, 1838.


Wernicke, Trans. See Wernicke Trans.


Wilder. Ab. See Abbildung der Deutschen Holzarten.

Wilder. Abbild. See Abbildung der Deutschen Holzarten.


Wilder. Baum. See ibid.


A.

Accessory, something added to the usual number of organs.
Accumbent, reclining or lying on.
Accrue, slender, or needle-shaped, as in the leaves of some of the cone-bearing trees.
Accumulum, a dry fruit, which does not open when ripe, and contains one seed not adhering to the pericarp.
Acculear, needle-shaped.
Accuminate, having a taper point.
Acute, sharp-pointed.
Adnate, grown to its whole length.
Estimation, the folding of the parts of a flower in the bud.
Aggregate, clustered.
Albumen, the solid farinaceous part of the seed, destined to nourish the embryo.
Albuminous, furnished with albumen.
Albuminous, the sap-wood of trees.
Aculeolate, honeycomb-like.
Ament, a catkin, or inflorescence consisting of many scales, arranged along a thread-like receptacle.
Amentacious, producing or bearing aments.
Amenowing, uniting of nerves and vessels.
Anaglossous, producing flowers of both sexes on the same plant.
Angulate, having acute angles.
Anulculated, ringed, exhibiting circular prominences.
Antheriferous, furnished with anthers.
Anther, the part of the stamen which contains the pollen.
Aper, the end, or termination.
Apicarp, See Epicarp.
Apiculate, terminated in a little point, or prickly.
Appendiculate, having an additional small leaf at the base of the petiole.
Appendiculate, having a tendency to become a tree.
Argutely, sharply.
Aril, an enlargement of the placenta adhering to the hilum of seeds, and sometimes enveloping them; exemplified in the outer orange-coloured coat of the seed of Eucalyptus europaeus.
Arrowshaped, lobed so as to resemble a barbed arrow.
Articulate, jointed.
Articulate, becoming cret.
Attenuate, gradually tapering to a point.
Articulate, an ear-like appendage.

B.

Baccate, berry-like; that is, with the seeds buried in a fleshy substance, enclosed in a thin outer skin.
Beaked, ending in a hard curved point.
Beringia, swelling unequally on one side.
Bisulate, doubly awned.
Bibfracteate, furnished with two bracteas.
Bicarpellate, having two small callosities, or protuberances.
Biscapitate, having two points.
Bifid, two-cleft.
Bilicate, having two lips.
Bilaminellate, divided into two flat parts.
Bilocular, two-celled.
Bipartite, two-parted.
Bipinnaate, twice pinnate.
Bileatose, having two bristles.
Bilamellate, having two bracteas.
Bladder, hollow.
Bassed, convex, and having a projecting point in the centre.
Bracteal, the floral leaf, situated immediately under the flower.
Bracteate, furnished with bracteas.
Brahecol, a small bract.
Bran-like, having a scaly seafy appearance.
Bristle-pointed, terminating in a bristle.

C.

Caduceous, falling off soon; a calyx which falls off before the expansion of the corolla is said to be caduceous.
Calcified, having bracteas so disposed as to resemble an additional calyx.
Calyptra, a thin extinguisher-shaped covering, or hollow cone.
Calyptrate, the outer envelope of a flower.
Camphum, elaborated sap.
Campanulate, bell-shaped.
Canaliculatet, channelled, furrowed.
Cancecent, somewhat white, hoary.
Capillary, hair-like, very slender.
Capitate, growing in a head; round and blunt.
Capillata, growing in small heads.
Capitellata, growing in small heads.
Capsule, a dry fruit containing several seeds.

Capsuliform, shaped like a capsule.

Caryia, shaped like the keel of a boat; the lower petals of a pea flower.

Carya, a 1-seeded, 1-seeded, superior indehiscent pericarp, adhering to the proper integuments of the seed which it contains.

Carpel, an individual part of a compound fruit.

Capsophore, a receptacle bearing only the ovarium.

Carthamus, having the consistency of paper.

Cirrhus, hairs resembling those of the eyelash.

Cistus, surrounded with hairs, as the eyelid is with eyelashes.

Cinerea, grey, or ash-coloured.

Corymbose, having an irregular brain-like appearance, as the kernel of walnut.

Connate, having a channel.

Corydalis, having the consistency of paper.

Cirtus, leaves or fruit.

