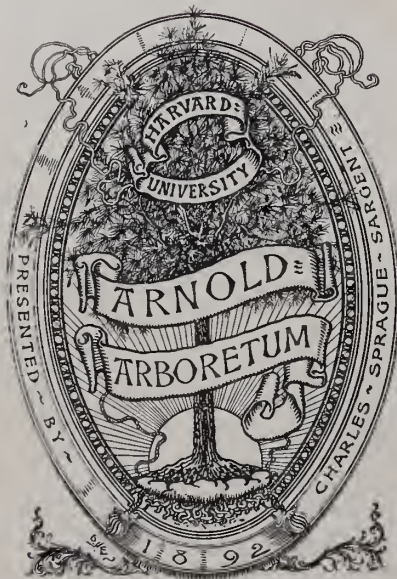


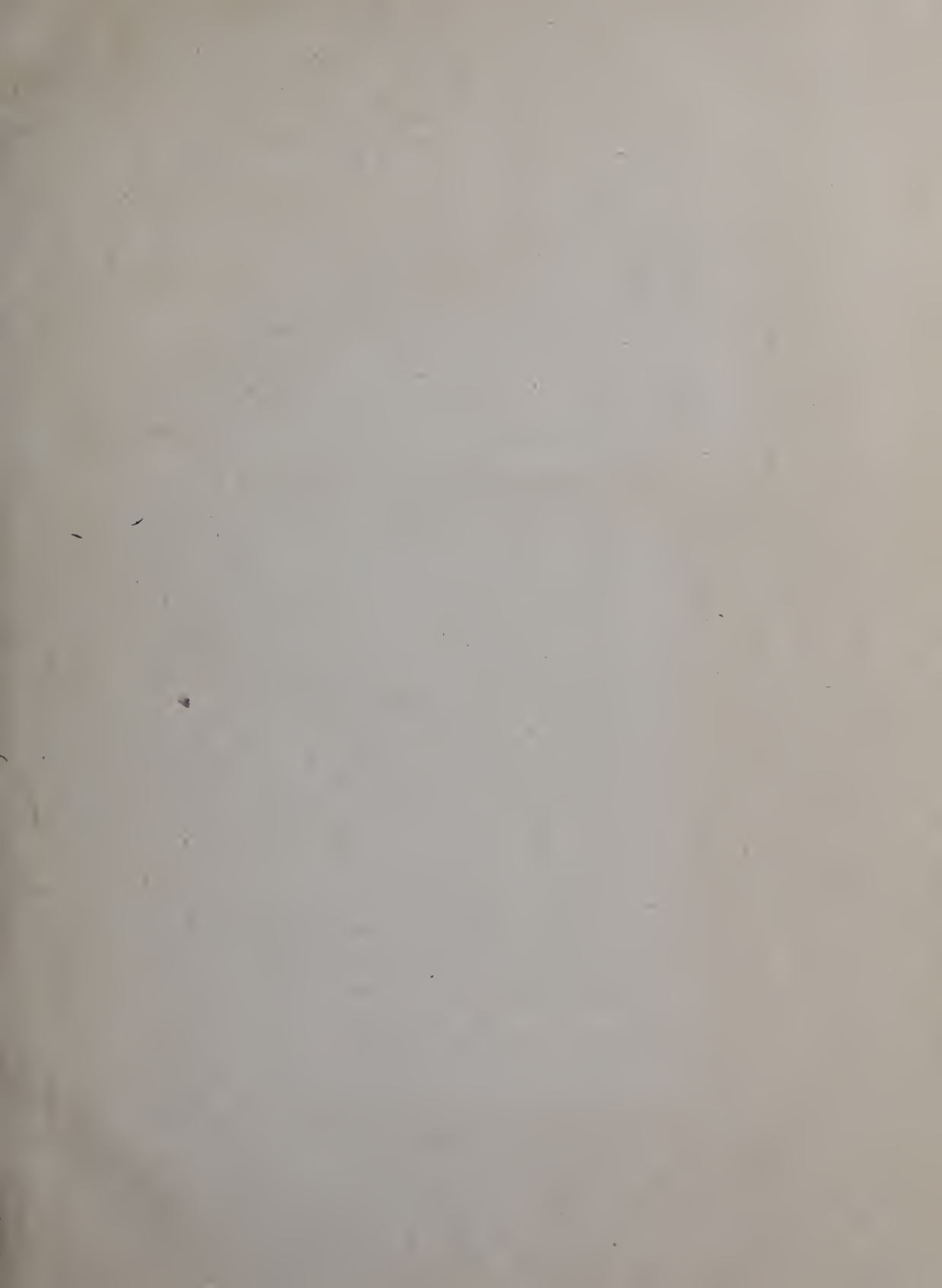
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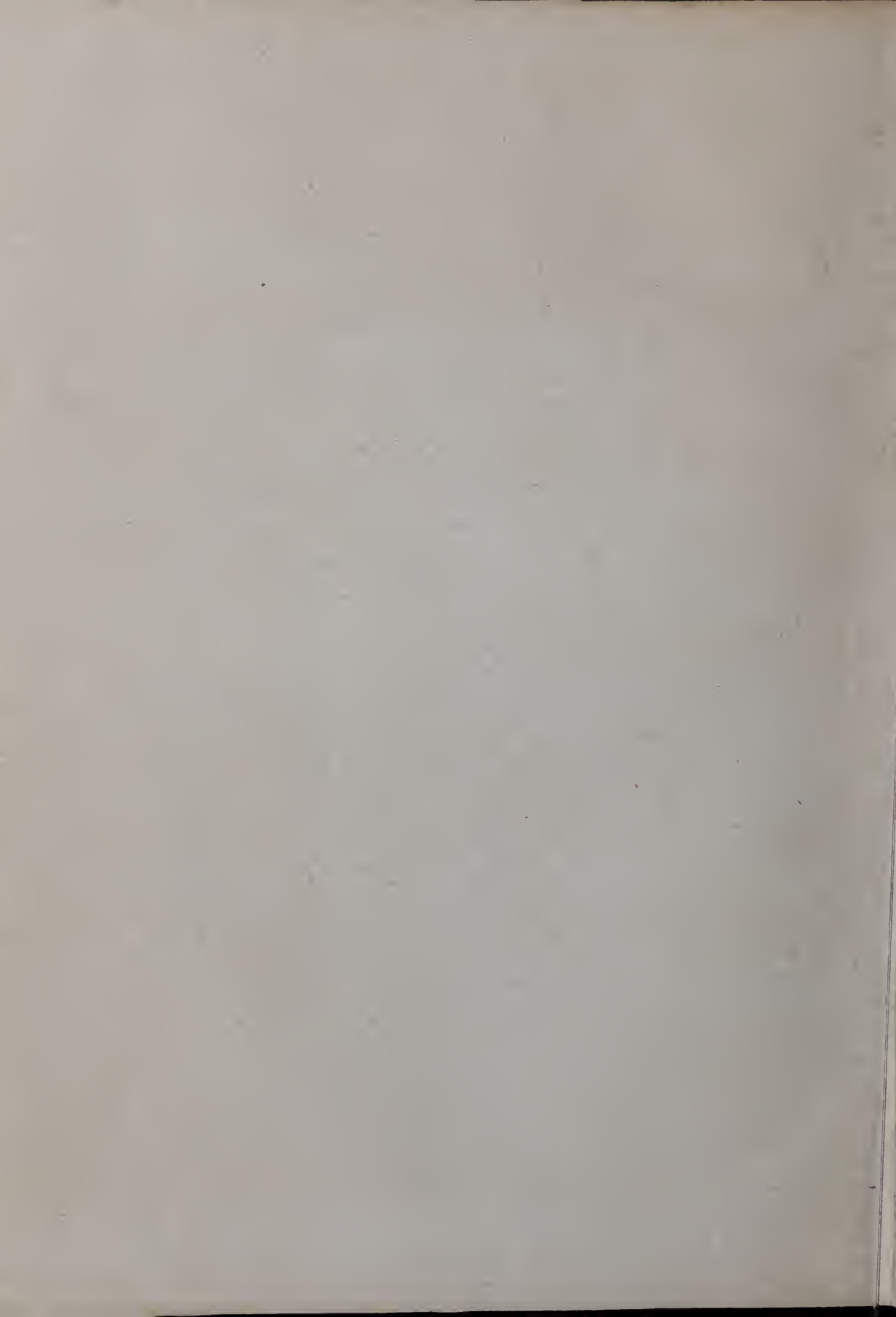
David Taggart
Northumberland

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J. P. Delany.

A

GENERAL SYSTEM
OF
TREES AND SHRUBS.

FOR ALL

USEFUL AND ORNAMENTAL PLANTATIONS,

John IN *Sigkora*
GARDENS, PLEASURE-GROUNDS, SHRUBBERIES, PARKS, PADDOCKS, WOODS,
GROVES, WALKS, AVENUES, CLUMPS, THICKETS, HEDGES, HEDGE-
ROWS, ARBOURS, ORCHARDS, FRUIT-TREE PLANTATIONS,

AND ALL OTHER

PLANTATION DISTRICTS, ELIGIBLE FOR THE IMPROVEMENT AND EMBELLISH-
MENT OF GARDENS, ESTATES, &c.

FORMING

A COMPLEAT GENERAL SYSTEM

OF

TREES AND SHRUBS,

AGREEABLE TO THE LINNÆAN SYSTEM;

Being arranged in their respective Genera or Families, under the Generical or Botanic Family Names,
Latin and English.

BY JOHN ABERCROMBIE,

(AUTHOR of EVERY MAN HIS OWN GARDENER.)

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VOL. 1
1910

John Sighou

T H E

GARDENER'S VEGETABLE SYSTEM,

A N D

B O T A N I C A L D I S P L A Y

O F A L L

PLANTS, TREES, SHRUBS, FLOWERS, AND FRUITS.

P A R T I .

S Y S T E M O F T R E E S A N D S H R U B S ,

For all USEFUL and ORNAMENTAL PLANTATIONS, in Gardens, Pleasure-Grounds, Shrubberies, Parks, Paddocks, Woods, Groves, Walks, Avenues, Clumps, Thickets, Hedges, Hedge-Rows, Arbours, Orchards, Fruit-Tree Plantations, and all other Plantation Districts eligible for the Improvement and Embellishment of Gardens, Estates, &c.

COMPREHENDING a general and systematic display and description of all the genera, species and varieties of the grand tribe of hardy trees and shrubs, both deciduous and ever-green kinds, valuable for composing the various profitable, ornamental and pleasurable plantations as above; consisting of the great and useful collection of forest or timber trees for forming woods, groves, coppices, &c. the numerous tribe of ornamental trees and flowering shrubs for shrubberies and other decorative plantations in pleasure-grounds; and all the sorts of fruit trees for planting in gardens and orchards: the whole arranged systematically, classing all the numerous different species and varieties in their proper families or genera, agreeable to the Linnaean system of botany, distinguishing and ex-

plaining the botanic classes and orders to which the different genera and their respective species belong; all the genera and species ranged under their botanic, Latin and English names; describing the general growth and essential characters of the different genera, and general dimensions of growth of the respective species of each genus or family, whether trees, shrubs, or under-shrubs, with their specific distinction and difference of growth and general structure; shewing also the places of their original residences, or where they grow naturally in the different parts of the world; explaining their respective merits, particular and general uses for the several plantations, different methods of propagation, and manner of raising and training in the nursery: together with the several orders

ders and methods of final transplanting, to form the various plantations for which the different kinds are adapted and designed, and with full directions for their essential culture in the several compartments.

That in the whole, by thus arranging the great and valuable tribe of hardy trees and shrubs under one distinct or separate division, it will prove materially convenient and essentially useful to gardeners, nurserymen and planters in general, as well as to all owners and occupiers of estates, farms, &c. where improvement in plantations may be necessary, as they will readily distinguish the proper or particular sorts wanted for the different occasions of planting.

This first part, or division, comprising the system of hardy trees and shrubs that are generally cultivated or eligible to cultivate in gardens and other districts, for forming the various useful and ornamental plantations, &c. they consist of many genera or families, some furnishing several or many species, others but one, two, or three, and many of the respective species are sportive in varieties, differing either in growth, flowers, fruit, &c. amounting in the whole to several hundred species and varieties, all of which are of sufficiently hardy temperation to grow in the open ground, and will prosper in most common soils and exposures, and in their different natures may be suited to various situations, or the greater part will grow freely almost in any; or as some sorts are of a more tenderish nature, require a particular soil and situation, and sometimes demand a sheltered, warm, compartment: these particulars are generally intimated under their respective heads, in the directions explaining their general cultures; and as this system comprises all sorts of forest trees, ornamental trees and shrubs, and the different sorts of fruit trees, as also deciduous and ever-green kind, each is explained under their respective genera.

And as in the numerous different species, some are of upright growth, as in the greater part, and some are of trailing and creeping growth, others climbers; all of which have their particular uses in the different plantations.

That as plantations of hardy trees and shrubs are importantly useful and ornamental in general gardening, and of great utility for the embellishment and improvement of estates, farms, &c. all the different genera, species and varieties thereof being collected under one general system, the desired sorts for the purposes intended will be readily discovered; and of which, the forming any plantations designed, no time should be lost in furnishing the allotted districts, that they may be advancing in their respective growths, either of the ornamental kinds in shrubberies or other decorative compartments in pleasure grounds, parks, &c. or of forest trees disposed in out-grounds for timber and underwood, and of the fruit trees in gardens and orchards,

most valuable in their annual productions of fruit, as it will be several years before many of the different sorts of trees and shrubs acquire any considerable growth, either for appearance or utility; and as gardens and estates, however desirably situated, and of favourable soils and exposures, if destitute of plantation, or not furnished therewith, more or less in some degree proportionate to the extent of the ground, appear naked and less important, as well as prove much less valuable to the owners and occupiers thereof; and besides the ornamental appearance of tree and shrubbery plantations, they afford shelter and shade to particular districts, and those of the forest-tree kind, in plantations for timber, &c. and of the fruit-tree tribe, for their fruit, yield great profit, both in many domestic occasions, and for sale, where it may be desired to make all possible advantage of these productions.

And as most gardens, pleasure grounds, &c. are of eligible soils, situations, and exposures, suitable for plantations of the different or desirable sorts of hardy trees and shrubs, they may be admitted in any desired collection, mostly in the common or general soil of the allotted districts; as likewise in most estates and grounds of any considerable extent, they, as well as fertile soils and situations eligible for principal, useful, and ornamental plantations of the more desirable kinds, furnish waste lands, either in low and marshy premises, or hilly and mountainous situations not well adapted for other cultivation, are often applicable to plantations of many sorts of forest and other large tree kinds, both for profit, ornament, and to diversify the respective divisions, and afford shelter to others; as there are many hardy trees and shrubs which will grow in almost any soil and situation, and others require soils of a more favourable nature: though it may also be observed, that most sorts will prosper in any common soil of gardens and other districts, where it may be thought eligible or convenient to have any kind of plantations.

Therefore, in gardens and other grounds, either of small, moderate, or large extent, having plantations less or more accordingly, either of various different sorts of trees and shrubs, or only of the most desirable kinds, such as the most beautiful flowering shrubs, and of other principal ornamental shrubs and trees, both of the deciduous and ever-green tribes, disposed in shrubberies, borders, clumps, and other compartments in a diversified assemblage, and larger trees arranged in groves, thickets, woods, grand walks, avenues, rows, and in boundary plantations, in pleasure grounds, parks, fields, hedge-rows, &c. they, in all of which different plantations, are great embellishments to the grounds, and display an entertaining variety in their different respective growths, flowers, fruit, &c. and in extensive out-grounds, having plantations of forest trees for their timber and underwood, are of important value, as likewise in gardens in general,

never

never omitting to have collections of fruit trees, which are particularly valuable in their annual productions, both for the service of a family and public supply, and may be admitted both in kitchen-gardens, in standards, wall trees and espaliers, and in standards, in orchards, pleasure grounds, hedge-rows, &c.

As this division consists of TREES, SHRUBS, and UNDER-SHRUBS, and of deciduous and ever-green kinds, their principal difference is—that a tree is generally considered as differing from a shrub, principally in being of larger growth, and rising with a single upright stem or trunk to a considerable height before it divides into arms or large branches, growing fifteen or twenty, to fifty, sixty, or an hundred feet high.—A shrub either rises with several stems immediately from or near the root, or the main stem divides low into several smaller ones, and is every way of less growth and dimensions than a tree; and that the general growth of the various different species of shrubs is from two or three, to five, ten, or fifteen feet high—and the difference between a shrub and an under-shrubby plant is, a full or perfect shrub assumes a more woody, large, firm growth, next to a tree; the under-shrubs are of lower, more weak, and infirm growth, rising with smaller, more soft stems, somewhat between a woody and herbaceous nature, growing from six or eight inches, to one, two, or three feet high, as in thyme, sage, hyssop, winter-favory, south-ern-wood, and several sorts of heath; and some are of trailing growth, as periwinkle, &c.

In the general growth of trees, shrubs and under-shrubs, all the tree kinds are consequently of upright, strong, firm growth; the shrubs also, in the greater part, are upright; some are of declining and trailing growth, others are climbers, and the same of the under-shrubs; all of which being explained under their respective genera and species, as they occur, in the course of the following work.

Trees and shrubs differ from herbaceous plants, by having woody strong stems of long duration; the herbaceous tribe rising with soft, succulent, slender stems, mostly annual, or but of one summer's growth, rising in the spring, and in the greater part perish in autumn or winter following; but trees and shrubs are durable in stem and branches.

And as to the distinction between deciduous and ever-green trees and shrubs; the deciduous kinds are such as expand their leaves only in summer, from April or May till October, then decay and fall from the trees, &c. in that month, or wholly, early in November, remaining defoliated or leafless all winter and until May aforesaid; and the ever-green trees and shrubs continue in green leaves all the year, as in holly, &c. the old leaves continuing till displaced by the young ones in the spring.