Cystopteris, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cymace, flowering in cymes.

Date-shaped, resembling the date in form.

Decandrous, having 10 stamens.

Deciduous, falling off; a tree is said to be deciduous when it does not retain its leaves through the winter.

Declinate, bending downwards.

Decomposed, a leaf is decomposed when it is twice or thrice pinnate.

Deumbent, lying down on the ground.

Decurrent, resembling down a: a leaf extended down the stem is decurrent.

Descussate, leaves are decussate when they grow in pairs, and alternately cross each other.

Dedent, bent downwards.

Dedoscent, opening naturally.

Deltoid, shaped like the Greek Δ.

Dentate, marginal teeth-like incisions.

Dentigerate, having the margin divided into incisions, resembling the teeth of a saw.

Dentilicate, having the margins finely and slightly toothed.

Dichotomous, semi-transparent, like horn.

Dichroous, twin.

Dichynchronously, having two long stamens and two short ones in the same flower.

Diffuse, widely spread; scattered.

Digitate, fingered; shaped like the hand spread out.

Dilated, widened.

Dimitiate, divided into two halves.

Diecious, a plant is said to be diecious when the male flowers are produced on one individual, and the female ones on another.

Discoid, furnished with a disk, or something that may be compared to a disk.

Disk, the flat annual process that surrounds the ovary in many flowers; a receptacle adhering to the calyx; also the surface of a leaf.

Disjunctum, the partitions by which a seed-vestige is internally divided into cells.

Distributus, two-ranked or two-rowed, produced in opposite rows.

Dissectate, spreading widely in different directions.

Diverging, going far from one point.

Dorsal, situated upon the back.

Draped, like a drape.

Draped, a fruit consisting of a flabby substance enclosing a hard stone, as the cherry.

Cuneate-lanceolate, a form between wedge-shaped and lanceolate.

Cuneato-laciniate, a wedge-shaped leaf, which is long and narrow.

Cuneato-oblung, a form between wedge-shaped and oblong.

Cuneato-obovate, a form between wedge-shaped and obovate.

Cup-shaped, having a cup-like appearance, as the cup of an acorn.

Cupula, a cup, as of the acorn.

Cyparissus, shaped like a cup.

Cuspidate, suddenly terminating in a point; spear-like.

Cuscuta, the skin, or epidermis.

Cylindrical, cylinder-shaped, round.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.

Cylindro-clavate, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.

Cyprisae, flowering in cymes.
**GLOSSARIAL INDEX.**

**F.**

\- **Falcate**, bent like a sickle.
\- **Farinaceous**, floury.
\- **Fascicle**, bundle.
\- **Fasciculate**, disposed in bundles.
\- **Fastigate**, tapering to a point; of compact upright growth, as the Lombardy poplar.
\- **Ferruginous**, rusty; iron-coloured.
\- **Fimbriate**, fringed or fringed-like.
\- **Filleted**, having the petals.
\- **Filletament**, the thread-like part of the stamen, which supports the anther.
\- **Filiform**, thread-like.
\- **Filiform**, having a thin skin.
\- **Flaccid**, flabby.
\- **flagon-shaped**, bearing resemblance to the form of a flagon, or globular bottle with a slender neck.
\- **flexuous, zigzag**; having an undulating direction.
\- **floriferous**, bearing flowers.
\- **Foldate**, having leaf-like.
\- **Foliolate**, a dry seed-vessel, having only 1-valve and one cell.
\- **Follicular**, having the form of a follicle.
\- **Foramen**, a small hole.
\- **Foraminoso**, perforated full of holes.
\- **Frailer**, crumby.
\- **Frondose**, a term applied either to a stem which is beset with leaves, or to a proliferous flower.
\- **Fusiform**, having the consistence of mushrooms.
\- **Fusiliform**, or slender stalks by which the seeds are attached to the placenta.
\- **Furrowed**, having longitudinal channels.
\- **Fusiform**, spindle-shaped: a carrot is a fusiform root.

**G.**

\- **Galbules**, the cone of the genus Cupressus.
\- **Gamosepalaous**, where the sepals appear to be united in one.
\- **Gemmaceous**, having buds.
\- **Gibbous**, swollen out with excess of pulp; protuberant.
\- **Glabrous**, smooth; without hairs.
\- **Gland**, a secretory vessel.
\- **Glandular**, bearing the appearance of glands.
\- **Glaucescent**, somewhat hoary; or having a bluish green, or sea-green appearance.
\- **Glaucescent**, sea green, or bluish green.
\- **Glauconaeous**, having humps.
\- **Grannulated**, covered as if with grains.
\- **Gynoblast**, having a flabby receptacle, bearing separate fruits.

**H.**

\- **Hastate**, formed like the head of a halbert.
\- **Hemispherical**, half-round.
\- **Hermafroditic**, a flower is so called when it contains both male and female organs.
\- **Heterogamous**, flowers of different sexes in the same head.
\- **Hibon**, the external mark or scar of a seed, whereby it is fixed to the placenta.
\- **Hirsute**, hairy.
\- **Hispid**, covered with bristle-like hairs.
\- **Hoary**, clothed with a grey or white down.
\- **Homogamous**, all the flowers hermaphrodite.
\- **Homogamous**, all the flowers female.
\- **Hooded**, hollowed into the form of a hood.
\- **Husk**, the outer covering of some seeds; also a species of calyx peculiar to grasses and sedges.
\- **Hygogynous**, situated below the ovary.

**I.**

\- **Ibriate**, laid over each other like tiles.
\- **Impati-pinnate**, pinnate leaves, terminating with an odd leaflet.
\- **Incumbent**, lying upon.
\- **Indehiscent**, not opening naturally.
\- **Induplicate**, doubled or folded inwards.
\- **Incurved**, hard.
\- **Inquilinate**, unequal-sided.
\- **Inflected**, puffed up; blown out like a bladder.
\- **Inflorescent**, disposition of the flowers.
\- **Infradiaphragm**, below the axis of the leaves.
\- **Infrastipular**, below the stipule.
\- **Intervaginal**, the space between the joints in stems.
\- **Interpetiolar**, between the petioles or leafstalks.
\- **Infurrowed**, turned inwards.
\- **Inserted**, upside down.
\- **Involucellate**, a small involucre.
\- **Involucellate**, two or more bracteas united below the flower.
\- **Involuciform**, resembling an involucre.

**J.**

\- **Jagged**, coarsely cut.
\- **Jointed**, having joints or articulations.

**K.**

\- **Keel**, the lower petals of a papilionaceous flower; a resemblance to the keel of a boat, either in leaves or flowers.
\- **Keel-shaped**, having a keel-like appearance.
\- **Knee**, bent like the knee joint.

**L.**

\- **Labiataceae**, having a lip or lips.
\- **Lamellulatae**, divided into thin plates.
\- **Lanceoliforme**, shaped like the gills on the under side of a mushroom and similar fungi.
\- **Lamina**, the upper or lower part of a petal.
\- **Laminate**, See Lamellulatae.
\- **Lanceolate**, lance or spear shaped.
\- **Lanceolate-cliptic**, a form between lance-shaped and elliptic or oval.
\- **Lanceolate-oblong**, lance-shaped and oblong.
\- **Lanceolate-ovate**, between lance-shaped and egg-shaped.
\- **Lanceolate-subulate**, between lance-shaped and awl-shaped.
\- **Lanuginosous**, slightly woolly.
\- **Latera**, on the side or sides.
\- **Lax**, loose.
\- **Leaflet**, a small leaf, forming part of a compound leaf.
\- **Legume**, a pod; the fruit of leguminous plants.
\- **Lepidote**, having prominent dots.
\- **Lignosus**, woody; a term opposed to herbaceous.
\- **Ligulatae**, strap-like, having the form of a strap.
\- **Limb**, the spreading part of a petal, or of a tubular flower.
\- **Linear**, narrow, when the two sides are nearly parallel.
\- **Linear-crenate**, between linear and wedge-shaped.
\- **Linear-elliptic**, narrow and elliptic.
\- **Linear-lanceolate**, narrow lance-shaped.
\- **Linear-oblong**, between linear and oblong.
\- **Linear-setaeous**, narrow, approaching to the form of a bristle.
\- **Linear-subulate**, narrow, and tapering to a point.
\- **Lineate**, streaked in parallel lines.
Lin, the lower projecting petal of an irregular flower.
Lobe, the segment of a divided leaf.
Loculicidal, admitting the escape of the seeds through the valves.
Locule, a kind of pod, which, when ripe, falls in pieces at the joints.
Luminous, half-moon-shaped.
Lyrate, a leaf is lyrate when its apex is rounded, and there are several small lateral lobes towards its base; harp or lyre-shaped.