All or most of the different species and varieties belonging to this system of hardy trees and shrubs, are raised and cultivated in the numerous nursery grounds in the different parts of the kingdom, for public supply, in furnishing the various plantations in noblemens and gentlemens gardens and estates, and of others, as may occasionally be required; and most of the principal sorts may be occasionally raised in private nurseries to assist in supplying the aforesaid plantations, as numerous sorts may be propagated and raised abundantly from seed, berries, nuts, &c. sowed in the natural ground; many by suckers, layers, cuttings, slips, &c. the whole, when, according to their nature and dimensions of growth, they are from one, two or three, to five or ten feet high, are of eligible size for final transplanting for the different occasions for which they may be designed; or some tree kinds may occasionally be transplanted when of more advanced growth, of from ten or twelve to fifteen feet high, or more; especially deciduous kinds, when required to form any conspicuous plantation as expeditious as possible, or for immediate shade, shelter, &c. in particular compartments; or also, for which occasions, some deciduous trees, as elm, lime, poplar, &c. admit of transplanting when of eighteen or twenty feet high, removing them with a full expansion of roots, or more successfully when convenient, to remove them with some ball of earth thereto.

However, for general planting of trees, those of five or six to eight or ten feet are in the greater part most eligible for good success, as young trees sooner strike good root to grow freely, and establish themselves effectually, than those removed of larger growth; and those designed for forest or timber trees particularly, it is of advantage to transplant them finally where they are to remain, while they are of young growth, of from one, two, or three, to five or six feet high, that they may root effectually from the beginning; and in many of the ever-green tree kinds, as pines, firs, cedars, &c. they are always considerably the most successful when finally transplanted while young, of two or three, to four, five, or six feet, in which they generally acquire a more free growth, advancing expeditiously in a straight lofty stature, and so of various other sorts; and as to the shrub and under-shrubby kinds in general, they, according to their smaller or larger growth, may be planted of from one foot, or half that size, to two, three, or four, to five or ten feet; always in the plantations, disposing the lower plants towards the front, and the larger more or less backward.

The general season for planting, is either autumn or spring; or the more hardy kinds, may be occasionally planted any time in open weather, from October or November, till March or April, more especially the deciduous tribe; though in a dry or light soil, it is of advantage to plant early in autumn, at the decay of the leaf, in October and November, and they will quickly

quickly take root the same season; but in wet ground, or of a strong loamy or clayey nature, the spring, about February or March, may be a more eligible time for planting in such soils, or at least either in that season, or early in autumn, not too freely in winter, except in dryish, light ground; and as to ever-greens, it is advisable to plant them either principally in autumn, about September, October, and beginning of November, or in the spring, February, March, or April, as most of these kinds, when transplanted in cold seasons, in winter, or early in spring, are more liable, before they strike good root, to suffer by the severity of frost and other inclement weathers, than most of the deciduous sorts, unless where they can be removed with balls of earth, especially any of the more curious or tender species, so as not to receive any or but little check by removal.

And in the general planting of trees and shrubs for ornament, or also in woods, &c. for timber plantations, it is advisable to have the deciduous and ever-green kinds mostly in separate compartments, or in clumps alternately of the former and latter; or may occasionally intersperse some ever-greens in the deciduous plantations to encrease the variety, and for the ever-greens in their continuing leaves, to display a more conspicuous and lively appearance in the plantations in winter, when the deciduous kinds are destitute of their foliage.

But for the particular directions relative to the different species, &c. methods of propagation, planting, and general culture, see the respective articles under their principal heads, in the following system and display; to which, after the foregoing observations, we shall now proceed.

ACER MAPLE TREE and Sycamore.

In the Botanic System the Maples belong to the

Class and Order

Polygamia Monoecia,

Many Marriages, One Habitation;

Or Flowers of different Sexes, as Hermaphrodite and Males, separated on the same Tree.

THE family of Maples are principally of the tree kind, of middling and large growth, from twenty or thirty to fifty or sixty feet high, or more; all of the deciduous tribe, and hardy to grow in any open situations, &c. some proper to cultivate for forest or timber trees, others principally to plant for ornament and variety, in pleasurable plantations, both for the diversity of their different growths and foliage; and some, for their ornamental flowering, are garnished in summer, to the end of autumn, with simple leaves of moderate, middling, and large expansion, divided less or more into three or five lobes, and with small flowers of five petals, in racemus clusters, corymbus and aggregate

bunches, succeeded by winged capsules, furnished with roundish seeds: ripe in summer and autumn, for sowing the same season, or in spring, to raise supplies of young trees; and which may also be propagated by layers and cuttings.

The *Generic Characters* are—Hermaphrodite and male flowers apart on the same plant—the calyx or outer cup one-leaved, deeply cut into five acute segments—corolla or flower, five oval spreading petals, containing in the centre eight short stamens of male organs, crowned with procumbent cross-placed anthers—and in the hermaphrodite flowers, a compressed germen in the bottom of the calyx, surmounted by a double stigma or female part, which becomes two winged capsules, each furnished with one roundish seed.

The Species are,

1. *ACER campestre*, Champagne or common smaller Maple.

A moderate tree, growing twenty or thirty feet high; the bark rough, leaves (middling size) lobated, three-parted, obtuse emarginated or end-notched.—Native of the southern parts of Europe, England, &c. in woods and hedges.

2. *ACER Pseudo-Platanus*, (Pseudo-Platanus, or false Plane Tree) greater Maple or Sycamore.

A largish tree, growing forty or fifty feet high, or more; the leaves (large, broad) five lobed, unequally sawed on the edges, and with flowers in large racemus clusters, succeeded by bunches of winged seed vessels.—Native of England, Switzerland and Austria.

Variety of this. Striped-leaved Sycamore.

3. *ACER rubrum*, Red, or Scarlet flowering Maple of Virginia.

A moderate tree, growing twenty-five to thirty feet high; the leaves (middling) five lobed, a little indented or teathed, glaucous or whitish sea-green underneath, and with simple peduncles or flower-stalks aggregated; the flowers reddish.—Native of Virginia, in North America.

Variety. Sir Charles Wager's flowering Maple; flowers pale red, in large bunches, appearing very ornamental in the spring, April, or May.

4. *ACER Platanoides*, (Platanoides, or Plane-Tree like) Norway Maple.

A largish tree, growing thirty or forty to fifty feet high; the leaves (largish, shining green) five lobed, pointed, sharply indented, smooth, and with flowers in

in corymbus bunches.—Native of the northern parts of Europe, mountains of Stiria, and Savoy.

Varieties. Jagged-leaved Norway Maple.
Striped-leaved Norway Maple.

5. *ACER saccharinum*, Sacchariferous or Sugar Maple of America.

A middling tree, thirty or forty feet high; the leaves (largish, deep green) five-parted palmated, sharply indented, sea-green underneath.—Native of Pennsylvania and other parts of North America, where, by tapping the growing trees in the spring, is extracted a saccharine juice, of which is made a tolerably good sugar.

6. *ACER tataricum*, Tartarian Heart-leaved Maple.

A smallish or moderate tree, twenty to thirty feet high; the leaves (middling, deep green) hearted, undivided, the lobes obsolete or slight, and flowers growing in long racemus clusters.—Native of Tartaria, Asia, &c.

7. *ACER pennsylvanicum*, Pennsylvania American Maple.

A largish tree, thirty or forty feet high; the leaves (large) three lobed, pointed, fine-sawed, and with flowers in racemus clusters, (pendulous).—Native of Pennsylvania, in North America.

ACER monspessulanum, Montpellier French Maple.

A moderate size tree, growing eighteen or twenty feet high; the leaves (middling size, shining green) three lobed, very intire, and smooth.—Native of Montpellier, in France, also of Italy.

9. *ACER Negundo*, (Negundo) or Ash-leaved Virginia Maple.

A large tree, growing forty or fifty feet high; the leaves (largish, light green) compound, three and five lobed, and flowers growing in racemus bunches.—Native of Virginia, in North America.

10. *ACER creticum*, Cretun Ivy-leaved Maple.

A smallish tree, growing eighteen or twenty feet high; the leaves (middling size) three lobed, intire, and downy.—Native of the East, in the Levant.

11. *ACER Opalus*, (Opalus) or Italian round-leaved Maple.

A largish tree, thirty feet high or more; the leaves (large) lobated, slightly cut, and flowers and fruit growing in racemus bunches.—Native of Italy.

The foregoing being the principal species and varieties of hardy Maples at present known and cultivated in the British gardens and plantations, are all easily raised from seed sowed in autumn, or early in the spring, in beds of light earth; and most of the sorts also, by layers and cuttings of the young wood in the same seasons.

They are all deciduous trees, or such as defoliate or shed their leaves at the approach of winter; the leaves mostly simple, or of one expansion, from three or four to six or eight inches broad, in the different species, beginning their expansion in May, and continue till October, then decay and fall from the trees; and the trees flower in spring and early part of the summer, mostly in largish bunches on the young branches; the flowers small and greenish, except the Scarlet Maples, which, in particular, displays a good ornamental appearance in its numerous large clusters of flowers; and in most of the species the seeds ripen abundantly, in summer and early part of autumn, for sowing.

The trees are all of tolerably hardy growth, and will thrive in almost any common soil, situation, and exposure; and are eligible both for profitable and ornamental plantations: the Common Maple, Sycamore, and all the larger kinds, are proper to assemble in forest-tree, plantations for timber, in coppices for underwood, and in hedge-rows, fields, &c. and all the sorts are also adapted to arange with other trees in any considerable decorative plantations in extensive pleasure-grounds, shrubberies, parks, and any out-premises, as in their different growths, foliage, and modes of flowering, &c. will effect a conspicuous and agreeable variety; or for smaller plantation compartments, shrubberies, clumps, &c. may have only some of the more curious sorts, such as the Striped-leaved Greater Maple, Scarlet-flowering, Sacchariferous, Tartarian, Montpellier, and Cretan Maples.

To cultivate for forest trees in woods, to grow to large standards for timber, any of the larger growing kinds, as before observed, may be admitted; such particularly as the Common and Greater Maple, the Platanoides or Norway Maple, Pennsylvania and Sugar Maple, and the Negundo or ash-leaved kind. The wood of the Maples, for its whiteness, was formerly in much estimation for working into various articles in the cabinet-making branch, as tables, chairs, &c. and is useful for the turner, and several other trades, but not of any considerable value for strength in the building way, or any very strong purposes.

They may be planted for the above occasions, both in assemblage with other forest trees, and some in separate plantations, wholly of the Maple kind; and in all of which, may either be planted in close rows, only five or six feet distance, that they may draw up one another straight and more expeditiously in height, and

to allow for thinning by degrees in their advanced young growth, leaving a sufficiency of the finest and most promising plants to run for full standards; or some planted at once in wide rows or open groves, ten to fifteen, or twenty feet asunder, to remain in full growth, to acquire a large size for timber.

For ornamental plantations, any of the desirable sorts of Maples may be introduced in assemblage with other tree kinds and large shrubs, and in which are eligible to admit in large boundary districts, extending along next the outward fences of pleasure-grounds, parks, &c. sides of capacious lawns, and in considerable shrubbery compartments; and also in forming clumps of trees in any considerable open spaces of grass ground, in extensive lawns, parks, &c. and are very proper to assemble in plantations designed for shelter in particular districts, to break off cutting blasts and boisterous winds from interior divisions; as also to arrange in groves and other compartments of planting, for ornament, variety, and observation.

And for all of which plantation, supplies of young trees may be obtained in full collection at most of the principal public nursery gardens; and the season for planting them is any time in open weather, from October or November, to March or the beginning of April.

Or all the sorts of Maples may be easily raised for the several plantations required, by the different methods of propagation following, as by seed, layers, cuttings, &c.

By seed all the species of Maples may be plentifully raised, especially such as ripen seed in sufficient abundance in this country, or that can be obtained of the foreign sorts from abroad, which, in the greater part, may be procured of the nursery-men and principal seedsmen, in the proper seasons, in autumn and spring, and may be sowed either in autumn, about September, October, November, or in February and March, but most successfully in autumn; all sowed in beds of light earth, in drills or broad-cast, and earthed in half an inch to an inch deep; they will germinate and come up in the spring: keep them clear from weeds all the summer, and by autumn following will be advanced six or eight to ten or twelve inches high; when in October, November, or the following spring, if they stand very thick, some may be thinned out and transplanted in nursery rows, or all of them may be transplanted from the seed-bed the first or second year, setting them in rows in the nursery, two to three feet asunder, by eighteen inches in each row, and in which to remain three, four, or five years, or more, till advanced five or six, to eight or ten feet high; then will be of proper size for final transplanting in the several plantations for which they may be designed.

Likewise, by cuttings and layers of the young shoots and branches, most of the sorts of Maples may be propagated, performing it in autumn or spring, and will be rooted by the Michalmas following: observing generally for the cuttings, chuse the straight young shoots of the former summer, cut in lengths of ten or twelve inches, and dibbled in rows a foot asunder, and after being well rooted may be transplanted at wider distances; and for layers, having young trees, for stools, cut down near the ground, to furnish bottom shoots, which, when of one or two summers growth, should be laid down, previously gashing or cutting a slit on the under side; then lay and peg them into the earth, having the tops upright several inches above ground; and in autumn, when rooted, cut them from the stools and plant them in nursery rows.

In the several varieties of Maple, they are generally propagated by cuttings or layers to continue them permanent in their respective properties, as seedling-raised plants thereof may vary, though the Striped-leaved Sycamore in particular, will often, or in the general part, come the same from seed; or the desirable varieties may also be propagated by budding and grafting, inserting a bud or graft of the variety intended into young stocks raised from seed, &c. of the parent trees of the respective sorts, as the Striped-leaved Greater Maple, budded upon stocks of the plain green leaved kind.

In raising the young Maples by any of the methods above, and being planted in nursery rows for training to the proper size, their principal culture is to keep them clear from weeds, by hoeing between the rows in summer, and digging the ground in winter and spring; and according as the trees advance in growth, prune off the strong side-shoots from the stem, preserving the tops intire to aspire in height, in an upright growth, continuing each to a single stem, and a moderate head of branches above.

When the trees are advanced from three, four, five, or six, to eight, or ten feet high, or little more, they may be finally transplanted, where they are required, in the intended plantations.

They may be planted or transplanted finally any time in autumn, about October or November, or in open weather, till February, March, or beginning or middle of April: and as to future culture, after final transplanting into the respective plantations, is principally to prune off low and rude lateral shoots from the stems, casual low straggling branches of the head, with any stray or rambling branches above, and cut out dead wood, still continuing the whole to one principal main stem, permitting the main top leader to aspire in height.

ÆSCULUS, HORSE-CHESTNUT Tree.

Class and Order.

Heptandria Monogynia,
Seven Males, One Female;Or *Hermaphrodite Flowers, having seven Stamina or Males, and one Pistillum, or Female, all within the same Cover.*

THE HORSE-CHESTNUTS are hardy, deciduous trees, growing twenty to thirty, or forty feet high, or more; of a beautiful ornamental growth, garnished with most ample digitated foliage and numerous large and specious spike of flowers; are peculiarly adapted to plant for ornament and shade, in pleasure-grounds, parks, &c. not of material value for timber plantations: they grow with large, regular, branchy heads, of a conical form, closely garnished with considerable large leaves, digitated in the palmated order, into six or seven large, oblong-oval lobes, united at the base, and joined to the summit of one common petiole or foot-stalk, spreading out above like the expanded fingers of a hand, and with large pyramidal spikes of white, and scarlet flowers, of five oval petals, containing the stamina and stylus in the centre, succeeded by large, roundish, prickly capsules, furnished with sub-globular nuts: ripe in autumn, but not eatable, except for deer and swine, and by which the trees are propagated by sowing them in autumn or spring.

Generic Characters are—The flower Hermaphrodite, or containing both male and female organs, (Stamina and Stylus)—the calyx or cup swollen, one-leaved, cut into five parts; corolla or flower, five oval petals, with folded borders, narrow at the base, and inserted into the calyx; Pistillum, a roundish germen in the centre of the corolla, supporting a single style crowned by a pointed stigma; Stamina, seven the length of the petals, declinated and terminated by ascending anthera; and the calyx becomes a large, roundish, echinated, or prickly capsule, of three internal cells, furnished with one or two large sub-globular nuts.

The Species of **ÆSCULUS** are,1. **ÆSCULUS Hippo-Castanum**, (Hippo-Castanum) or Horse-Chestnut, (common.)

A large tree, of conical growth, forty to fifty, or sixty feet high; the leaves (*large, palmated, dark green*) of seven oblong lobes, and with flowers having seven stamina.—Native of the northern parts of Asia.

Varieties. Silver-striped-leaved common Horse-Chestnut.

Gold-striped-leaved common Horse-Chestnut.

2. **ÆSCULUS Pavia**, (Pavia) or Scarlet Horse-Chestnut.

A small tree, growing eighteen or twenty feet high; the leaves (*large, palmated, light green*) six or seven lobed, and flowers having eight stamina.—Native of Carolina and the Brazils.

Varieties. Common Scarlet-flowered Pavia.
Yellow-flowered Pavia.

Both these species of *Æsculus*, and their respective varieties, are very desirable trees to plant for ornament; are of swift and beautiful regular growth, particularly the common Horse-Chestnut, which soon runs up to a considerable height, making remarkable strong shoots, advancing a yard in length, or more, in a few weeks; are all of the deciduous tribe, expanding their luxuriant foliage from May till October, and produce their numerous pyramidal, large, erect flower-spikes, in May and June, displaying a beautiful appearance; succeeded by the large prickly pericarpiums, pregnant with nuts, which, ripening in autumn, drop out of the capsules, and may then be gathered for sowing or planting the same season, or in the spring following.

These trees have peculiar merit to plant for ornament and shade, and to introduce in large pleasurable plantations.

The common Horse-Chestnut particularly, is a most desirable tree to plant in groves, avenues, shady walks, and in rows in any out-boundaries; and to plant in assemblage in running plantations, towards the boundaries of parks, spacious lawns, and other extensive premises; as also to dispose in ranges, clumps, groups, and singly, on extensive lawns, parks, and other capacious open spaces of grass ground; and in all of which methods of disposition it may both be planted distinct, occasionally, and in assemblage, with other tree kinds, and should generally be planted at some considerable distance from one another and other trees, that each tree may have sufficient scope to branch out freely all round in its natural order, without the extended branches of the separate trees in advanced growth interfering, whereby they will branch most regularly, and form beautiful pyramidal heads, which in summer, being closely adorned with the luxuriant digitated foliage, and beautiful large spikes of white flowers at the ends of the branches, will effect a conspicuously noble appearance, and, where in assemblage, make a very distinguishable variety in the plantation; the trees may also be admitted in the forest-tree plantations, only, however, in moderate supply, as the wood or timber is not valuable for any strong occasions, but may serve for various light purposes.