M.
Membranaceous, of a thin pliable texture.
Metamorphosed, changed from one form to another.
Monadelphous, having the stamens united at the bottom into one bundle, or brotherhood.
Moniliform, formed like a necklace, having alternate swellings and contractions.
Monocious, having the stamens and pistil in separate flowers on the same plant.
Monopetalous, having but one petal, or having the petals united so as to appear but one.
Monosperme, one-seeded.
Mucilaginous, of a slimy nature.
Mucro, a sharp rigid point.
Mucronate, terminating in a spine, or mucro.
Mucronate-cuspidate, tapering suddenly to a point which is topped with a mucro, or spine.
Mucronate-denticulate, toothed, each tooth terminated with a sharp point.
Mucranniately, having a small hard point.
Muftid, many-clawed.
Muricate, covered with short sharp points.
Mute, pointless; a term opposed to mucro.

N.
Narrowed, tapering.
Narrow-boat-shaped.
Nectariferous, having nectaries; bearing honey.
Nectary, a part of the corolla, for the most part containing honey.
Nectariforous, having catkins.
Nucleus, the kernel of a nut.
Nucul, a small nut.
Nut, a seed enclosed within a hard shell.
Nutil, nodding.

O.
Obconical, inversely cone-shaped.
Obcordate, inversely heart-shaped.
Obcuneate, wedge-shaped inverted.
Oblique, flattened.
Obliquely, not direct or parallel.
Oblong, two or three times longer than broad.
Oblong-acute, oblong and sharp-pointed.
Oblong-cuneate, between oblong and wedge-shaped.
Oblong-lanceolate, between oblong and lance-shaped.
Oblong-linear, in form between oblong and linear.
Oblong-oval, a form between oblong and oval.
Obtuse-cuneate, between obtuse and wedge-shaped with the broadest end uppermost.
Obvolute lanceolate, a form between egg-shaped and lance-shaped inverted.
Obvolute-spatulate, a form between obvolute and that of a spatula.
Obsolete, hardly evident.
Obtuse, blunt.
Obovate, the membranous stipules surrounding the stem and coiling by their anterior margins.
Ocatandrous, having 8 stamens.
Opaque, not reflecting light; not transparent.
Opposite; placed in pairs on opposite sides of a stem.
Oribicular, circular; spherical.
Oribiculare, straight, and having the same direction as the body to which it belongs.
Oval, in the form of an ellipse.

Ovarium, the germin, or incident seed-vessel, or ovary.
Ovary, which contains the rudiments of the seeds.
Ovate-accuminate, egg-shaped in the lower part, and tapering to a point.
Ovate-acute, egg-shaped in part, but terminating in a sharp point.
Ovate-arborescent, a form intermediate between egg-shaped and arrow-shaped.
Ovate-campandraceous, a figure between egg-shaped and boil-shaped.
Ovate-elliptic, between egg-shaped and elliptical.
Ovate-globose, a form between round and egg-shaped.
Ovate-lanceolate, between egg-shaped and lance-shaped.
Ovoid, egg-shaped.
Ovoid-cylindrical, egg-shaped and cylindrical.
Ovulans, an inipient seed.