This sort flowers in May and beginning of June, appearing very ornamental; the flowers white, tinged

with a blush red; and the nuts produced in summer ripen abundantly in autumn, which, when the trees are disposed in parks, afford food for deer, as these animals and swine will eat them as they fall from the trees; and are not valuable for any other occasion, except for sowing, wherewith to raise supplies of young trees when required.

Though abroad, where the trees grow naturally in great abundance, the nuts are occasionally cut or ground into a coarse meal, &c. and given to horses: hence the original name *Hippo-Castanum*, or Horse-Chestnut.

The Scarlet Horse-Chestnut, in its smaller growth, is also very desirable to plant for ornament in large shrubbery compartments, and other ornamental plantations as above; its leaves nearly similar to the others, and produces bright red flowers, in long loose spikes—appearing in June or July.

Both these species, and their varieties, may be obtained, for planting, at all the principal nurseries, or may be expeditiously and abundantly raised by planting the nuts, &c.

The season for planting the trees is any time from the decay of the leaves, in October or November, till March or beginning of April.

They are propagated by sowing or planting the nuts, either in October or November; or, for fear of rotting, in winter, or disturbed by vermin, in that season, may be preserved in sand for planting in February, generally allotting them a bed or beds of light earth, planting them in drills two or three inches deep, the drills a foot asunder, or may be planted by dibble the above depth and distance; or also by raking two or three inches of earth off the beds into the alleys, place the nuts on the surface, press them a little into the earth, then earth them over from the alleys two or three inches deep: they will germinate freely in the spring, and generally come up in April or May, when keep them clear from weeds, and they will advance six or eight inches to a foot high, or more, by October following.

When they are of one or two summers growth, should be planted out from the seed beds, taking them up with full roots; prune the downright tap root, and cut off side-twigs from the stems, preserving the top leader intire; then plant them in nursery rows a yard asunder, by twelve to fifteen or eighteen inches distance in the lines, where let them continue in growth three, four, five years, or more, training each with a single stem, pruning off side-shoots below, continuing the top leading-shoot always intire, as before intimated; and when the young trees are advanced about four, five, or six, to eight or ten feet high, are of a proper growth for final transplanting where they may be intended.

The two varieties of the Common Horse-Chestnut are propagated by budding them upon seedling stocks of the common sort, in July or August, or also by grafting upon the same sort of stocks in the spring; which methods of propagation is necessary in the varieties to continue them distinct in their respective properties, which cannot be effected with certainty from seed.

Likewise the Scarlet Horse Chestnut is also occasionally propagated, by grafting and budding upon stocks of the common sort.

The final transplanting of all the sorts from the nursery, &c. may be effected when the trees are advanced from four or five to ten or twelve feet high; though, if performed when in young growth, of five, six, or eight feet, they will generally strike root more effectually, and grow more successfully, than when removed of larger sizes.

After the final transplanting in the respective districts, the principal culture is, while in young growth, to defend or fence them from cattle, and give support of stakes where it may appear necessary; and in their advancing state, and large growth, may occasionally prune lower and straggling branches, to have a clean stem below and regular head above.

AMORPHA, BASTARD INDIGO.

Class and Order.

Diadelphia Decandria,

Two Brotherhoods, Ten Males;

Or Papilionaceous Hermaphrodite Flowers, having ten Stamina or Males, in two Sets or Brotherhoods.

THE *Amorpha* is a very ornamental flowering shrub, of the deciduous kind, decorated with long pinnated or winged leaves, of many pairs of small leaflets affixed to one common petiole; and long spikes of small papilionaceous or butterfly-shaped purple flowers, furnished with ten stamina, and one style in the centre, succeeded by leguminous short pods, furnished with roundish, kidney-shaped seeds, not always ripening in perfection in this country, but is raised plentifully by layers.

Generic Characters—Hermaphrodite flowers, or containing both male and female parts of generation (*the Stamina and Stylus*)—Calyx or cup monophyllous, or one-leaved, tubulous cylindric, and obtusely five-parted at the brim.—Corolla, or flower papilionaceous, or butterfly-like, of four unequal petals, consisting of a standard, two wings, and a carina or keel below; the standard, or upper petal, small concave, cover the other three.—Stamina ten, joined at the base, and terminated each by small anthera.—Pistillum, a roundish oblong germen in the centre, supporting an awl-shaped style,

style, the length of the stamina, and becomes an oblong-roundish pod, having two small, roundish seeds.

One Species.

AMORPHA fruticosa, shrubby *Amorpha*, or Bassard Indigo of America.

A largish shrub, ten or twelve feet high, making large shoots; the leaves (large, very long) pinnated of many pair of small folioles or leaflets, and small purple flowers in summer.—Grows naturally in Carolina, where, of its young shoots, is made a coarse sort of Indigo.

This species is proper to cultivate as an ornamental flowering shrub, very eligible to assemble in the principal shrubby compartments, pleasure-grounds, &c. is hardy to grow in any common dry soil, and will succeed in most situations; and may be obtained for planting, at most of the public nurseries, or may easily be raised from seeds and layers: they may be planted in shrubberies any time in open, mild weather, from October or November, till March or April.

It is propagated by seeds and layers: the seed may be had at the nurseries and of feedsmen; and which generally sow in the spring in a bed of light earth, and the plants transplanted in nursery rows, till of a proper size for the shrubbery; or, in want of seeds, may easily be raised by layers of the young shoots and branches in the spring, which will be rooted in one summer, then planted off in a nursery, to have one, two or three years growth, and may then be transplanted into the shrubbery compartments.

AMYGDALUS, ALMOND TREE, comprizing also the Peach and Nectarine.

Class and Order.

Icosandria Monogynia,

Twenty or more Males, One Female;

Or Plants with Hermaphrodite Flowers, having twenty or more Stamina or Males, and one Pistillum or Female Organ.

THIS Genus, *Amygdalus*, consists principally of choice fruit trees, for training chiefly in the wall-tree order, and some for standards, with some proper to introduce in shrubberies as beautiful flowering trees and shrubs; comprizing, in the different species, the Almond, Peach, and Nectarine, all of the moderate tree kind, ten or twelve to fifteen or twenty feet high, and some of low shrubby growth; all of the deciduous tribe, furnished with leaves in summer, mostly spear-shaped, long and narrow, three to four or five inches length, and with pale red flowers growing by pairs, and singly along the sides of the young shoots, composed of five oval petals, twenty or more stamina, and roundish germen in the centre, which becomes a large, oval, and roundish, downy fruit, furnished with an internal nut or

stone, including a single kernel, which, in the Almond in particular, is the only eatable part, but in the Peach and Nectarine the whole outer fleshy substance, surrounding the stone, is the eatable part of the fruit: ripening from the end of July or beginning of August, till October, in the different varieties.

Generic characters.—The flowers all hermaphrodite, having male and female within the same cover—calix, or cup, one-leaved, obtusely five parted at the brim.—Corolla, or flower, of five obtuse concave petals inserted into the cup.—Stamina, twenty or more, slender and shorter than the petals of the Corolla, crowned with small anthera.—Pistillum, a roundish, downy germen, in the centre of the flower, elevating a single stile, the length of the Stamina terminated by a headed stigma, succeeded in the germen by a large oval and roundish, downy, leathery, and fleshy fruit, marked with a longitudinal furrow, inclosing a hard nut or stone furrowed and netted, and in which is included a single seed or kernel.

The Species of *AMYGDALUS* are,

1. *AMYGDALUS communis*, Common Almond Tree.

A moderate tree, growing eighteen or twenty feet high; the leaves (*long, narrow, shining*) spear-shaped, sawed on the edges, and small glands at the base, and twin flowers, or in pairs, sessile; fruit roundish-oval, compressed, downy and tough outer cover, inclosing the stone and kernel: ripe in the autumn.—Native of Mauritania, in hedges.

Varieties of the Almond.—Common red-flowered Almond Tree.

White-flowered Almond Tree.

Silvery-leaved Almond Tree.

Bitter-kernelled common Almond.

Sweet-kernelled common Almond.

Tender-shelled, sweet, or Jordan Almond.

2. *AMYGDALUS nana*, Dwarf Peach-leaved Almond Tree.

A small shrub, four or five feet high; the leaves (*small, narrow*) spear-shaped, lessened at the base; producing numerous flowers early in the spring, very ornamental.—Native of the northern parts of Asia.

Varieties.—Common single-flowered dwarf Almond.
Double-flowered dwarf Almond.

3. *AMYGDALUS Persica*, (*Persica*) or Peach Tree.

A moderate tree, growing ten or fifteen feet high; the leaves (*long, narrow*) spear-shaped, acute at both ends, sawed, and flowers solitary or singly, and sessile or close-fitting; succeeded by large, roundish, downy fruit,

fruit: ripening from July or August to October.—Native of Asia.

Varieties of Peach Tree.—Common single-flowered Peach Tree.

Double-flowered Peach Tree.

Dwarf Peach Tree.

Of the Fruit.

Early white nutmeg Peach; small white fruit: ripe in July.

Early red nutmeg Peach; small, round, red fruit, larger than the former: ripe the end of July or beginning of August.

Early Anne Peach; a middling-roundish fruit: ripe the beginning of August.

Early purple Peach; large, round, red fruit: ripe the middle of August.

Early small Mignon; middle size, roundish fruit, red next the sun: ripe the beginning of August.

Large French Mignon; large, oblongish-round fruit, swelling a little on one side, beautifully reddened: ripe the middle and end of August.

Early Newington Peach; middle size, roundish fruit, red next the sun: ripe the end of August.

Late Newington Peach; large, beautiful, roundish fruit: ripe in September.

White Magdalen Peach; middling-large, white fruit: ripe the end of August.

Red Magdalen Peach; large, round, red fruit: ripe the latter end of August.

Bellegarde, or Gallande Peach; very large, round fruit, deep purple-red next the sun: ripe early in September.

Chancellor Peach; large, roundish-oblong, most excellent fruit: ripe the end of August and in September.

Admirable Peach; large, round fruit, red on the side towards the sun: ripe the beginning and middle of September.

Rombouillet, or Rumbullion Peach; middling-large, roundish fruit, deeply furrowed, and red next the sun: ripe towards the middle of September.

Montauban Peach; largish-middling size, roundish fruit, deep purplish-red towards the sun: ripe the middle and end of August.

Noblesse Peach; large fine fruit, bright-red towards the sun: ripe the end of August and in September.

Lisle, or Little Violet Peach; middle size, roundish fruit, violet-coloured towards the sun: ripe the beginning and middle of September.

Varieties. Bourdine Peach; large, round, fine fruit, red towards the sun: ripe the beginning of September.

Belle Chevreufe Peach; middling-large, roundish-oblong fruit, beautiful red, and most excellent: ripe the end of August and in September.

Rossana Peach; a large, oblongish fruit, reddish-purple towards the sun, yellow-fleshed, and very fine: ripe the beginning of September.

Yellow Alberge Peach; middling size, oblongish fruit, yellow fleshed: ripe towards the middle of August.

Malta, or Italian Peach; middle size, roundish fruit, finely reddened towards the sun: ripe the end of August and beginning of September.

(La Teton de Venus) Breast of Venus Peach; middling large, roundish oblong fruit, having a swelling or rising resembling a teat or breast, pale-red next the sun: ripe the middle and latter end of September.

Late Purple Peach; large, round, purple fruit, very fine: ripe towards the latter end of September.

La Belle de Vitry Peach; middle size, round fruit, pale-red towards the sun: ripe in September.

Portugal Peach; large, roundish, fine fruit, red towards the sun, somewhat spotted: ripe about the middle of September.

Perisque Peach; large, oblongish, handsome fruit, reddened beautifully towards the sun: ripe towards the end of September.

Nivette Peach; large, oblong, roundish, fruit, bright red towards the sun, the other side yellowish, very fine: ripe about the middle of September.

Royal Peach; large, round fruit, deep red towards the sun, the other side pale-reddish, a most excellent Peach: ripe towards the middle and end of September.

Royal George Peach; large, roundish, fruit, beautifully reddened towards the sun: ripe the end of August and in September.

Swalch or Dutch Peach; large, roundish fruit: ripe in September.

Bloody Peach; middle size fruit, deep red towards the sun, and red fleshed: ripe in October.

Sion Peach; large, roundish, fruit: ripe in September.

Varieties.

- Varieties.* Monstrous Pavy of Pomponne; very large, round fruit, beautifully reddened towards the sun, the other side bluish red: ripe the middle or end of October.
- Catharine Peach; large, round, most beautiful fruit, deep-red next the sun; a most excellent late Peach: ripe in October.
- Golden Peach; largish, round, yellowish, and red fruit, very fine: ripe in September.
- Incomparable Peach; a large, beautiful, roundish, fine fruit: ripe the end of August and September.
- Hoxton Mignon Peach; moderately large, roundish fruit: ripe the end of August and in September.
- Double Montagne Peach; large, fine fruit: ripe in September.
- The above being the principal varieties of Peaches, the most generally known and cultivated in the British gardens and nurseries, there are some other of less note, retained in some collections, distinguished by the following names.
- Vanguard Peach; ripe in September.
- Cambray Peach.
- Narbonne Peach.
- Eaton Peach.
- Yellow Admirable Peach.
- Carlisle Peach.

4. *AMYGDALUS Nuci-Perfica*, (Nuci-Perfica) or Nectarine Tree.

A moderate tree, growing ten or twelve feet high; the leaves (*long, narrow*) spear-shaped, acute at both ends, generally sawed, wholly similar to those of the peach, and with also solitary and sessile flowers; succeeded by large, roundish fruit, smooth rinded and firm fleshed: ripening in August and September.—Native of Asia.

This tree, and its fruit, is by the botanists supposed to be accidental varieties of the peach, as the tree discovers no specific distinction from that of the peach-tree, either in its growth, leaves, or flowers, though a very obvious difference in the fruit, which in the peach is always more or less downy-rinded, with a soft pulp, and the Nectarine a smooth, firm rind, and firm flesh: however, some have asserted that they have seen Nectarines produced naturally and accidentally on a peach-tree, and on the same twig along with the peaches; but as we never have had the opportunity of observing this singularity, cannot either pretend to confute or inculcate the belief of it; though, as there is such an apparent difference in the fruit, have

arranged them separate accordingly, consisting of the following varieties.

Varieties of the Nectarine. Fairchild's Early Nectarine; smallish, round fruit, beautifully red: ripe the beginning of August.

Elrue Nectarine; middle size, fine fruit, deep-red towards the sun, the other side yellowish: ripe the beginning or middle of August.

Newington Nectarine; large, beautiful fruit, beautifully red next the sun, the other side yellow: ripe the end of August and in September.

Red Roman Nectarine; large, fine, round fruit, mostly of a deep-red, a little yellowish on the side next the wall: ripe the end of August and early part of September.

Scarlet Nectarine; a moderately large good fruit, mostly of a fine scarlet colour towards the sun, gradually paler on the other side: ripe the beginning of September.

Murry-coloured Nectarine; a middle size fruit, of a dingy-reddish colour towards the sun, yellowish-green on the other side: ripe the beginning and middle of September.

Temple Nectarine; a moderate size fine-eating fruit, of a delicate red towards the sun, yellowish-green next the wall: ripe towards the end of September.

Brugnon Italian Nectarine; a fine, large, beautiful fruit, of a deep-red towards the sun, inclining to a yellow colour on the other side: ripe the end of August, or beginning or middle of September.

Violet Nectarine; a handsome, fine fruit, of a delicate violet colour: ripe in September.

Late Peterborough Nectarine; a moderate size fruit, of a pale-greenish colour on the outward side, the other whitish green: ripe in October.

White Brompton Nectarine; a middle size fine fruit, wholly white: ripe the end of August and in September.

Golden Nectarine; a largish, beautiful fruit, of a delicate reddish colour on the outward side, the other of a bright-yellow, and yellow pulp: ripe towards the middle of September.

Having thus far given the description of the species and varieties of the Almond, Peach, and Nectarine Trees, with that of their respective varieties of fruit, all which, both species and varieties, agreeing in their

Generic characters, conformable to the sexual botanic system, the modern Botanists consider them so nearly allied, that they range the whole in the same Genus or family, under the Generic name *Amygdalus*: we have accordingly followed the same order in their arrangement, distinguishing the varieties belonging to each species under its respective head; and as the trees are nearly similar in growth and mode of bearing, there is but little difference in their general culture; are generally all propagated by budding the desirable varieties of the respective sorts, principally upon plum-tree stocks, to render the trees more hardy and durable, and sometimes also, particular sorts are inoculated upon Peach, Almond, and Apricot stocks; and the Common Almond is also raised from the stones of the fruit.

Though it may be proper to observe that all the different varieties of Peaches, Nectarines, &c. were originally obtained from seed or the nuts or stones of the fruit sowed in the spring, and the young trees transplanted in nursery rows, till they advance to a proper age for bearing; and then those as produce fruit of good properties are propagated by inoculating buds thereof, in July or August, into proper stocks, generally one bud into the side of each; and in spring following, the head of the stock being cut off near the insertion of the bud, this pushes forth one strong shoot, two or three feet long, the first summer, and forms the new tree, acquiring a bearing state, in two, three, or four years, and produces fruit always constantly the same as that of the parent trees, from which the buds were obtained; which shews the great utility of propagation by budding; for the trees raised from seed never come of the same varieties, or produce fruit like the original, but vary to other different sorts, and probably, in many so raised, some may produce fruit of desirable properties, as above intimated; and that, to increase or multiply these new varieties, it can be effected by no other method than by budding aforesaid, and thereby always continued permanent in their respective kinds.

The trees of the Common Almond, Peaches, and Nectarines, are mostly of similar growth and mode of bearing, all producing their fruit principally upon the young shoots of a year old, and sometimes upon small spurs on the two or three years wood: they all make long, straight shoots annually, for succession-bearing wood each following year, as the same shoots do not generally bear but once, except upon casual small spurs, as above remarked, but always produce the principal supplies of fruit upon the year-old shoots; the blossoms coming out early in the spring, rise immediately from the eyes or buds of the shoots along the sides of them, and the same shoots both produce fruit, and a sufficient supply of young wood, for bearing, each succeeding year, particularly the Peach and Nectarine, which, being commonly trained in wall trees, require

an annual pruning every summer and winter, to cut out the superfluous or over-abundant, ill-placed, and useless shoots, to preserve the regularity, &c. of the trees; and in performing which, great care is required to retain a general supply of the regular-placed, proper shoots, of each year, to train in for bearing the ensuing summer; and at the same time, in the winter-pruning, particularly, part of the former year's bearers, and naked old branches, are cut out to make room for the successional supply of young bearers, which in summer are generally laid in at their whole length, but commonly shortened in the winter-pruning, to encourage or promote their producing more effectually an eligible succession of young shoots, for future bearers, the year following; and trained in close to the wall all summer, in proper abundance, to chuse from in the winter-pruning aforesaid; when cutting out the super-abundant and ill-placed, leaving a general supply of the best moderately strong shoots, in all parts of the tree, to train in about four, five, or six inches asunder, and then nailed to the wall horizontally at that distance, to remain for bearing the following summer's fruit: and thus these trees, of Peaches and Nectarines, are managed every year in the article of pruning, as hereafter more fully explained.

These trees in general, both Almonds, Peaches, and Nectarines, in all their varieties, blossom or flower early in the spring, from about the middle or latter end of February, and beginning of March, to April: the Almond, in its different varieties, is the earliest in flower, which, in all the above trees, arise principally on the young shoots, as before observed, generally twin on the Almond, though numerous on each shoot; and on the Peach and Nectarine are produced by pairs and singly; each flower furnished with the generative organs of stamina, style, and germen, in the centre; the latter roundish, becomes the fruit, oval and roundish in the different species and varieties, and which in the Almond and Peach has always a downy, soft rind, and in the Nectarine smooth, shining, and firm: in the Almond, the flesh of the fruit is dry, tough, and not eatable, only in the kernel contained in the stone; but in the Peach and Nectarine, the flesh is succulent, rich, and the only eatable part; soft and melting in the Peach, and in the Nectarine, is of a more firm texture, juicy, and rich-flavoured.

In the different species of the Almond, Peach, and Nectarine, the former has not equal merit as a fruit-tree as the two latter, the fruit being considerably less valuable, and only some varieties thereof ripen in good perfection in our gardens; particularly the Common Almond, which seldom ripens its kernel before autumn, generally about September, when the leathery cover opens naturally and discharges the stone, containing the kernel or eatable part, which in the two varieties of the Common Almond aforesaid, comprising the bitter and sweet kernelled kinds, often tri-

pen abundantly upon common standard trees; though the trees are more generally cultivated for their ornamental flowering than as fruit trees; and the Jordan Almond, and the other varieties, seldom produce fruit in this country in good perfection, so are admitted principally for variety in pleasurable plantations; but in the Peach and Nectarine, all the sorts are valuable in their fruit, which, on wall-trees, against southern walls, ripen in full maturity; and some of the varieties of the trees in standards, are also introduced in shrubberies, &c. for ornament.

The fruit, in the different varieties of Peaches and Nectarines, attaining perfection of full growth, from July or beginning of August, to the latter end of October, they ripen in regular succession for three months, for immediate eating; or, at least, will not keep any considerable time after being gathered, like apples and pears, but are continued, occasionally, in a preserved preparation; and in their young, green state, the Nectarines, in particular, when produced thick on the trees, are thinned off for making tarts, &c. generally in May or early in June, before the nut or stone hardens; but the Peaches, on account of their downy rind, are not so well adapted for that occasion.

In the ripe state of these fruit, Peaches and Nectarines, some are remarkable for quitting or parting freely from the stone, and others for adhering close thereto; but in the Nectarines particularly, the greater part adhere close, and some having a melting pulp, separate from the stone freely in eating; and in which particularities, those which quit the stone, have generally a more soft and melting, fleshy pulp than those as closely adhere.

The *Amygdalus communis*, or Common Almond, may be cultivated both as a fruit-tree, in its two varieties of the bitter and sweet-kernelled kinds, and for the beauty of its ornamental bloom, early in the spring, in March, or April; and for both of which occasions are generally trained in half and full standards: raised both from the stones of the fruit, and by budding upon Plum, Almond, or Peach stocks, especially for fruit-trees; and trained with clean, straight stems, four or five, to six or seven feet high, branching out at top into full heads; and are then planted in gardens and orchards to produce fruit; also in pleasure-grounds, shrubberies, fore-courts, &c. as ornamental flowering-trees, making a fine appearance in the spring, in their numerous reddish flowers: they are likewise trained, occasionally in wall-trees and espaliers, to produce fruit in greater perfection; and in all which methods, they, in favourable springs, produce plenty of Almonds, ripening the kernels in autumn, very good for present eating: but as to the Jordan Almond, tender than the Common, requires a warm situation, or planted against a south wall, if designed as a fruit-tree, though seldom produces fruit plentifully, or in good perfection, in this country; and therefore this, and the

silver-leaved kind, are commonly planted for ornament and variety, in shrubberies, &c.

And the Dwarf Almond (*Amygdalus nana*) both in its single and double-flowered varieties, being very ornamental flowering-plants, of low, shrubby growth, producing numerous pale-red flowers, furrrounding the shoots their whole length, early in the spring, (March and April) make a conspicuously pretty appearance: are commonly admitted in shrubbery collections as most beautiful flowering-shrubs; planted towards the front of the clumps and other compartments, and propagates abundantly by suckers and layers.

But the Peach and Nectarine being valuable, principally as choice fruit-trees, for the many fine varieties of their respective fruits, and being of the more tender kinds of fruit-trees, at least in their blossom and young fruit, require to be trained in the wall-tree order, against warm south walls, or others of a southerly aspect, as south-east and south-west exposures; but the principal supply allotted full south walls, for, without the assistance of warm walls, both to defend the tender, early blossom and young fruit, in March and April, &c. as well as by the expansion of the branches against the walls to have all possible benefit of the full sun, in the advanced growth of the fruit, it will not acquire good maturity, nor ripen effectually, in the peculiar perfection and rich flavour; and therefore the trees of all the different varieties of these two desirable species should always be trained principally in dwarf and half-standard wall-trees, planted against the best southerly walls aforesaid, at twelve to fifteen or eighteen feet distance, and the branches arranged horizontally close to the wall, in the most regular order, that they may have the best protection thereof, when blossoming and setting their young, tender fruit, and to enjoy all possible benefit of the sun's influence to forward its general growth, and ripening freely in proper season; as in this country these fruit do not ripen effectually well on detached-standard trees, nor in good perfection in espaliers; though, for variety and experiment, some dwarf-trees may be planted in both those methods, in a warm, sheltered situation.

For ornamental planting in shrubberies, and other decorative compartments in pleasure-grounds, may introduce all the sorts of Almonds and any varieties of Peaches, principally as beautiful, spring flowering-trees, and to encrease the variety in their general growth; particularly the Common Almond, in its two principal hardy varieties of the bitter and sweet-kernelled kinds; or also the Jordan Almond, white-flowered and silver-leaved sorts, admitted in warm situations; likewise the two varieties of *Amygdalus nana* or Dwarf Almond, both very ornamental flowering-shrubs; together with the double-flowered and Dwarf Peach; all of which are very desirable ornaments for the shrubbery, in their great profusion of early blossom in the spring; and for

which occasions are trained the tree kinds in full and half standards, to branch out in full heads in their natural order; and the dwarf sorts, naturally of low, shrubby growth, should be trained accordingly, and the whole disposed conspicuously in the principal shrubbery compartments in assemblage, with other ornamental trees and shrubs, in a diversified manner.

Having thus far, in the foregoing general observations, given intimations of the nature and general and particular utility of the species and varieties of the Almond, Peach and Nectarine, we now proceed to explain the general culture of each under separate heads.

1. The Culture of the Almonds.

The Almond trees, as before remarked, are cultivated both occasionally for fruit-bearing, in the principal varieties of *Amygdalus communis* or Common Almond; and these, and the other varieties thereof, also principally for ornamental planting; and for which latter purpose the two varieties of the *Amygdalus nana*, have also particular merit as very pretty flowering-shrubs, to assemble in the front part of principal shrubbery compartments; likewise the Common Almond is generally, in greater estimation to cultivate for the beauty of its flowers than the value of its fruit; as are also the white-flowered, Jordan and silvery-leaved; though the three latter are seldom very fruitful in the British gardens.

All the varieties of the Common Almond are propagated or raised by budding them either on Plum stocks, obtained from suckers, seed, or layers, or on seedling stocks of Almond or Peaches; or the common varieties of Bitter and Sweet Almond may be raised from the stones of the fruit; but when desirous to continue the improved or particular sorts permanent in their respective kinds or for fruit-trees, it is effected most eligibly by budding them as above, as the seedling-raised trees vary to different or inferior sorts, and are longer before they bear than those propagated by budding or inoculation; and therefore, to continue any principal sorts for their fruit, always propagate them by inoculating buds thereof into Plum, Almond, or Peach stocks, as above mentioned, and the respective kinds will be continued, and sooner become bearers than those raised from seed.

However, to raise them from the stones, they may be sowed either in October or November, or preserved in sand till February or March, for sowing in that season; and in either of which they may be sowed in drills, or bedded in two inches deep; and when the seedling plants are of one or two years old, should be transplanted, in autumn or spring, into nursery rows, two or three feet distance, and trained each with a single stem, three or four feet for half, and five to six or seven feet for full standards, clearing their stems from lateral shoots; and then may either inoculate them at

the above-mentioned heights, with buds of the desirable varieties; or others, that may be intended to continue in their own natural heads, should be topped in the spring with the pruning knife, at the heights it is required they shall branch out; thereby promote a more regular spread of branches to form a full head; the same should also be observed in the budded trees, by pruning down the first shoots to a few eyes, to obtain lateral branches, to form a regular head as aforesaid: and when they have effected this, with heads of one, two, three, or several years old, they are proper to transplant where they are designed to remain for the purposes for which they may be intended; continuing to keep them to clean single stems, and permit the heads to branch out freely in a full expansion, keeping them to somewhat regular order; especially in their advancing young growth, by giving occasional pruning to retrench or reduce any singularly rampant and rambling disorderly shoots, or to thin others, where considerably crowded; but, except in these occasions, permit the whole to advance in their natural manner.

But in the propagation of the Almond trees, budding is the most advisable, general method, both whereby to continue the desirable or improved varieties with certainty, and to have them sooner acquire a plentiful flowering and bearing state; and which is performed by inoculating buds of the desired or intended sorts, into Plum, Almond, or Peach stocks raised from the stones of the fruit, as directed, for raising the seedling Almond trees; and the young stocks being transplanted in nursery rows, train them to clean stems the proper height for half and full standards; and then perform the budding in July or beginning of August, inserting a bud into the side of each stock, at three, four, to five or six feet high, for half and full standards: or may occasionally be budded low, within a foot or six inches of the bottom, to form dwarf trees, or also, occasionally for standards, and the first bud-shoot run up to form a stem the height above-mentioned; and, in either method, the head of the stock to remain entire till March following, and the inserted bud remaining dormant till that time, when should top, head, or cut down the stock, a little above the insertion of the bud; which after this, will push forth with vigour, producing each one strong shoot, two or three feet long, or more, the same year; and this should generally, either the same summer, in June, or in the following spring, in March, be pruned down to four or five eyes, to obtain a supply of lateral shoots below, near the stem, to form the first proper set of branches for the regular formation of the head; or in low budded trees, which are designed for standards, the main shoot must run a proper height for a stem, then should be headed in the part where it is intended to have the first set of branches commence; and thus, in each method, having obtained three, four, or five, lateral shoots below, for the beginning branches, these form a proper basis, as

were, to furnish others eligibly situated to form the head in a regular expansion.

Or where it may be intended to have any of the above Almonds trained for wall and espalier fruit trees, for variety, or to obtain earlier and finer fruit, they should be budded lower in the stocks, within six or eight inches of the bottom, and the first main shoot from the inserted bud be headed down in March, to a few eyes, as advised above, in order to gain a supply of lateral shoots from those lower eyes, to form a first regular set of branches, proceeding from near the ground; and that these may also furnish an encreased supply of others, so as to cover the wall or espalier in a proper expansion, regularly from the bottom upward; and for which allot them an exposure to the full sun, planted in autumn or spring, twelve to fifteen or eighteen feet distance; training the general branches from the beginning in a spreading, fanned order, horizontally to the wall, &c. four to five or six inches asunder; and continue to encrease the number of branches every year, giving an annual pruning to cut out the super-abundant and ill-placed shoots, and to retain a proper supply of each year's best well-placed shoots for bearers; cutting out part of the old in winter, to make room for training in the bearing shoots, generally extended at their full length all summer; and in winter-pruning, those selected for bearers, &c. may be shortened about one third, or a little more, or less, according to their strength; not however to cut below the blossom buds, and generally leave the strong shoots longest, the others in proportion; observing in the whole, nearly the same as directed for the Peaches and Nectarines.

The Dwarf Almond, in both the varieties thereof, single and double-flowered, propagate plentifully by suckers, arising annually from the roots, which may be readily taken up with root fibres to each, in autumn or spring, or any time in open weather, from October or November to March, and planted either in a nursery, for a year or two, or till of a proper size for the shrubbery; or some of stronger growth may be planted at once where they are to remain.

Or these two varieties may also be propagated by budding upon Plum, Almond, or Peach stocks, to have them of larger growth, inserting the buds at two or three to four or five feet, to form clean stems, elevating the head that height, to plant for particular occasions.

2d. The Practical Culture of the Peach and Nectarine.

Having, in the foregoing, given the description of the different species and varieties of the Peach and Nectarine, and relative observations thereon, we now come to give the particulars of the practical culture of both the sorts, which being very desirable fruit, the

trees of each claim admittance as principal wall trees; and for which they are propagated and raised by inoculating or budding the approved kinds and the varieties in general, principally upon Plum stocks; and when the young trees are of from one, two, or three, to four or five years growth, these are proper for planting against walls, where they are to remain, performing the planting in autumn or spring, or almost any time in mild weather, from October or November, to the middle or end of March: they will begin bearing at two or three years old, and in their advancing and general growth, require an annual pruning, and nailing every summer and winter; all of which different operations of culture, to be performed according to the following general directions.

As the Peach and Nectarine are similar in their general growth, and manner of bearing, one method of propagation and culture being applicable to both, shall accordingly include them in the following general directions, consisting of the method of propagations, raising, training, planting, pruning, &c. and in each of which the same directions serve for all the different varieties of both these species of trees.

All the varieties of Peaches and Nectarines being of the choicest kinds of stone fruit, of rich, delicious flavour, deserve principal culture in every garden, more or less, where there is the accommodation of proper south walls or good close palings, of proper height.

For the trees of all the varieties of Peaches and Nectarines should always be trained as wall-trees, principally against south walls, on account that as they flower early in the spring, when sharp cold weather often prevail, and that the blossom and young fruit being of tender nature, require the assistance of the warmest walls, to protect and forward them in proper growth; and having the branches arranged close to the wall, in a thin, spreading order, to admit the full power of the sun to ripen the fruit effectually, in good maturity, in their peculiar rich flavour, as without the trees being trained in that order, to walls of a south or southerly aspect, these fruit cannot be obtained in tolerable crops, nor in any desirable degree of perfection, in the proper seasons, and therefore should allot south walls for the trees of the principal varieties; and others may be planted against south-east and south-west walls, in which they will also, in fine seasons, ripen fruit tolerably well, and in succession to those in full south exposures; and in which different aspects they are planted twelve or fifteen to eighteen feet asunder.

They are seldom trained in detached standard-trees, as on which, not having the advantage of walls, the fruit does not ripen in good perfection; though, for variety, a few might be trained in dwarf and half standards, and planted in a warm situation in the full sun.

But for wall trees, they are trained both in common dwarf trees, with low or short stems, only six or eight inches high, to branch out low, to cover the wall regularly, from the bottom to the top, and are the common wall-trees for the general supply; and in half standard wall-trees, with stems three or four, to five or six feet high, branching out at these heights, and are planted occasionally, between the common dwarf wall-trees abovementioned, to cover the upper parts of high walls, while the others are advancing below.

These trees will grow freely in borders of any good, rich garden earth, of two spades, or, at least, one full spade, deep; or where the ground is poor, it should be improved with plenty of rotten dung; or would be of much benefit if augmented also with a quantity of fresh, loamy soil; or where the borders are naturally of that kind of earth, it will be of particular advantage, enriching it also occasionally with a supply of good, rotten dung, as above observed.

Young trees for planting may be obtained, of the different varieties, or as required, at all the public nursery-grounds, either of one or two years old, for training by degrees in the requisite form; or may be procured in ready-trained trees of two, three, to four or five years old, or more, with a large expansion of regular branches, and of a proper growth for immediate bearing; and thereby have the walls either wholly, or in part, furnished at once with bearing trees that may produce fruit the first season; and in which the planter can suit his convenience or inclination, as there is some considerable difference in the prices between those of the quite young trees of only one or two years old, and those as are trained of several years growth.

Or the different varieties may be easily propagated, raised, and trained to a bearing state, according to the following directions.

The general method of propagating Peach and Nectarine trees, is by budding the different or desirable varieties, principally upon Plum stocks; or some of the more curious or particular sorts, are also inoculated occasionally on Almond and Peach stocks, raised from the stones; but for the principal supply, the Plum stock is adviseable, as the most hardy, durable, and making the most prosperous trees; raising the said stocks from the stones of the fruit, sowed in autumn or spring, in drills, or bedded in two inches deep; and when the seedling plants are a year old, they should be transplanted in nursery rows, or may also be raised by suckers arising from Plum-tree roots: though as the Muscle-Plum stock, in particular, is generally preferred, as the most favourable and prosperous for Peaches, &c. that to obtain those with certainty of the particular kind, they are raised by layers, cuttings, suckers, as if raised from seed, (stones of the fruit) they vary to

other sorts of a different quality; and in either method of raising the stocks, they, when from two, or three, to four, five, or six feet high, and of half an inch to an inch thick below, are of proper size for budding, keeping them pruned up from lateral shoots; and of which sizes, they are budded low or near the ground, for common dwarf wall-trees; and at three, four, to five or six feet, for half and full standard wall trees, to plant between the common or dwarf trees, especially where high walls, and desirous to have all parts thereof covered as expeditiously as possible.