P.
Palustre, having or abounding in marshy places.
Palvis, chaffy scales, common in compound flowers.
Palnate, palm-shaped, divided so as to resemble the hand, and spread open.
Panduriform, fiddle-shaped.
Panicle, a loose irregular mode of inflorescence, similarly disposed to that of many grasses, as oats.
Papilionaceous, butterfly-shaped flowers, as those of the common pea.
Papilionform, bearing resemblance to small glanular excrescences or pimples.
Pappose, downy; having pappus.
Pappus, a kind of down formed by the minute division of the limb of the calyx of the Compositae.
Parial, attached to the sides or walls of the ovary.
Pentad, comb-shaped.
Pedicel, the flower-stalk of each separate flower.
Pedicellate, having pedicels.
Pedicel, the principal flower-stalk.
Pedunculate, having peduncles.
Pellucid, transparent; bright.
Peltate, a peltate leaf has the petiole fixed in the centre of the disk, instead of in the margin.
Pendent, drooping; hanging down.
Pentagonal, five-sided.
Pentandrous, having 5 stamens.
Pentapetala, five-petalled.
Perfoliate, a leaf is said to be perfoliate when the stem passes through its base, as in the honey-suckle.
Perforated, pierced through, apparently full of holes.
Persianth, the flower-cup; the envelope which surrounds the flower: a term applied when the calyx cannot be distinguished from the corolla.
Pericarp, the covering of the seed-vessel.
Persigonal, having both calyx and corolla.
Perigymous, inserted in the calyx, or in the disk which adheres to the calyx.
Perocrine, curved; circular.
Persisdens, remaining; not falling off.
Petal, a division of a corolla.
Petiolate, having petioles, or footstalks, to the leaves.
Petiole, the footstalk of a leaf.
Petiolulac, the footstalk of a leaflet.
Petiolulate, having petioles.
Phloe, hairy.
Phloe, the leaflets of a pinnate leaf.
Pinnate, a leaf divided into many smaller leaves or leaflets is said to be pinnate.
Pistil, the columnar flower usually situated in the centre of a flower; when perfect it consists of the germen, style, and stigma.
Placenta, that part of the seed-vessel to which the seeds are affixed.
Placental, flat on the one side and convex on the other.
Plicate, plaited.
GLOSSARIAL

Pinned, bearing a resemblance to feathers; feathery.
Pinulate, the ascending shoot of a seedling.
Pod, a kind of seed-vessel similar to that of the common pea.
Pollen, farina, or dust, contained within the cells of the anthers when perfect; it is essential to fructification.
Polypod, having more than 20 stamens inserted in the receptacle.
Polypogonous, producing male, female, and hermaphrodite flowers on the same plant.
Polypetalous, having many petals.
Pome, a fruit composed of the fleshy tubular part of the calyx, and crowned by the persistent limb.
Pouch, a small bag, or sac, at the base of some petals and sepals.
Prickle, a rigid opaque process terminating in an acute point, unconnected with the woody fibre.
Prowlent, prostate.
Puberulous, clothed with spreading down.
Pubescent, covered with short soft hairs.
Punctured, dotted.
Putamen, a nut of many cells.
Pyramidal, formed like a pyramid.
Pyrene, a kind of fruit, synonymous with the term Pome.
Pyriform, shaped like a pear.
Quadrangular, having four angles.
Quadrifarious, arranged in four rows; or ranks.
Quadrifid, four-parted; divided into four parts.
Quinquifid, five-parted; divided into five parts.
Quinquelocular, having small loose scales upon the stem.
Ramos, branched.
Rhaphe, the channel of vessels which connects the calaza at one end of the seed-vessel with the hilum at the other.
Receptacle, that part of the fructification which supports the different parts.
Recurred, curved backwards.
Reflexed, bent backwards.
Recurved, curved backwards.
Regna, a kind of seed-vessel, three or more celled, few-seeded, superior, dry, the cells bursting from the axis with elasticity into two valves.
Reniform, kidney-shaped.
Renated, when the margin of a leaf has a wavy undulated appearance, the leaf is said to be renated.
Reticulate, folded back.
Reticulated, net-like, usually applied to the veins or nerves.
Retuse, ending in a broad shallow notch, appearing as if bitten off at the end.
Rimulate, rolled back.
Rhombic, a figure approaching to a diamond.
Rhomboidal, shaped.
Rigid, stiff.
Ringent, cyping.
Rotate, wheel-shaped: a monopetalous corolla, having a very short tube and a flat limb, is called rotate.
Rufescence, somewhat rusty.
Rugose, rough, or coarsely wrinkled.
Runcinate, cut into several transverse acute segments which point backwards.

S.