The operation of budding them is performed in July, and beginning to the middle of August; observing, as above hinted, those for common wall-trees must be budded low, inserting the bud within six or eight inches of the ground, whereby to obtain branches proceeding near the bottom, to cover the wall therewith, in a regular expansion, from the bottom to the top; and for half or full standard wall-trees, to plant between the dwarfs, in high walls: the budding is performed either on tall stocks, at three or four feet for half, and five or six feet for tall standards, and each to be trained with a fanned, spreading head, or for these two latter, they may be budded low in the stock, and the first shoot from the bud trained up for a stem, to the above-mentioned height.

Observing, for this occasion of budding, to provide cuttings of the young shoots of the year, from trees of the sorts intended, chusing the moderately-strong shoots, cutting them off nearly at full length, and from which shoots, after cutting off the leaves all to about half an inch of the petiole or foot-stalk of each, the buds are to be detached one at a time, and inserted into the side of the stock, at the height from the ground above-mentioned, for common and half standard wall-trees; the head of the stocks continued entire, till the spring following, and the inserted buds uniting with the stocks, the same year, but remaining dormant till next spring aforesaid; at which time, generally in March, just before the buds begin to push, cut down the head of the stocks, a little above and behind the place of insertion of the bud, which will then, soon after, advance in one strong shoot, attaining two feet or a yard in length, or more, by the end of the ensuing summer, forming the new tree of the respective kind with which it was budded; and which, in the autumn, or spring following, may either be transplanted into the garden, against the proper walls to remain, or planted against any fence in the nursery, or where convenient for training, one, two, or three years, or more, in a proper expansion, in the wall-tree manner, to a bearing state, and then transplanted finally into the garden aforesaid, against south walls, at twelve or fifteen to eighteen feet distance; and being thus previously trained, will commence immediate bearers the ensuing season.

But generally observe, in respect to the first requisite training, that as the first proper shoot, produced immediately from the budding, commonly runs up into a stem, naked below, it must be headed down when a year old, in the spring, after its first summer's growth, to force out a regular supply of lower branches from the beginning; therefore, generally about March, just as the young trees begin to make an effort for shooting, cutting them down to about five, six, or eight eyes, in a sloping cut upward, next the wall; and will then soon after produce several lateral shoots, from the remaining lower eyes, to give the head its beginning formation, arranging the said shoots horizontally to the wall, equally to the right and left, in a regular expansion, as before observed; or, in order to form the head, as above, as expeditiously as possible, the first principal shoot advancing immediately from the bud, might be pinched or pruned to a few eyes, the same summer it is produced, about the beginning or middle of June, and it will furnish laterals the same season for training to the wall, &c. and thereby gain a year's growth in furnishing the first set of branches.

Observe likewise, that in either of the above methods, in heading down the first leading shoot, and obtaining a supply of lateral shoots below, these, either the same year, early in June, or in the following spring, should also be pruned short, to about six, eight, ten, or twelve inches, according to their strength, to obtain a further supply of lower branches from the beginning, that they may form a regular full spreading head, advancing immediately from or near the bottom, to furnish the wall regularly upward; and of which new-acquired shoots, rub off or cut away all the fore-right productions, and others that are ill-placed, and train in all the rest to the wall, at their full length, all summer; or may occasionally pinch particular shoots, in May or June, in vacant parts, to provide a requisite supply of wood the same season: and thus continue the management of the young trees, the first two or three years; for in this depends the whole success in giving them the proper formation for wall-trees, covering the walls completely from bottom to top, in a regular expansion of branches; and, as they will produce numerous shoots in summer, these must be regulated, by pruning out the ill-placed and useless, and the others trained to the wall at their whole length, all that season till winter-pruning, when the best of which being selected for bearers, cutting out the superabundancy, the retained shoots must generally then be shortened more or less, as hereafter explained.

Thus far relating to the methods of raising and first training, shall proceed to give some necessary intimations for planting and general culture.

For the planting of Peach and Nectarine trees, allotting principal south walls, &c. having proper borders under them, three, four, or five, to eight or ten feet wide, and two feet depth of good earth, which, if of a

loamy nature, will be of the greater advantage; but if the soil is unfavourable, or of a very light, unsubstantial kind, it should be improved with a supply of fresh surface loam, from a common or pasture-ground, or where convenient, either immediately applied, or after being prepared with a portion of rotten dung, for several months, in a compost heap, or in default of loam, have any good mellow earth and rotten dung; and which improvements may either be added wholly, or only for the present, to the parts where the trees are to be planted; or where the borders or places intended for the trees, is gravel, rubbishy, very stony, or shallow, of proper staple, the bad or shallow soil should be removed, or rough-screened, and a proper depth, and the place supplied with substantial good earth and rotten dung, as above.

Though it may also be proper to remark, that those trees will thrive sufficiently well in borders, consisting of any common, mellow, garden earth, as that of a kitchen garden, &c. or, if rather poor, may be augmented with rotten dung, or that, and some good loam, added either fully, or to the places where the trees are to stand, three or four feet width.

The season for planting is either in autumn, about the decay of the leaves, in October and November, or in the spring, in February and March; though may be performed any time in open, mild weather, from October or November till March aforesaid; however, if performed soon after the leaves begin to decay in autumn, it will be of advantage, as they will almost immediately strike root the same season, and be more effectually rooted before the drought of next spring and summer.

The trees for planting, as before remarked, may either be of one or two years old heads, or such as are of three, four, or five years training, furnished with some considerable expansion of branches, and advanced to a proper growth, for immediate bearers, either wholly of that state, or part, and thereby have the walls covered at once with bearing trees; and is of importance to have a collection, more or less, of the principal varieties, both of early, middle, and late kinds, to have a regular succession of the fruit: ripening from July, or beginning of August, to the end of October, all of which, or any of the varieties, if not furnished with home-raised trees, may be obtained at the nurseries, either in young or trained growth, as shall be required, agreeable to former intimations, being careful to chuse those of good growth, with moderately-strong shoots: and have them digged up with a full spread of roots, as intire as possible.

Then mark out the places for the trees, allotting the principal supply the best south walls, both of Peaches and Nectarines, not less than twelve or fifteen, nor more than eighteen feet distance; some may also be planted against south-easterly, and west walls, at the same

same distances; and for all of which, dig a wide, round hole for each tree, a foot, or more, deep, and sufficiently capacious to receive the roots freely in their full spread.

The trees then ready, let the roots be pruned as required, by cutting or shortening any long straggling parts; prune the end of all the others, and cut out any that are broken or bruised; and as to the head, if one-year-old trees, continue them intire for the present; or if trained trees, cut off only any fore-right and other ill-placed shoots; and thus prepared, proceed to planting: place the trees one in each hole, with the stem about three, to four or five inches from the wall, inclining the head thereto, making the roots spread equally in the hole; break and trim in the earth regularly over the roots; shake the tree gently by the stem up and down, that the earth may fall in close about all the roots and fibres, filling up the holes, and tread down the earth moderately, first towards the outside, continuing to the middle, round the stem of the tree; and then, if dry ground, in early autumn planting, or late in the spring, give each tree a tolerable watering to the earth, about the roots; after this, just nail the head or principal branches to the wall, to secure them being disturbed by the winds, till pruned; likewise, mulch the ground over the roots, both to keep out frost in winter, and the drought in spring and summer, till the trees have taken good root; and in very dry weather, in spring, and beginning of summer, give occasional waterings to the earth, and sometimes over the heads, after they begin to shoot.

Having thus planted the young trees of the Peaches and Nectarines, the next care is the article of pruning and training; observing first, that if the new-planted trees are only one year old, and with the first head from the budding intire, this must be cut down in the beginning or middle of March, to four, five, or six eyes, as formerly advised, to obtain lateral shoots below; or if the trees are such as have been previously trained, and the head already furnished with some tolerable expansion of branches and shoots, these being continued, should be pruned according to the general method, either soon after planting, or in the spring, about February or March, agreeable to former intimations, and as fully explained hereafter, under the pruning directions, cutting out the fore-right, and other ill-placed, and very weak, trifling shoots, and such as are superfluous, or too abundant, in any part; as also, any as casually appear singularly more luxuriant than the generality, especially if one, or more, advances irregularly on one side of the tree; retaining the well-placed moderately-strong shoots; and prune them from six or eight, to ten, twelve, or fifteen inches, according to their strength, and then nailed to the wall horizontally, four to five, or six inches distance; and respecting the younger trees of one year, advised above to be headed down in the spring; if they, in consequence of that operation, produced

several lower shoots in summer, these should be trained in at full length, rubbing off, or displacing, any of fore-right growth; or if only two or three shoots are produced, these, the same season, in May, or the beginning of June, may be pinched or pruned at top, or cut to five or six eyes, whereby they will furnish an increased supply of more shoots in summer, to furnish the wall sooner with a proper spread of branches; continuing all the proper shoots, both of the young and trained trees, nailed in regularly to the wall all summer, till winter-pruning; and the whole afterwards, in the summer and winter regulation, managed according to the following directions in the general pruning.

With regard to general culture of Peaches and Nectarine trees, after their first training, agreeable to the foregoing observations, they, in their advanced growth, and full trained state, will require pruning and nailing every summer and winter, to preserve regularity and fruitfulness; a summer-pruning, &c. to regulate the shoots of the year; and a winter-pruning, to give a general regulation, both in the young and old branches; and in all of which it must be observed, that as these trees bear principally upon the young wood, or shoots of the preceding summer's production, a general supply of these must be every where retained annually, for successional bearers and part of the former bearers and old wood cut out in proportion, in winter, to make room for the young supply; which being trained at their full length all summer, they, in the winter-pruning, should be shortened more or less, to promote their producing a more plentiful succession of shoots, eligibly situated to select for next year's bearing wood; as the same shoots both produce fruit, and a supply of succession bearers at the same time.

The summer-pruning of Peaches and Nectarines should be commenced in May or June, when the shoots of the year are advanced from three or four, to six or eight inches, to a foot long; though it is advisable to proceed in this operation in the early growth, or when the shoot-buds are advanced only two or three inches, in which, just to rub off the fore-right and other evidently ill-placed and unnecessary productions, which, before they become long and woody, may be expeditiously detached with the finger and thumb; but which, in a more advanced woody state, must be effected with the pruning-knife; so displacing all fore-right shoots issuing immediately from the front part of the branches, and all others, which by their situation cannot be trained with proper regularity to the wall; and is of much importance to commence this operation before the shoots are considerably advanced, or grown into confusion, as the business can be considerably, more expeditiously and accurately performed, as well as prove of more particular advantage to the growth and regularity of the trees, and beneficial to the advancing

vancing fruit; but when the work is delayed too long, till the trees are run into great disorder in the shoots of the year, is both very unsightly, and of great disadvantage; more particularly to the fruit in its advancing growth, as well as cause considerable perplexity in making the necessary regulation.

Therefore, after proceeding in the early regulation in displacing the useless shoot-buds, begin the general operation in the more advanced growth of the shoots in June at farthest, taking off any remaining fore-rights, and others ill-placed; and carefully selecting a large supply of all the best regular-placed side-shoots, and a leading one to each branch, for succession bearers next summer, displace the superfluous or such as are evidently over-abundant, or more than can be trained in with proper regularity; and where two advance from the same eye, leave but one, taking off the most unpromising: likewise cut out close any that assume a bad habit of growth, bunched, crooked, very weak, or of a long, slender infirm, state; as also any very rank, or singularly luxuriant shoots, appearing considerably more vigorous than the generality, not being adapted for bearing, but which would draw the nourishment from the others of more moderate growth, proper for the production of fruit the year ensuing: though where any tree casually assumes a general luxuriant, unfruitful state, cut out the most unfavourable, and retain as many of the best-placed, strong shoots thereof as can be conveniently trained in with some tolerable regularity, in order to divide and carry off the exuberancy of sap amongst a great number, more effectually than would be the case in a smaller quantity, and thereby have the trees sooner reduced to a moderate state of growth for good bearing; and then, according to the above observations, displacing or pruning out all fore-right, other useless and unnecessary shoots, taking them off quite close, leaving plentifully of the proper moderately-strong shoots, as before advised, both of the side production and leaders to the branches in all parts of the tree; the whole preserved at their full length at this season, and nailed in close and regular to the wall, all summer, in an abundant supply to chuse from in the winter-pruning to retain for next year's bearing wood; not shortening any of the shoots during their summer growth, except in any casual, vacant parts; may occasionally pinch off the top, or prune down any contiguous young shoot in May or June, to furnish laterals the same year to supply the deficiency, or any extending considerably out of the proper bounds, either side-ways or over-topping the wall, may be discretionally shortened more or less, as may seem expedient; but, except in these cases, keep all the other shoots extended at their whole length all summer, as shortening at this season makes them throw out a great quantity of useless wood, hurtful to the said shoots in their present growth, and detrimental to their bearing the year following.

After the general summer regulation, in pruning out the useless and training in the useful supply of shoots, continue a proper attention during their summer's growth, by going over the trees once a week or fortnight, to keep them divested of all useless after-productions; and according as the retained general supply of select shoots encrease in length, or any casually detach from the wall, nail or train them in close and regular, both to preserve the requisite uniformity and beauty of the trees; and that, by continuing the whole closely trained in regular order, admits the full benefit of the air, sun, rain, &c. essentially necessary to improve the growth and goodness of the fruit, and to promote its ripening with a proper flavour.

The winter-pruning of the Peach and Nectarine Trees, comprises a general regulation both in the supply of young wood produced and trained in the preceding summer, and in the whole expansion of older branches, in pruning out the most unserviceable, to make room for the successional supply of young, bearing wood, and the whole new trained and nailed in regular order; in which operation keeping in mind, as observed in the summer-runing, that as the trees produce their fruit principally upon the young shoots of the preceding summer, and occasionally in the two years wood, upon small, natural spurs thereon; though the general supply is always produced upon the last year's shoots, and which seldom bear after, except sometimes on casual small spurs, asore said, the second and third year; and therefore a general supply of these young shoots of last summer must be annually preserved in all parts of the trees, now in the winter-pruning for bearing the ensuing season; and at the same time part of the former bearing wood, and naked old branches, not furnished with proper bearers, cut out, to give room for introducing the requisite supply of young, bearing shoots, about four or five to six inches distance, cutting out the super-abundancy; and all the retained shoots, or the greater part, to be shortened more or less in this pruning to promote a successional production of shoots from the lower eyes, which otherwise would mostly advance towards the upper parts, and the trees would thereby, in time, become naked below.

This general winter-pruning may be commenced soon after the fall of the leaf in autumn, or continued any time in open, mild weather, from November till the spring, and should be wholly finished in February or March.

In proceeding to this pruning, as it consists of a general regulation, it is proper to un-nail most of the principal branches and all the young wood, both that you may more conveniently examine and determine what to cut out and retain, have liberty for the operation of the knife, and, after pruning, to have the opportunity of new-training the trees accordingly; and generally,

generally, for this business, have a small, narrow-pointed pruning-knife, that it may be admitted readily between the small clefts or forkings of the branches, having a larger knife for cutting out large, stubborn wood.

Then proceeding to the operation, selecting a proper supply of the last summer's young shoots, for the following year's bearing wood, to retain in all parts of the tree, for laying in four to five or six inches distance; choosing the best, moderately-strong, well-placed shoots, situated principally on the upper and under side of the mother branches; and from which cut out the superabundance, with any fore-right, and others not well-placed for training with regularity; as also weak twigs and casual, rank luxuriant, cutting the whole close to the old wood; at the same time, to prune out a proportional part of the last year's and other former bearers, cut down either to the first most eligible young shoot situated thereon, or some quite out to their origin, as it may seem expedient, according to the supply of proper young wood in particular parts, and to make room for the requisite supply in general; likewise, for the same occasion, in old trees, cut out casual, old, naked branches, advanced of some considerable length, unfurnished with any eligible supply of young, bearing wood, or not supporting branches supplied therewith, cutting them down either to their origin or to some younger and more fruitful branch, where any is situated on the lower part thereof, and hereby making room for training contiguous branches supporting young wood for bearing; and, as you proceed, shorten the retained shoots, more or less, about one third, or small ones, half; and divert them of all lateral twigs, to have all the main shoots clear and single; observing if any particular, very luxuriant shoots occur, cut them out, or if, in or near vacant spaces, one or more of which may be retained and shortened, to produce laterals of more moderate growth to supply the deficiencies.

Observe in this pruning, that as the young wood, now proper to retain for bearers the ensuing season, is produced principally upon the bearers of last year, or on the two years branches, having probably two, three, or more shoots on each; and as it may now be necessary to retain on some branches but one, others two, or more, as the case may require, shall here endeavour to explain it as well as possible; in which examining what may be proper, and how many necessary to retain, or leave on the particular or different branches or former bearers, that if the uppermost shoot, and only one appears necessary to remain, cut away all those below on the said branch; or if the lowermost or middle shoot may seem most eligible to continue, cut down the upper part of the branch and shoots thereon, to the continuing shoot, cutting also away any shoot below this on the same branch; or if two or more shoots, on particular branches, appear requisite to be retained, either the lower and uppermost, or such as may appear most favourable for the purpose, prune out any intervening shoots, or others,

above or below; and if any part of the respective branches extends above the uppermost shoot proper to retain thereon, cut that part of the branch close to the said shoot, so as every branch may terminate in a good shoot for a leader; or any particular branches having but one shoot, there is no choice; this, if necessary, must be retained either situated naturally at the termination of the branch, or if in the lower part, prune down the branch to the said shoot, both for a terminal thereto and for bearing as the others; all which shorten more or less, as formerly advised; and where they have any lateral or side-twigs, these should be cut clean off to their origin.

Further observe, that as you proceed in the above pruning and retaining the proper shoots for bearing, as it is mostly advisable to shorten the said shoots, more or less, it should be performed as you go on; for, as before noticed, the shortening the shoots of these trees in winter-pruning is necessary, whereby to have them produce more effectually a supply of future bearing shoots from their lower parts, next spring and summer, which otherwise would rise mostly above, and leave the bottom naked; therefore, prune each shoot according to its strength, and that of the trees, leaving the strong shoots longest, the others in proportion, or generally pruning the stronger shoots about one third or fourth of their natural length; as for instance, a strong shoot of two feet may be cut to fifteen or eighteen inches, and in proportion to others of stronger growth; the more moderate or weak shoots, may be cut about one third, or near half their length; and generally observing, agreeable to those intimations, that in strong, healthy trees, to leave the shoots longer than in those of a more weakly state; and in all of which, commonly perform the cut sloping behind, and a little above a shoot-bud, to advance for a terminal leader.

Observing, however, in the operation of shortening, that where you prune principally for fruit, not to cut below all the blossom buds, easily distinguished by their round, turgid, or swelling appearance, and generally cut either to a shoot-bud, discoverable from the others, by being more oblong and thinner, sometimes placed distinct, or sometimes at the same eye with a blossom-bud, or prune to a twin blossom, or where two flower buds are at the same eye, and which often furnishes a shoot-bud between them for a leader; for it is essential that each bearer have a leading terminal shoot produced in summer, to draw nourishment to the fruit.

But where necessary to prune particular shoots, principally to furnish wood for supplying vacancies, they may be cut shorter than intimated in the above general directions, for the bearing shoots, and without paying any particular regard to the blossom buds; so, according to their strength, may be cut to six, eight, ten, or
 twelve

twelve inches, or some in particular parts; small shoots may be pruned to three or four eyes.

Or in trees assuming a luxuriant habit, having in general, or mostly, very strong, vigorous shoots, as sometimes occur in Peaches and Nectarines, running mostly to wood, without furnishing much fruit, they should be but very moderately shortened; some not more than about one fourth, others, more luxuriant, not shortened at all, or, but only topped a few inches down; for, in such vigorous trees, the more they are shortened, they will shoot with greater luxuriance, and never form good bearers; but by leaving the shoots thicker, or more abundant, and but very moderately shortened, the exuberancy of sap, or redundant nourishment, being thereby divided amongst a greater number and larger extent of branches, reduces them, by degrees, to a more moderate habit of growth, adapted for fruit bearing: then may be pruned agreeable to the general method.

Generally observe, in pruning the Peach and Nectarine Trees, to retain a sufficient supply of proper shoots in all parts, bottom, middle, and upper expansion, advancing, as it were, one under or after another, in the most regular order, and always keep the lower parts, and all vacant spaces, well supplied.

Likewise observe, that as these trees also sometimes bear upon small spurs on the two or three years wood, of from half an inch to an inch, or longer, they may generally be retained, where of a fruitful state, in being furnished with several blossom buds.

According as each tree is pruned, agreeable to the foregoing observations, it should be nailed directly; in which, arrange the general shoots and branches more or less horizontally, in proportion to the expansion of the head; and as the allotted space of walling, both side-ways and in height, admit, extending them equally to the right and left, at regular distances, one above another, beginning with the lower branches first, laying them in straight, so proceed with the others upwards, equally on both sides; or where any are irregular and crooked, they may be extended straight, by means of the nails, &c. in nailing, by bending the branch, less or more, up or down, as required, to have it in its regular position; for the branches should generally range in a straight, darting direction, as it were, and in a parallel manner, four, to five or six inches asunder, and nailed close to the wall; in which generally place the shreds neatly between the joints or eyes of the shoots, &c. with both ends meeting even, and nail them accordingly.

For nailing, these trees, as above, should be furnished with proper nails and shreds; the nails generally shortish and thick-pointed, that will occasionally drive into the bricks as well as in the joints between, and which may be obtained at all the iron-mongery shops,

at per thousand, &c. or cheaper by weight, where large quantities are required; or for nailing to palings, thinner-pointed nails may be eligible; and for shreds, have either broad-cloth listing, which generally bend down the middle, half an inch broad, or but little more, cut into lengths of two or three inches, for small and general nailing; longer for larger branches; or, in default of listing, any cuttings of cloth may be used, cut to the above breadth and length, the ends square or even: never have the shreds too long, for the ends to hang down loose, which has a slovenly appearance.

Having now finished the principal observations relating to the general culture of Peaches and Nectarines, shall conclude with some further remarks with regard to the management of the trees when flowering and fruiting, and some other essentials.

As Peach and Nectarine trees blossom early in the spring, when cutting, cold weather, and frosts, often prevail, that it is adviseable to give them occasional protection, by covering them with mats, &c. especially some principal trees of the choicer kinds; and which care is necessary principally about March or April, when the blossom expands, and while the young fruit is setting; when, in frosty or very cutting weather, either nail up some large mats against the trees every night, or continued, occasionally, of days, when sharp frost and no sun; but when sunny, or mild open weather, remove the covering; and thus continued, occasionally, till the fruit is set and out of danger; or, instead of mats, or not having a sufficiency for the covering intended, either use cuttings of ever-green trees and shrubs, as being furnished with the leaves, and stick them between the branches in a spreading manner, to cover the blossom, &c. as well as possible, and to remain constantly night and day, till the fruit is set, and advanced a little in size; or may use large, old fishing nets, nailed up before the trees, to continue constantly, as observed of the ever-green cuttings, both of which will break off part of the keen cutting effects of the frost; or may sometimes stick the trees with branches of dried fern, where attainable, as advised for the ever-greens aforesaid, which will also afford some protection to the blossom and young setting fruit; and all of which protections should generally be continued till the crop of fruit is set, and increased to the size of large peas, or middling green gooseberries, or nuts, and then, in the end of April, or beginning or middle of May, according to the season or advanced growth of the fruit, the coverings may be wholly discontinued and removed away.

In favourable, warm seasons, sometimes these trees set very abundant crops of fruit, and often too many, or close together on the respective shoots, as to require thinning; for if permitted to remain too abundantly, they would both prove greatly detrimental to the trees, so as to draw the whole nourishment, weaken and prevent

vent their making proper shoots for successional bearers, and the fruit would be impoverished, and, in their advanced close growth, thrust one another off the trees, or would not acquire proper size, or perfection of maturity; therefore this should be timeously attended to, while the fruit is in young growth, in May, or early in June, at farthest; when, examining the general branches, and where the fruit is crowdedly thick, thin off the most unpromising, leaving the others, four to five, or six inches asunder; or, according to the strength of the different trees, and that of the bearing shoots, in which leave the fruit thinner upon those of a weakly or moderate state, than others of a stronger, free growth.

The thinned-off young fruit of the Nectarines particularly, as being smooth-rinded, and more poignant tasted than the Peaches, may be used for tarts, especially before they begin to stone hard in the heart.

In the advancing state of the fruit, continue the trees always divested of the useless shoots of the year, and the others trained in close and regular to the wall, as advised in the summer-pruning, to admit the necessary benefit of the sun, air, rains, dews, &c. all very essential to forward and improve its growth, both in size, colour, and goodness; and when advanced towards maturity, be particularly careful to keep all the shoots closely trained, to give free access to the action, or power of the sun; or also, where the leaves are very thick, shading the fruit too considerably, some should be removed in a moderate, thinning manner, not to expose the fruit fully, or suddenly, at once, but to continue still a slight shade, where any was before; and by thus keeping the general shoots trained close, and thicket leaves thinned, that the beneficial influence of the sun is admitted, the fruit will ripen in all desirable perfection.

According as the fruit ripens in its respective season of the different varieties, it should be gathered while in best perfection, moderately mellow, when in full flavour, and before too soft, and the rich flavour evaporated; and during hot weather, it would be advisable to gather it in the early part of the day, before heated too much, and the flavour reduced by the power of the sun; and deposited in a cool, dry place, till served to table.

These trees being sometimes attacked by blights and insects, in summer, the former often attacking them suddenly, either general, or sometimes only particular branches, frequently in a severe degree, that the malady cannot be prevented, especially a dry blight, or blast; in others, it comes on more gradually; sometimes the leaves and young shoots become clammy, the former crumpled, and the latter bunched at the ends, &c. and neither these nor the fruit make any progress in growth; in which, as it is often occasioned

by the depredations of numerous small insects, may sometimes pull off the worst of the infected leaves, and cutting away the distempered part of the shoots; afterwards, may strew tobacco-dust, snuff, &c. over the general branches and leaves; and sometimes in dry, hot weather, water over the whole trees, with a garden engine pump, discharging the water with force against the branches, which repeated, will prove beneficial; also, water the borders plentifully out of a watering-pot, sufficient to reach the roots.

And as blights and insects are sometimes occasioned by a weakly habit of the trees, or some internal distemper in the branches, or root, it would be proper, when the trees assume a weakly, or diseased appearance, or attacked with the above-mentioned maladies, to dig the ground open about the roots, not to disturb them; and apply some fresh earth, or compost of loam and thoroughly-rotted dung, close about the extreme and general roots; give water, and close the earth over the roots a proper depth; or, in weakly, stunted, or distempered trees, may, in autumn, or spring, open the ground about the extreme roots; prune the ends thereof sloping on the under side, and cut out any decayed parts that appear, then add fresh earth, or compost, as above; the roots, where pruned, will emit fresh fibres into the renewed soil, which may prove beneficial in promoting a revived growth above in the head of branches.

To the borders in general, in which these trees are growing, should give occasional manure of dung, applied in autumn, winter, or spring, once in two years, or as convenient; and if good, rotten dung, it will be of greater advantage, digged in one spade deep; it will prove beneficial, both to the trees, in continuing them in a healthful, free growth, and promote the production of good fruit, large, and well flavoured.

To obtain the Fruit early by forcing.

Early Peaches and Nectarines, by forcing, are obtained, by having trees of the desirable varieties, planted in forcing stoves, and forwarded by artificial heat of fire, or sometimes assisted also by bark-bed heat; beginning the forcing about the end of January, or beginning, or middle of February, continuing it till May; and by which, ripe fruit are acquired in that month, or in June, &c.

For this occasion, proper glassy apartments are erected, ranged long ways, east and west, twenty, or thirty, to fifty feet long, or more, as may be required, ten, to twelve, or fifteen feet wide; a brick wall behind, on the north side, upright glass work in the ends and front, and sloping sashes above, and with flues within, ranged along the ends, front, and back wall; and having internal borders of rich earth ranged long ways, towards the back and front, in which

to plant the trees; or some forcing-houses have also an internal pit, nearly the whole length, five or six feet wide, or more, formed by a surrounding, thin, brick wall, raised two feet, or more, above the floor, or bottom space; to have the pit a yard deep, for a bark-bed.

The trees of Peaches and Nectarines, for planting in these apartments, should generally be such as have been trained in the open-ground, two, three, or four years, to a proper age and growth for immediate bearers; and which should be planted in autumn, about October, or beginning of November, in the borders within the forcing-house; and having a trellis of poles, or rails, close behind the trees, train the branches thereto, in the wall-tree manner; and have occasional pruning, as directed, for those in the full ground.

The forcing by fire-heat is commenced in the end of January, or beginning or middle of February; or also, make the bark-bed at the same time where intended, or that there is the accommodation of a pit for that purpose: the fires to be made moderately every evening, about sun-set, till nine, or ten o'clock; and also, in cold mornings, or supported all day in very cold weather; and the bark-bed, if any, continued constantly: admit air, in mild, sunny days, in the warmest time, by opening some of the glasses a few inches; and sometimes give moderate waterings to the borders, when the earth appears dry; as likewise occasionally to the branches of the trees, before and after they blossom, but never while they are in flower, and setting the fruit; continuing the fire heat, as before-mentioned, every night, and all cold weather, but more moderate, as the warm season advances, and only principally in the evenings, and cold mornings, &c. in warm, sunny days will not be required, but when cloudy, will be occasionally necessary; and thus support the fire-heat, in a regular, moderate degree, till beginning or middle of May, according to the temperature of the season; and the bark-bed, if any, will remain in a good heat, two or three months; being careful to encrease the admission of air every day, according to the advanced warm weather, by sliding open some of the glasses, more or less, about ten or eleven o'clock, when a warm sun, and always shutting close, towards the afternoon, or evening, to preserve the internal heat of a proper temperature.

The trees will thus blossom early, and set fruit in March or April, encrease in growth till May or June, &c. when attaining full size: will ripen, some probably in May, or the principal part in June and July.

When the fruit of these forced trees is all gathered, generally remove the glasses, to admit the full air, &c. to strengthen the trees and shoots of the year, and to harden the latter to a mature state, proper for producing fruit the following season.

ANDROMEDA, (ANDROMEDA) or Marsh Cistus.

Class and Order.

Decandria Monogynia.

Ten Males, One Female;

Or Plants with Hermaphrodite Flowers, furnished with ten Stamina, or Males, and one Pistillum, or Female Part.

The Andromedas are mostly low, bushy shrubs, some ever-green, others deciduous, adapted principally to assemble in shrubby compartments, for variety; grow from two or three, to four, five, or six feet high, producing slender branches, adorned with small, oval, oblong, and lance-shaped leaves, and with bunches and spikes, of small bell-shape, greenish flowers, consisting of a cup, five-parted, a monopetalous, bell-shape corolla, five-parted and reflexed, containing ten stamina, one style, and a roundish germen, succeeded, by pentangular capsules, furnished with roundish seeds, by which the plants are occasionally raised; also by suckers and layers.

Generic Characters are—Hermaphrodite flowers; the calyx one-leaved, coloured, cut into five parts, and permanent; corolla, or flower, one bell-shape petal, five-parted, the segments reflexed; stamina, ten, awl-shape filaments, shorter than the petal, and crowned with nodding, two-horned anthera; Pistillum, a round germen, long, cylindrical style, crowned with an obtuse stigma, and the germen becomes a pentagonal, quinquelocular capsule, filled with roundish seeds.

The Species are,

1. *ANDROMEDA mariana*, Maryland Broad-leaved Andromeda.

A small under-shrub, two feet high; the leaves (small) ovate, entire, and placed alternate; and the peduncles or flower-stalks aggregate; the corolla, or flower cylindrical.—Native of Maryland, in North America.

2. *ANDROMEDA paniculata*, Panicle flowering Andromeda.

A low shrub, three or four feet high; the leaves (small) oblong, crenulated, or fine-notched, and placed alternate; flower-spikes panicled, naked, the flowers ranged on one side; and the corolla or flower sub-cylindric.—Native of Virginia.

3. *ANDROMEDA calyculata*, Calyculated or Double-cupped, Box-leaved Andromeda.

A low, shrubby plant, two or three feet high; the leaves (small) oval, lance-shape obtuse, punctured, and placed alternate; and with leafy racemes of flowers, ranged on one side, the corolla sub-cylindric.—Native of Virginia, Canada, Siberia, and Ingria.

4. *ANDROMEDA Polifolia*, (Polifolia, or Mountain Poly-like) Rosemary-leaved Andromeda.

A small, shrubby plant; the leaves (*small*) spear-shape, reflexed, placed alternate; and peduncles or flower-stalks aggregate; the corolla, or flower, ovate.—Native of the northern, cold parts of Europe, *in bogs*.

5. *ANDROMEDA racemosa*, Racemus-flowered Andromeda.

A low, shrubby plant; the leaves (*small*) oblong, fawed, and placed alternate; and small racemus clusters of flowers, ranged on one side, bracteated, or floral-leaved, being small leaves between the flowers, the corolla, or flower gibbous-cylindric.—Grows naturally in Pennsylvania.

6. *ANDROMEDA arborea*, Arboraceous, or Tree Andromeda.

A largish, tree-like shrub, six or eight feet high, with slender, drooping branches; the leaves (*smallish*) oblong-ovate, acuminate, or pointed; and long racems of flowers ranged on one side, naked; the corolla roundish-ovate.—Native of Virginia, Carolina.

7. *ANDROMEDA Dabocci*, (Daboecii) or Cantabrian Heath, or Irish Andromeda.

Low, shrubby plant; the leaves (*small*) ovate-spear shape, downy underneath, placed alternate; and terminal long racems of flowers.—Native of Hibernia, on the mountains of Galloway, &c.

The above seven species, being those the most generally known and cultivated, there are some others which are less common or noted, shall just mention the names by which they are distinguished.

8. *ANDROMEDA myrtifolia*, Myrtle-leaved Andromeda,

9. *ANDROMEDA pilulifera*, Pill-bearing Andromeda.

Producing pill-shaped flowers.

10. *ANDROMEDA globulifera*, Globular, or globe-bearing Andromeda.

Producing globe-shape flowers.

11. *ANDROMEDA lucida*, Lucid or shining-leaved Andromeda.

12. *ANDROMEDA axillaris*, Axillary-flowering Andromeda.

Flowers produced at the axillas, or angles, of the branches.

Most of these species of Andromeda, are small, shrubby plants; the tree Andromeda is considerably large; but of the others, the greater part are creeping-rooted plants, sending up several suckers; and in all the species the branches are closely garnished with their small leaves; the flowers are also small, greenish, growing in spikes and clusters, at the sides and ends of the branches; appearing principally in June and July; the plants are mostly hardy, to grow in any common soil and situation, though, are most successful in moist ground, as they are naturally inhabitants of such situations: but the *Andromeda arborea*, a native of warmer countries than the others, is rather more tender, and should generally have a warmer situation, and sometimes be sheltered from severe frosts; or of which sort may also be kept a plant or two, in pots, to place under shelter in winter.

All the sorts may be employed, to diversify the shrubby compartments, mostly towards the front part, in assemblage with other low, shrubby kinds, of similar growth; they are all cultivated in the nurseries, for sale, where they may be obtained for planting; which perform in autumn or spring; and are propagated by suckers from the roots, layers of the young branches, and by seed; all generally in the spring.

To propagate or raise these shrubs, may sow the seed in the spring, in a bed of lightish, moist earth, half an inch deep; and when the plants are one or two years old, transplant them into a nursery, &c. or by suckers from the root, most of the sorts may be more expeditiously raised, and which may be transplanted in autumn or spring, with roots to each, either into a nursery, or at once where they are to remain; and may also be raised by layers of the lower, young branches, in the spring, &c. aforesaid.

In shrubberies, &c. they may be planted in autumn or spring, or any time in mild weather, from October to March or April, and in which they do not require any particular culture, only to detach encreased suckers occasionally, and to prune any straggling shoots, &c. of the heads.