Sagittate, arrow-shaped, shaped like the head of an arrow.
Salver-shaped, applied to the calyx or corolla when the tube is long and slender, and the limb flat.
Samara, a kind of winged seed-vessel containing one or more seeds, surrounded, or partially surrounded, by a thin transparent membrane.
Samaracous, bearing samara.
Sarcenose, producing trailing stems which root at every joint.
Scabrous, rough from little asperities.
Scale, a term usually applied to the bracteae of the amentum or catkin; also bracteae of cones.
Scale-formed, having the form of scales.
Scales, having scales.
Scandent, climbing.
Scape, a stem rising immediately from the root, bearing flowers only, or, at most, flowers and a few bracteae.
Scarios, dry and membranous.
Scobiform, formed of a very thin, hollow, membranous aril, containing a globular free seed in its cavity.
Second, arranged on one side only.
Sesit, half.
Semiflorous, seed-bearing.
Sepaloid, resembling sepals.
Sepals, divisions of the calyx.
Septicidal, dividing at the dissepiments to admit the escape of seeds.
Septiferous, having septa or partitions.
Serrate, like the teeth of a saw.
Serrulate, finely notched, like the teeth of a very fine saw.
Sessile, without stalks.
Seta, a bristle; a strong, stiff, roundish hair.
Setaceous, resembling a bristle in form.
Setigerous, bearing bristles.
Setose, bristly; clothed with bristles.
Sheath, the lower part of a leaf or petiole which surrounds the stem.
Shield, a broad table-like process in some flowers, also the seed-vessel in lichens.
Siliqua, a kind of pod, short and round, with two valves, and having its seeds attached to both sutures.
Silique, a long and narrow dry seed-vessel with two valves, the seeds of which are alternately fixed to both sutures.
Sinuated, cut into scollops.
Sinus, a notch or cavy.
Sorosis, a spike or raceme converted into a fleshy fruit by the cohesion, in a single mass, of the ovaria and floral envelopes.
Spathaceous, having a spathe; spathe-like.
Spathuloid, shaped like a spatula.
Sphaerocaul, spherical, but not decayed.
Spicate, having an inflorescence in which the flowers are sessile, or nearly so, upon one long common footstalk, or rachis.
Spine, a thorn which proceeds from the wood, not from the bark only.
Spinescent, furnished with spine-like processes.
Spinule, a small spine.
Spurred, having horn-like processes, produced by various parts of a flower.
Squarrose, ragged; scurfy.
Stamen, the male organ of a flower.
Stamnodiata, scales at the base of the petals in some flowers, as in those of some species of lyme.
Standard, the upper petal in papilionaceous flowers.
Stellate, radiating in a star-like manner.
Stem-clasping, the petiole of a leaf which is dilated so as to envelop the stem with its base is said to be stem-clasping.
Stipe, the stalk of the germen or ovary within the corolla and calyx; the trunk of a treefern, &c.
Stipitate, furnished with a stipe.
Stipule, a small leaf or membrane at the base of the petiole.
||
| Stipulate, having stipules. | U. |
| Stoloniferous, bearing runners which root at the joints. | Umbellate, having the flowers in round flat heads, the flower-stalks proceeding from one common centre. |
| Stemata, pores of the epidermis. | Umbellate, a small umbel; a division of an umbel. |
| Striate, streaked. | Umbilicate, hollowed like the navel. |
| Strigose, covered with little, upright, stiff hairs. | Umbilicus, the cord which attaches the seed to the placenta. |
| Strobile, a cone: this term is also applied to indicate the kind of fruit produced by the magnolia. | Umbro, a projecting point in the centre, like the boss in an ancient shield. |
| Style, that part of the pistil which is situated upon the germen, and elevates the stigma. | Umbonate, having an umbo. |