ANNONA, PAPAWE TREE, (or Custard Apple)

Class and Order.

Polyandria Polygynia,
Many Males, Many Females;

Or Plants having Hermaphrodite Flowers, which are furnished each with many Stamina, or Males, and many Pistillums, or Females.

THE ANNONA furnishes two hardy species of deciduous trees, of moderate growth.—Natives of America, curious, and desirable to introduce in shrubberies, and other similar pleasurable plantations: grow
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ten to fifteen, or twenty feet high; ornamented with large, spear-shaped leaves and bunches of largish flowers, dark coloured, of six petals, alternately large and small, containing many minute stamina and stigmas; and succeeded by large, oblong, or ovalish, soft, yellow fruit, having many oval seeds; but the fruit and seeds seldom ripen in this country, being obtained mostly from America, and by which the trees are raised.

Generic Characters.—Hermaphrodite flowers; the calyx three concave, pointed leaves.—Corolla, or flower, six petals, alternately larger and smaller.—Stamina, many very small filaments, crowned with anthera.—Pistillum, an oval germen at the bottom, no styles, but many stigmas; and the germen becomes a large, oval or oblong, scaly-rinded fruit, of one cell, furnished with many smooth, oval, or roundish seeds.

The hardy Species are,

1. *ANNONA triloba*, Three-lobed or Trifid-fruited Annona, or Common Papaw.

A small tree, ten to fifteen or sixteen feet high; the leaves (middling-large) spear-shaped, and trifid fruit, somewhat pear-shaped inverted.—Native of Carolina.

2. *ANNONA glabra*, Smooth-fruited Annona.

A larger tree; the leaves (*largish, broad*) spear-shaped, ovate; large, conical, smooth fruit.—Native of Carolina.

Both these species of *Annona* are in estimation as ornamental trees to adorn shrubberies, &c. in assemblage with other deciduous kinds; are moderately hardy after the first two or three years of their young growth, and may then be planted in any warm, dry situation.

These trees merit admittance in all curious shrubbery plantations of the deciduous tribe, in which they will effect a very conspicuous variety and ornamental appearance: may be had at most of the nurseries, and planted in autumn or spring.

They are propagated by seeds, which are commonly obtained from America, and should be sowed in the spring in a bed of light earth, some in pots, to have shelter in winter; or if the pots are placed in a hot-bed, the plants will come up sooner; and which, when of one summers growth, may be planted, part in pots, to have shelter of a frame in winter, the first two or three years, others planted in a warm situation in the spring; and when the whole is advanced two or three feet, or more, in growth, may be transplanted into the shrubbery, &c. where they are to remain.

Their after-culture in the shrubbery, &c. is only to give occasional pruning when required, to regulate any disorderly growth, or to cut out decayed wood, &c.

ARALIA, ANGELICA TREE, (Berry-bearing Angelica.)

Class and Order.

Pentandria Pentagynia,
Five Males, Five Females;

Or Plants producing Hermaphrodite Flowers, having each five Stamina, or Male, and five Pistillums, or Females.

THIS Genus furnishes but one species for this place, principally of the large, shrubby, deciduous tribe; a plant of curious singularity to admit in shrubbery compartments, for ornament and variety; is of hardy growth, rising with an upright stem six or eight feet, adorned with large, singular, compound, winged leaves; and considerable umbellate bunches of small, greenish, quinquepetalous flowers; succeeded by oblong-roundish berries, containing each five seeds; seldom ripening in England, &c. but generally obtained from America, by which to raise the plants.

Generic Characters.—Hermaphrodite flowers, growing in umbellate bunches, each composed of many florets; each umbel having a small involucre, or general calyx underneath.—Corolla, or flower, the florets formed each of five small, oval, reflexed petals; five awl-shaped stamina, terminated by roundish anthera; a pistillum, consisting of a roundish germen under the cup, supporting five short styles, crowned each with a single stigma; and the germen becomes a roundish, channelled-berry, five-celled, each cell furnished with an oblong, hard seed.

The Species is,

ARALIA spinosa, Spinous or Thorny Angelica Tree.

A largish, shrubby plant, growing six or eight feet high; having a tree-like, thorny stem; and large, compound, branching, spinous leaves, of many oblong lobes; and produce large umbels of greenish flowers.—Native of Virginia.

This is a curious, shrubby plant in its general growth, large, compound, branching leaves, and considerable loose umbels of flowers at the ends of the branches; and deserves a place in every principal collection of ornamental shrubs and trees: is cultivated for sale at all the nurseries, and may be planted in autumn or spring, in some most conspicuous compartments in a dry soil.

It is propagated by seeds, and occasionally by cuttings of the root.

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The seeds are mostly obtained from North America, by the principal seedsmen, arriving generally in the spring. When in March, or April, sow them in a bed or pot of light earth, placing them in a shady situation, to have only the morning sun all summer, and under shelter of a warm wall, or garden frame, in winter; or if exposed in the full air, cover them, in frosty weather; or if the pots are plunged in a hot-bed in the spring, the plants will come up sooner in a free growth: give water in summer, and defend them in winter from the rigours of frost, one or two years; then, in the spring, when a year or two old, transplant them, some into pots singly, others into the nursery, and in both of which may continue till they acquire proper strength and size, of two, three, or four feet; and may then be finally transplanted into shrubberies, &c. to remain.

Or to propagate them occasionally by roots, these generally spreading horizontally, take off some cuttings in the spring, five or six inches long, plant them in pots, and, placed in hot-beds, they will grow and produce shoots above.

The culture of this species in advanced growth, in the shrubbery, &c. is principally to prune to order any irregular productions of shoots, &c. and, as sometimes, in rigorous winters, the frost kills the extreme or upper succulent parts of the shoots, cut off the dead parts, and the stems and branches of more hardy and woody growth below will shoot out again in spring and summer.

ARBUTUS, STRAWBERRY TREE.

Class and Order.

Decandria Monogynia,
Ten Males, One Female;

Or Hermaphrodite Flowers, containing ten Stamina, or Males, and one Pistil, or Female, within the same Cover.

THE ARBUTUS consist of several species and varieties, moderate tree, and small shrubby kinds, all of the ever-green tribe; very beautiful, both as principal, ornamental ever-greens, and most elegant flowering-trees and shrubs, as well as singularly ornamental in their production of Strawberry-like fruit; are adorned at all seasons, with oblong and oval leaves, and numerous pendulous clusters of small, monopetalous, pitcher-shaped, white flowers in autumn, succeeded by large, ovate, and oblong red berries, ripening in the following autumn and winter; furnished with many small seeds, by which the trees are propagated by sowing them in the spring; also by layers of the young shoots.

Generic Characters.—Hermaphrodite flowers, in small, pendulous clusters;—the calyx small, five-parted.—Corolla, or flower, monopetalous, or of one pitcher-shape petal, five-parted and reflexed at the brim; ten short stamina, crowned with bifid anthera.—A pistillum, consisting of a globular germen at the bottom of the flower, having a cylindric style terminated by an obtuse stigma; and the germen grows a roundish berry of five cells, filled with small, hard seeds.

The Species are,

1. ARBUTUS *Unedo*, (*Unedo*) or Common Strawberry Tree.

A moderate tree, or large shrub, growing eight, ten, or twelve feet high.—A tree-like stem; the leaves (middling size) ovate, smooth, serrated or sawed, and large red berries, having many seeds.—Native of the southern parts of Europe, the East, and of Ireland.

Varieties of this.—Common Arbutus, with single flowers.

Double-flowered Common Arbutus.
Scarlet-flowered Common Arbutus.
Waved-leaved Common Arbutus.
Oval-fruited Common Arbutus.
Round Berried.
Yellow Berried.
None of these berries are eatable.

2. ARBUTUS *Andrachne*, (*Andrachne*) or Eastern Broad-leaved Arbutus.

A moderate tree, growing ten to twelve, or fifteen feet high, or more: the stem tree-like, branching irregular; leaves (largish) ovate, smooth, intire; and large, red berries, having many seeds.—Native of the East—in the Levant.

3. ARBUTUS *Uva-ursi*, (*Uva-ursi*) Bear-berry, or Dwarf Arbutus.

A low, trailing, shrubby plant; the stems slender, branchy, and procumbent; leaves (*small*) ovate, and intire; and small, red berries.—Native of the cold parts of Europe, Canada, &c.

4. ARBUTUS *alpina*, Alpine, or Mountain, trailing Arbutus.

A small, trailing, shrubby plant; the stems slender and procumbent; leaves (*small*) oblong, roughish, and sawed; and small berries, black when ripe.—Native of the mountains in Lapland, Switzerland, Siberia, England, &c.

Of

Of the above four species of *Arbutus*, the first two are of the small and moderate tree kind, growing with an upright stem, and branchy head; and the Common *Arbutus* particularly, has generally red shoots: are both very beautiful ever-greens, and singularly ornamental in their numerous clusters of flowers, in autumn, about September, October, and November, succeeded by the fruit in the same season; but do not attain perfection till autumn following, requiring a whole year to grow to maturity: so that the trees, in autumn, being in full flower, and furnished with young and ripe fruit, all at the same time, make a remarkably fine appearance, and the greatest ornaments of the season; and the different varieties of the Common *Arbutus* display an entertaining diversity, especially the Double and Scarlet-flowered kinds, more particularly the latter; and all of which, both of the species and varieties, are most desirable furniture to introduce in principal shrubberies, in assemblage with other tree and shrub kinds, placing them conspicuously, or some disposed singly, upon lawns and other grass-plats; generally allotting them a sheltered, warm situation.

The other two species are dwarfish, trailing, shrubby plants, sometimes admitted in collections to increase the variety; placing them towards the front of small compartments, in moist situations; or, as in the places of their natural growth, they generally inhabit boggy, or moist, mossy ground, if they could be allotted somewhat similar soils in gardens, or in pots placed in such situations, the plants may prove more prosperous and durable. They are propagated by sowing the seed, and by layers and cuttings of the trailing branches; though they are plants rather reluctant to culture.

However, for ornamental purposes in pleasure-grounds, the Common and Eastern *Arbutus* have particular merit; the former of which is the most prevailing, and generally cultivated, as producing more plenty of ripe berries and seed, wherewith to raise the plants in greater abundance than the other sort: both the species are somewhat tender in their young growth, but sufficiently hardy, in their more advanced state, to succeed in the open ground in any common soil, in a sheltered situation, or in any principal compartments where they may enjoy the sun in winter, and if where somewhat defended from the northerly blasts, it will be the greater advantage.

These desirable, ornamental trees are cultivated abundantly in all the principal nurseries, more particularly the Common *Arbutus*, and where they may be obtained for planting, either in young or more advanced growth, from two or three, to five or six feet.

The best season for planting the *Arbutus* is, principally, either in autumn, about the middle or latter end

of September, if rain has fallen abundantly, or in October and November; otherwise in the spring, in mild weather, from February or March to the beginning or middle of April; and, where convenient, to remove or transplant them, with balls of earth to their roots, that they may not receive much check by removal, will be of beneficial advantage; and, in either case, give water at planting; especially if early in autumn, or advanced part of the spring season.

The *Arbutus* is propagated principally by seed contained in the berries, which, ripening in autumn, gather in dry weather, and sowed, some at that season, in a bed or pots of light earth; or the berries may be preserved in dry sand till February or March, then sowed; previously bruising the berries to separate the seed, which then sow, some either in beds, half an inch deep, or wholly, or part, in pots of light earth; and if in spring the pots are placed in a hot-bed it will forward the germination of the seed, and the growth of the young plants, which give frequent waterings, and plenty of free air; or removed fully therein at the approach of summer, to where they may be shaded from the mid-day sun; and in autumn, or spring following, transplant them, singly, in small pots, in order to move under shelter of a frame, the first two or three winters; giving, however, the full air all that season, in mild weather, and only defended with glasses or mats, &c. in severe frost; and when the seedling plants are two or three feet high, should be transplanted with balls of earth into the open ground; and when of two or three to four or five feet, are proper for the shrubbery. &c.

Or they may be raised by sowing in the open ground, in the spring, planting some of the young plants in pots as above, to have occasional protection in severe weather in winter, for a year or two.

The Eastern *Arbutus* is propagated also by the same method as above; but, as the berries do not ripen so plentifully in this country, they are obtained from the Levant, where the trees grow naturally in great abundance.

Both these species and the varieties are also propagated, occasionally, by layers of the lower young wood, in autumn or spring, and sometimes by cuttings, but is often two years before they make any progress; and the cuttings seldom root freely; or the latter may be forwarded in a hot-bed in the spring: but generally observe, the different varieties of the Common *Arbutus* must be propagated either by layers or cuttings, or more certainly by budding or inarching them upon seedling stocks of that species, as they will not come the same in their distinct properties when raised from seed.

ARISTOLOCHIA, BIRTHWORT.

Class and Order.

Gynandria Hexandria,

Male and Female joined, Six Males, or Stamina;

Or Plants with Hermaphrodite Flowers, having the Stamina, or Males, growing either upon the Style, or Female, or both Male and Female upon a Style-Form Receptacle, and having six Stamina, or Males.

FOR this division, the Aristolochia furnishes a low, under-shrubby plant for the shrubbery, &c. adorned with spear-shaped, hearted leaves, and irregular flowers, singly; succeeded by oblong capsules, furnished with seed.

Generic Characters.—Hermaphrodite flowers, no calyx or cup; corolla, or flower, irregular, gibbous, or swelling at the base, cylindrical-tubulous upward, spreading at the brim, extended in the under part, tongue-form: six stamina, or rather only anthera, placed on the style under the stigma. Pistillum, an oblong, angular germen, under the flower, supporting a globular, six-parted stigma; and the germen grows a large, trivalved, unilocular capsule, different formed, filled with numerous small seeds.

The Species is,

ARISTOLOCHIA *arborescens*, Tree or Shrub Birthwort.

A small under-shrub, two or three feet high; the stems and branches shrubbyish, erect; leaves hearted-spear-shape, and dark-purplish flowers, singly at the axillas of the leaves.—Native of North America.

This small, shrubby plant, is proper to admit in shrubberies towards the front part; but being somewhat tender, should have a warm, sheltered situation, or, occasionally, protected in severe frosts; or some may also be kept in pots, to move under shelter in winter: it may be propagated by seeds sowed in the spring, in a bed or pots of light earth: give shelter in winter; and when the plants are one or two years old, transplant them in nursery beds or pots, till of proper size for final transplanting.

ARTEMISIA, (Mugwort) WORMWOOD, &c.

Class and Order.

Syngenesia Pclygamia Superflua,
Conjoined Males, Many Marriages, Superfluous Females;
 Or compound Flowers, composed of Hermaphrodite and Female Florets; the Stamina, or Males, joined together at top; and Female Florets superfluous or unnecessary.

OF the Artemisia family, are two hardy species, of shrubby and under-shrubby plants, of the ever-green

and deciduous tribes, valuable principally for ornament and variety in shrubby compartments; growing upright, three to four or five feet high; adorned with compound, multifid, and finely-divided leaves; and the branches terminated by spikes and heads of small, greenish, compound flowers, of many small florets within one general cup, each floret succeeded by a naked seed.

General Characters.—Compound flowers, of many small florets, in one general calyx: the calyx roundish scaly, and round scales. Compound flower, composed of female florets on the border or radius, furnished each with a small, germen, slender stylus, crowned with a bifid stigma; and hermaphrodite, tubulous florets in the disk, or middle, five-parted at the brim, having each a small germen, stile and stigma, as the females, and five stamina crowned by cylindric anthera, five-dented; and in all the florets the germen becomes a naked, single seed.

The Species are,

1. ARTEMISIA *Abinthium arborescens*, Tree Wormwood.

Ever-green shrub, four to five or six feet high; the stem shrubby, upright; leaves compound, (*small, hoary*) multifid, or divided into many linear segments; and small, sub-globular, greenish flowers.—Native of Italy and the East.

2. ARTEMISIA *Abrotanum*, (Abrotanum) or Southernwood.

A deciduous under-shrub, three feet high; the stems and branches shrubby, upright; the leaves branching, finely-divided into numerous, brittle segments; and terminal spikes of small, greenish flowers.—Native of Styria, Cappadocia, Italy, Montpellier, &c. on hills.

Varieties of this.—Common narrow-leaved Southernwood.

Broad-leaved Southernwood.

Dwarf Southernwood.

Broad-leaved, Scentless, Southernwood.

Hoary narrow-leaved Southernwood.

Both the above species of *Artemisia*, and the respective varieties, being shrubby plants of moderate and small growth, are adapted for the shrubbery, to diversify clumps and other compartments; the first as an ever-green, effecting a conspicuous variety in its hoary, compound-leaves, at all seasons of the year; the second as a deciduous under-shrub, esteemed for its fragrant scent; and is proper to introduce towards the front of shrubby-clumps, &c. and to adorn flower borders, or to plant in pots occasionally; and of which two species, the ever-green sort, or Tree Wormwood,

wood, being somewhat tender, should generally have a defended, warm situation; but the Southernwoods may be planted any where, as they grow freely in any soil and situation: are all easily propagated by cuttings or slips of the branches, and the Southernwood also by suckers; training the whole generally with a single stem below, and branchy, bushy heads above; and as the Southernwood particularly, sends up numerous bottom suckers, these should be occasionally detached in winter or spring, to preserve the plants single, to grow with more regular, full heads; and the slipped-off suckers, if wanted, are proper for planting, and each will immediately form a new plant.

These shrubs are raised in all the nurseries, for public supply; and of the Southernwood particularly, the setting gardeners, in the vicinity of London, raise amazing quantities, trained with bushy heads, for the supply of the markets of that city, and the hawkers, to sell about the streets, and environs of the metropolis, for furnishing their small gardens, courts, balconies, &c. as they will grow any where.

The season for planting these shrubs is any of the spring months, till May, and in autumn, from September to November; or the Southernwood, as it readily removes with a ball of earth, may be transplanted at almost any season, occasionally.

The propagation, or method of raising these two species, is by cuttings, slips, layers, suckers, according to the following direction.