| Sub, somewhat; as sub-rotund, somewhat round, or roundish, &c. | Unctuous, oily; fat. |
| Sycon, a fleshy rachis, having the form of a flattened disk, or of a hollow receptacle, with distinct flowers and dry pericarpia, as in the fig. | Undulate, waved. |
| Sutura, furrowed. | Unguiculate, furnished with a claw, or an unguis, as the petals of the pink. |
| Surculose, producing surculi, or young shoots. | Urecolar, pitcher-shaped. |
| Sature, the line formed by the cohesion of two parts, usually applied to the fruit. | Urecolus, the part when bellying out in the form of a pitcher. |
| Syconia, the shell or cuticle of a seed, containing all its parts. | Utricle, a little bladder. |
| T. | V. |
| Tetrads, the twining organs by which some plants lay hold of others, as the vine. | Valvate, opening by valves. |
| Terete, long and round; straw-like. | Valcular, consisting of valves. |
| Terminal, at the end. | Faulted, formed like the roof of a vault. |
| Terminaly, consisting of threes. | Velvety, covered with soft down, like velvet. |
| Terete, a leaf of three leaflets is called ternate. | Venuleace, inflated; swelled out. |
| Tesselated, chequered. | Vernation, the disposition of the young or growing leaves within the bud. |
| Testa, the shell, or cuticle of a seed, containing all its parts. | Verrucose, warted; covered with fleshy processes, the form resembling warts. |
| Tetragonal, four-angled. | Versatile, vase-like; an anther fixed in the centre on the point of the filament, so as to be only usually changing its position, is said to be versatile. |
| Tetragonas, having four angles. | Vertical, a mode of inflorescence in which the flowers surround the stem in a kind of ring, though not, perhaps, inserted on all sides of it, but merely on two opposite ones. |
| Thyrsic, a mode of inflorescence in a dense mass. | Verticalitate, growing in whorls round the stem. |
| Thyrsus, or close panicle, as in the lilac. | Veillitum, the standard, or banner (the upper petal), of a papilionaceous, or pea, flower. |
| Tomatcalum, down; white hairs closely matted together, and soft to the touch. | Villous, clothed with soft, close, loose hairs. |
| Toothed, so divided as to resemble teeth. | Viscid, Viscous; sticky; adhesive. |
| Toothed, having small teeth. | Vittate, longitudinal ducts or canals, containing an oily or resinous substance, found within the coat of the carpels of some umbelliferous plants. |
| Top-shaped, inversely conical; having a contraction towards the point. | W. |
| Torulose, having slight swellings. | Wavy, undulate. |
| Torus, the receptacle when somewhat elevated. | Wedge-shaped, inversely triangular, with rounded angles. |
| Trazemoid, bearing a resemblance in form to that of a trapezium, or quadrilateral figure, whose four sides are not equal, and none of its sides parallel. | Whorl, a disposition of leaves or flowers round the stem, resembling the spokes round the nave of a wheel. |
| Trazemoido-eordate, a form between that of a trapezium and that of a heart. | Wng, a membranous border; a membrane attached to some kinds of seeds, by which they are supported in the air when floating from place to place. |
| Trichotomous, branches dividing into threes. | Winged, furnished with a wing or wings. |
| Trifid, three-cleft. | Wngs, the side petals of a papilionaceous, or pea, flower. |
| Trifoliate, having three leaves. | Woolly, covered with hairs closely matted together. |
| Trifoliate, having three leaflets. | Wrinkled, having an unequal surface. |
| Trigonal, 3-angled. | Z. |
| Trigonous, having three styles. | Zigzag, bending from side to side. |
| Tripli-nerved, 3-nerved. | |
The synonyms are in italics; and, for the sake of clearness, the usual typographical indications are omitted.

Who those who wish to see any name or synonym in connexion with the other names or synonyms to which it is allied, without the trouble of having to turn to the Table of Synonyms, where it may appear at one or more of the Chief Tables of Synonyms, and p. 112.

For example, supposing it were desired to ascertain, with the least possible trouble, the position of Cistus cyprius Lam. among other species, then, the page referred to after C. cyprius being 95, look for that page in the columns of pages of C. cyprius, and all the other species of Cistus given in the work. Adjoining is the closely allied genus Heliantennum, which also contains several species of Cistus as synonyms.
Honeysuckle
Hornbeam
Hydrangea
Hypericum sibirica
Hypericum salicifolium
Hypericum nivea
Hypericum vestita
Hypericum raiiala
Hypericum elatum
Hypericum calycinum
Hypericum fasciculatum
Hypericum prolificum
Lasianthus aculatus
Lasianthus Aquifolium
Lasianthus Aquifolium angustifolium
Lasianthus Georgica
Lasianthus Discolor
Lasianthus minus
Lasianthus aureo fructu pendulum
Lasianthus genescens
Lasianthus argenteum
Lasianthus marginatum
Lasianthus nigro L.
Lasianthus Myrtus
Lasianthus Pecan
Lasianthus ayeris argenteis
Lasianthus hudsonica
Lasianthus Bedfordiana
Lasianthus Cylindrica
Lasianthus Hemispherica
Lasianthus Hudsoniana
Lasianthus Viscossima
Lasianthus Willd.
Lasianthus Willd. Lodd.
Lasianthus Mill.
Lasianthus Pursh
Lasianthus R.
Lasianthus Duh.
Lasianthus R. Epit.
Lasianthus R. Bauh.
Lasianthus R. Mill.
Lasianthus R. Park.
Lasianthus R. Lam.
Lasianthus R. Garth.
Lasianthus R. Moench
Lasianthus R. Lam. Ellis
Lasianthus R. Spr.
Lasianthus R. Sieb.
Lasianthus R. Cass.
Lasianthus R. Cassena
Lasianthus R. Ait.
Lasianthus R. Dum.
Lasianthus R. Spr.
Lasianthus R. Sieb.
Lasianthus R. Cass.
Lasianthus R. Cassena
Lasianthus R. Ait.
Lasianthus R. Dum.
Lasianthus R. Spr.
Lasianthus R. Sieb.
Lasianthus R. Cass.
Lasianthus R. Cassena
Lasianthus R. Ait.
Lasianthus R. Dum.
Lasianthus R. Spr.
Lasianthus R. Sieb.
Lasianthus R. Cass.
Lasianthus R. Cassena
Lasianthus R. Ait.
Lasianthus R. Dum.
Lasianthus R. Spr.
Lasianthus R. Sieb.
Lasianthus R. Cass.
Lasianthus R. Cassena
Lasianthus R. Ait.
Lasianthus R. Dum.
Lasianthus R. Spr.
Lasianthus R. Sieb.
Lasianthus R. Cass.
Lasianthus R. Cassena
Lasianthus R. Ait.
Lasianthus R. Dum.
Lasianthus R. Spr.
Lasianthus R. Sieb.
GENERAL INDEX.
grandifolia Ait. - 520
latifolia Lod. Cat. - 520
lantanaesiana Mx. - 520
laurifome Lam. - 517
Lentago L. - 517
lobatum Lam. - 522
longifolium L. Coll. - 522
lucidum Mill. - 517
mollæ Mx. - 594
montanum Lo. Coll. - 522
Multiflora Ham. 521, 1116
nudum L. - 519
squamatum - 519
nittidum Ait. - 522
opendís Muhl. - 524
Oppus L. - 519
Americanica Ait. - 524
calix Mx. - 524
del variegate - 523
nana Hort. - 523
roseum R. & S. - 523
stériles Dec. - 523
orientale P. - 524
Oxycoccus Pursh - 524
mollis - 524
subinteífrófolium H. 524
purífolium L. - 518
pubescens Pursh - 522
punctatum Raf. - 519
pyrægagum R. - 1116
pyriform L. - 518
pyriformium Poir. - 519
Rataéquinum Sc. 522
shenester Zeyh. - 1116
squamatum Willd. 519
stellulatum Wall. - 1116
Tinus Mill. Dist. - 517
Tinus L. - 516
hir să Ait. - 517
lécida Ait. - 517
stricta Hort. - 517
virgáta Ait. - 517
tomentosum Raf. 522
tomentosum R. - 522
trîfórum Marsh. - 524
villísum Raf. - 522
Virna L. - 567
major L. - 567
mjar Scop. - 567
varegáta Hort. - 567
media Delile - 567
minor L. - 567
antiphora Bert. - 568
Aphelidó Lod. C. - 568
flores plêno Lod. - 564
flores puniceo L. - 564
follis argéntel L. - 558
follis aures Lod. - 558
Vine - 136
Vírina Ger. & Lob. - 5
longifolium L. Coll. - 522
Virga Matth. - 566
sanguinea Matth. - 560
Virgilia L. - 197
lutea Mx. - 198
Virginian Cherry - 524
Virginian Creeper - 130
Virginian Raspberry - 317
albínum L. - 569
Vitex L. - 567
Aegennis Cástre - 574
latifolia L. - 574
arborea Rox. - 574
incisa Lam. - 574
Negundo Bt. Maj. - 574
Viticella Menech. - 11
delíxiá Menech. - 11
Vitis L. 136, 141, 1113
asílevals Mr. - 137
arborea Wild. - 140
tipaua T. & G. - 140
caprovata D. Don - 145
cordifólia Mr. - 138
hederácea Wild. - 139
heteróphylla S. - 113
tée a rúba Cam. 562
tincisa Jacob. - 138
tincia Nutt. - 140
مناقa - 140
oróatiá Dom. 138
palmité Vahl - 137
parvifólia R. Sole - 113
quinqúfoilíe Lam. - 139
ripária Mr. - 138
róthumífolíe Ma. - 128
taurina Walt. - 137
viníera L. - 136
Americanacaer. 537
apifólia lacíná L. - 127
follis incánis - 127
rubescéntibus - 138

THE END.
Fines increase 50¢ per day effective September 3, 1991.