The tree Wormwood is propagated either by cuttings or slips of the young shoots and branches, in spring or summer, till July, detaching them six or eight inches long; clear off the under leaves, and plant them in a shady border; give water, and they soon strike root the same season; or may also be propagated by layers of the young branches in spring, which will be well rooted, for planting off, in autumn following; and when, in either method, they are two, three, or four feet high, are proper for the shrubbery, &c. or may likewise plant some in pots, to remove under shelter in winter, when frosts prevail.

And the Southernwood propagates abundantly both by suckers advancing from the bottom, and by cuttings and slips of the shoots and branches: the suckers may be detached in any of the spring or autumn months; either slip them off from old plants, or large plants, considerably increased in many suckers, may be taken up and slipped, or divided into separate sets, each furnished with roots, planted in any beds, or borders, a foot apart, or larger suckers, planted at once where they are to continue; and by slips or cuttings of the branches, may be performed in March, April, and May; the shoots slipped, or cut off, six or eight, to ten or twelve inches, planted in a shady

border, or any beds of common earth, in rows, six to twelve inches asunder, well watered; and they will all soon emit roots, and grow freely: generally train the whole with a short, single stem below, and with regular full heads, either permitted to run, or the long top shoots cut down occasionally, to keep the heads bushy; and when, from one to two, or three feet high, may be transplanted into shrubberies, flower-borders, &c.

The principal culture of both the above species, after final planting, is chiefly to prune casual, irregular growths; or to cut rambling shoots on the sides, or above, as may seem necessary, and where the Southernwood increase considerably in bottom suckers, they should be slipped off more or less, to preserve the main plants in regular growth.

ASH TREE (FRAXINUS.)

In the Botanic System, the Ashes belong to the
Class and Order

Polygamia Dioecia,
Many Marriages, Two Habitations;

*Or Male, Female, and Hermaphrodite Flowers, on two
separate Trees.*

THE ASHES, comprising several species and varieties, are all of the tree kind, growing from twenty or thirty to fifty or sixty feet high, or more; some of which are of considerable valuable, as forest or timber trees, both in their large standard growth, and in underwood, for coppices, &c. and of which the Common Ash is superior, for its loftiest stature and greatest magnitude in the body: its timber abundantly useful in many employments, and most eligible to assemble largely in forest-tree plantations; and the others are proper to introduce in smaller supplies, and for variety: are all of the deciduous tribe, or such as defoliate, or shed their leaves in winter; the leaves all of the compound, pinnated kind, composed of from three, four, to five pair of small folioles, or leaflets, terminated by an odd or end foliole; and small, greenish flowers, collected into spiked bunches, mostly apetalous, (without petals, or flower leaves) and succeeded by bunches of compressed, lanceolate pericarpiums, or seed-vessels, called Ash-keys: ripe about October; especially in the Common Ash in this country; proper for sowing the same season, or the following spring, for raising supplies of young trees of the sorts required.

The Species of FRAXINUS are,

1. *FRAXINUS excelsior*, Loftiest, or Common Ash Tree.

A lofty-growing large tree, sixty or seventy feet high; the leaves pinnated or winged, mostly of cle-
F. ven

ven leaflets sawed; and the flowers without petals.—Native of England and other parts of Europe, &c. in hedges and woods.

Varieties of this.—Silver-striped-leaved Common Ash.

Gold-striped-leaved Common Ash.

2. *FRAXINUS americana*, American Intire-leaved Ash.

A tree of middling growth, thirty or forty feet high; the leaves pinnated, of seven or nine folioles or leaflets intire, and the petiole or foot-stalk round.—Native of Carolina and Virginia, in North America.

Varieties of this.—Black American Ash.

White American Ash.

3. *FRAXINUS Ornus*, (Ornus) or Flowering-Ash.

A small tree, fifteen or twenty feet high; leaves pinnated, of three or four pair of leaflets sawed, and the flowers furnished with a corolla, or petals.—Native of the southern parts of Europe and of America.

Varieties of this.—Dwarf, Flowering-Ash.

Panicled Flowering-Ash.

Round-folioled Flowering-Ash, or Mana-Ash of Calabria.

All these species and varieties of Ash are hardy, deciduous trees, that will succeed in any common soil and situation; are valuable to cultivate or plant, some for useful and others for ornamental plantations, and variety, in assemblage with other hardy trees and shrubs; of which the Common Ash surpasses all the rest in its straight, swift procerier growth, with a trunk or stem of considerable substance; proper to rank as a first rate forest, or timber-tree: the next in growth and value, is the American Ash, which may also arrange in the forest-tree collection, in a moderate proportion; and the *Ornus*, or flowering Ashes, with the different varieties thereof, and those of the other species, are admitted principally in large decorative, or pleasurable tree plantations and shrubberies; or may also, for the same occasion, introduce the Ashes in general, especially in any considerable outward plantations, in pleasure-grounds, parks, boundaries of capacious lawns, and in any out-grounds, in extensive premises, to increase the variety in a diversified manner.

But the Common Ash in particular, considered as a principal forest-tree, deserves general culture in all plantations of that kind, for its superior growth and great usefulness of its timber, &c. in various material occasions, and for which it is valuable to cultivate both in woods, &c. in large standard trees, for timber, and in coppices for underwood; and may also be planted in hedge-rows of fields, for the same purpose

as the trees will prosper in any common soil, and in any situation where convenient, not subject to standing water; and in which plantations the standards will advance in a swift, straight growth, for timber trees, and the underwood will run up expeditiously for poles, and other occasions, to fell in a thinning order, while in young growth, of from ten to fifteen or twenty feet high, leaving plenty of the most promising to run up for large standards.

The different species and varieties of Ashes are raised in all the nurseries, for public supply of common plantations; but where considerable plantations are intended to form woods and coppices, for timber and underwood, it would be much saving to raise them in home nurseries, on the estate where such plantations are designed to be formed.

The season for planting Ashes is any time after the fall of the leaves, in October or November, or during the winter months, in open weather, or to compleat the whole in spring.

The Ashes are propagated, or raised from seed, and the varieties are continued permanent by raising them by layers, grafting and budding, &c.

The seed may be sowed in autumn, about October, November, or December, or in the spring, in February and March, on beds of light earth, either in drills, six inches, or a foot asunder, or on the surface, and earthed over one or two inches thick, they will come up in the spring; and when the young trees are of two years growth, should be transplanted from the seed-beds, in autumn or spring, and placed in nursery rows, two feet, or two and a half asunder; kept clear from weeds, by hoeing in summer, and by digging between the rows in winter, or spring; and according as they advance in growth, prune up strong side-shoots of the stem, preserving the main top-shoot intire, to aspire in height; and thus, when the young trees are advanced from three, four, five, or six, to eight or ten feet high, they are of proper size for final transplanting in the different plantations intended.

To raise the varieties by layers, have some young trees cut down to the bottom to produce lower shoots, near the earth convenient for laying, which may be performed in autumn or spring, and will be rooted in one summer for planting off in autumn, into nursery rows, as advised for the seedling trees, to acquire a proper growth for final transplantation.

The Flowering-Ash, or any particular variety, may be propagated by innoculating buds thereof into stocks of the Common Ash, or any other species of the same family.

When the trees, raised by either of the above methods, are three or four, to six, eight, or ten feet high,

high, they are of eligible growth for final transplanting, or occasionally, young trees of twelve or fifteen feet, or more, may be transplanted; though, when planted younger, they sooner root more effectually, and advance in a more free growth; and for timber plantations particularly, if planted where they are to remain, when from about three or four, to five or six feet, they will root freely, and establish themselves more effectually, to make handsomer large trees, in the end, than those planted of larger growth: however, for this occasion, should never be more than eight or ten feet high for any general plantation.

To plant Ashes for timber and underwood, they may be planted both in assemblage with other deciduous forest-trees, as maples, birches, &c. and some in distinct plantations, wholly of the Ash kind; and in both of which, when designed to plant in close rows, to allow for thinning in advanced growth, or to remain close, for coppices, to fall every six, seven, eight, or ten years for small wood, it would be of advantage, if the ground, where practicable, could be prepared, by ploughing, &c. but where intending to plant at wide distances, to continue wholly for large standards, may only dig apertures for the trees: the close planting for the above occasions, may be in rows, from three or four, to five or six feet asunder, by the same distances in the rows; or for wider planting, to continue in full growth, they may be from ten to twelve, or fifteen feet asunder, or at greater distances, in particular places, as may be thought convenient.

Or sometimes plantations of Ashes are raised by sowing the seed in the places where the trees are always to stand, both separately and sometimes with those of other forest-trees; either sowed in shallow drills, drawn by a plough, &c. three or four, to five or six feet distance, or sometimes broad-cast, and ploughed in a moderate depth; and when the young trees come up, some may be thinned out, where too thick, and planted in other places, if wanted.

The young plantations, in either methods, should be defended with outward fences, as ditches, hedges, &c. from the depredations of cattle.

In the advancing young growth of the trees, keep them clear from large over-topping weeds; and in those designed for continuing standards, prune away lower lateral shoots from the stem, that they may run up clean and straight, and occasionally lop low straggling branches of the head, continuing the main-top leader, and other general top-branches, in full growth; and the plantations of close planting, designed for thinning by degrees, for poles and other slight purposes, or those allotted for coppices, they, when advanced in growth, should be thinned accordingly, selecting a sufficiency of the finest, straight plants, at moderate distances, to run for standards, cutting down the

others; the stools remaining will shoot out again, and will thus afford a cutting once in seven, eight or ten years, or according to their increased growth, or the purposes for which they may be intended; the standards also being left at small distances at first, these, in advanced growth, may likewise be thinned for particular occasions, leaving enough, at from ten to fifteen or twenty feet, to advance to full size for large timber.

ATRIPLEX, (ORACH) SEA PURSLANE TREE.

Class and Order.

Polygamia Monoecia,
Many Marriages, One Habitation;

Or Flowers of different Sexes, as Females and Hermaphrodites, separate, on the same Plant.

THE *Atriplex* furnishes two hardy ever-green shrubs, curious in their whitish-green leaves, to assemble in the shrubbery; are plants of moderate and smaller growth, in the different species, adorned with delta-form and ovate, silvery leaves, and apetalous flowers, succeeded each by one roundish, orbicular seed; but which is seldom used in propagating the plants, they being generally raised by cuttings, &c.

Generic Characters.—Female and hermaphrodite flowers, separate on the same plant; calyx, in the hermaphrodites, five-leaved; the leaves oval, concave, and permanent, no corolla or petals; five awl-shape stamina, crowned with double anthera, an orbicular, central germen, short two-parted style, terminated by reflexed stigma; a two-leaved calyx in the female flower; no petals nor stamina, but a germen and style, &c. and in each the germen becomes an orbicular seed, lodged in the calyx.

The Species are,

1. *ATRIPLEX Halimus*—(Halimus) or Broad-leaved shrubby *Atriplex*, called Sea-Purslane Tree.

Ever-green shrub, growing five or six feet high, or more; the stem shrubby, branches spreading; leaves (*moderate small*) delta-shape, silver-coloured.—Native of Spain, Portugal, and Virginia, in hedges, &c. near the sea. (*Any common soil.*)

2. *ATRIPLEX Portulacoides*—(Portulacoides) Purslane-leaved *Atriplex*, or narrow-leaved Sea-Purslane Shrub.

Ever-green under-shrub, three or four feet high; the stem shrubby, head bushy; leaves (*small, narrow*) obovate, whitish-green.—Native of England and other northern parts of Europe, by the sea-side. (*Any soil.*)

These two shrubby ever-greens are eligible to introduce in the pleasure-ground, for ornament and variety,

riety, in assemblage with other ever-green shrubs, and occasionally deciduous kinds, in clumps and other shrubby compartments; in which they will display a very conspicuous and agreeable variety and diversity, in their white, silvery-coloured leaves; generally allotting them some principal districts: are both of hardy growth, to succeed in any situation, and in moist soils of a moderately dry temperature.

They may be obtained at most of the nurseries, of a proper size for planting, which may be performed in the spring or autumn.

Both the sorts are propagated by cuttings of the young shoots, in spring and summer: planted in a shady border, and frequently watered in dry weather, they will root freely the same season, to admit of transplanting in autumn or spring following, either in nursery rows, to acquire a proper growth for the shrubbery; or some, of larger growth, may be transplanted at once into the places where they are to remain.

As to general culture, may only give occasional pruning, to reduce to order any irregular branches, and to cut out dead wood when any occurs, and in common with other shrubs kept clean from weeds in summer; and the ground digged in autumn, winter, or spring.

AZALEA, AMERICAN HONEYSUCKLE.

Class and Order.

Pentandria Monogynia,
Five Males, One Female;

Or Plants having Hermaphrodite Flowers, furnished each with five Stamina, or Males, and one Pistillum, or Female Part.

THE *Azaleas* are deciduous flowering shrubs, producing very ornamental flowers; desirable plants to assemble in principal shrubberies, borders, &c. in the pleasure-ground: are of moderate and middling shrubby growth, advancing mostly with several stems, four or five, to six or eight feet high; adorned in summer with lanceolate and ovate simple leaves; and at the extremity and axillas of the branches, clusters of white and red, long tubulous, fragrant flowers, five-parted at top; having five internal stamina and one pistil, succeeded by roundish capsules, filled with roundish seeds, by which (obtained from America, where the plants grow naturally) they may be raised; but in default of which, are propagated by suckers and layers.

General Characters.—Hermaphrodite flowers; the calyx small, five-parted, acute, coloured, and permanent; corolla or flower, funnel-shape, with a long naked tube, five-parted above, the two upper segments

reflexed back, the two sides bent inward, and the lower segment turning downward: stamina, five small, unequal filaments, terminated by oblong anthera; pistillum, a round germen, long, slender style, crowned with an obtuse stigma; and the germen grows a roundish capsule, containing many roundish seeds.

The Species of AZALEA are,

1. AZALEA viscosa, Viscous-flowered White American Honeysuckle.

A moderate, deciduous shrub, growing three or four feet high; the leaves spear-shape, (*middling size*) with rough edges; and corolla of the flower hairy, glutinous or clammy; (flowers white, &c.)—Native of Virginia. (*Moist or any soil.*)

2. AZALEA nudiflora, Naked-flowered Red Azalea.

Middle size deciduous shrub, growing six or eight feet high; the leaves ovate (*middle size*) and corolla of the flower hairy, and longest stamina; (the flowers red, on long naked foot-stalks.)—Native of Virginia. (*Moist or any soil.*)

Varieties of the two Species are.—Early White-flowered.

Late White-flowered.
Red-flowered.
Pale-Red-flowered.
Scarlet-flowered.
Late Red-flowered.

These shrubs flower very ornamentally in July; the flowers long, tubulous, deeply cut at top into five parts, and somewhat resembling those of the common honeysuckle, and impart an agreeable odour; so that the plants have great merit to arrange in principal shrubberies, and other compartments of the pleasure-ground; and are hardy to grow in any common soil and situation, though they generally thrive more successfully in moist ground.

They are cultivated plentifully in the nurseries, where they may be procured for planting, at the proper seasons.

The seasons for planting them is either in autumn, about the decay of the leaves, in October and November, or in the spring, before they begin to shoot; or may be planted in any of the winter months, in mild, open weather; disposing them generally in shrubberies, and any ornamental plantations, in assemblage with other deciduous shrubs, &c. placed according to their sizes, more or less forward in the destined compartments, to arrange conspicuously with shrubs nearly of similar growth.

They are propagated principally by suckers produced from the bottom, which may be taken up in autumn

autumn or spring, with roots to each, and planted either in a nursery, or some of the largest, at once where they are to remain; and the others, when of two, three, or four feet growth, may also be transplanted into the places where they are finally to continue; likewise, may propagate them by layers of the young shoots of the year, or preceding summer, layed down in autumn, or following spring: they will be mostly sufficiently rooted for planting off in the autumn or spring ensuing; also by seed, where attainable, sowing it in the spring, in a bed of light earth; and when the plants are one or two years old, transplant them in nursery-beds to acquire a proper growth for the shrubbery, &c. though in general, the propagation by suckers is the most common and expeditious method; and when the plants, raised by either method, are two or three feet high, or more, they are proper for the intended plantations.

In their future culture in the shrubbery, &c. they will only require a little occasional pruning to reduce any irregular growth.

BACCHARIS, (Ploughman's Spikenard) GROUNDSEL TREE.

Class and Order.

Syngenesia Polygamia Superflua,
 United Males, Many Marriages, Superfluous Females;
 Or compound Flowers, composed of Hermaphrodite and Female Florets distinct; the Stamina or Males united by their Tops; Female Florets superfluous, or unnecessary.

THE *Baccharis* has one hardy, shrubby species, a largish, curious ever-green, to admit in the shrubbery, decorated with ovate, glaucous leaves, and spikes of compound, white flowers, having one general calyx or cup, containing many small hermaphrodite florets in the disk, and females in the circumference; the former having five small stamina and one pistil, and the females a small germen and style; succeeded in all the florets, by one seed in each: ripe in autumn for sowing; but the plant is more generally propagated by layers and cuttings.

One Species.

BACCHARIS halimifolia, Sea-Purslane-leaved Baccharis, or Groundsel Tree.

Ever-green shrub, four to five or six feet high; the leaves ob-ovate, (glaucous or sea-green) the upper ones emarginated-crenated.—Native of Virginia. (*Any soil.*)

This shrub claims a place in the collection of ever-greens, or to introduce in any principal shrubbery compartments, in a conspicuous situation, where it

will effect an agreeable variety in its glaucous, whitish-green leaves, at all seasons; may be procured at most of the nurseries, for planting, in autumn or spring; and is propagated by layers and cuttings of the young wood, in the same seasons or early part of summer, which will be rooted by the autumn following; and may be forwarded in the nursery till of two or three feet growth, and is then proper for the shrubbery, &c. where it requires only the common culture of other hardy shrubs; as hoeing the ground occasionally in summer, to keep down weeds, and to dig the ground annually in autumn, winter, or spring.

BERBERIS, BERBERRY TREE.

Class and Order.

Hexandria Monogynia,
 Six Males, One Female;

Or Hermaphrodite Flowers, furnished with six Stamina, or Males, and one Pistillum, or Female.

THE BERBERRY consists of two species, and several varieties, of the small tree, or large shrub kinds, all of the deciduous tribe; in estimation both for their production of fruit, (small berries) for domestic occasions, and to plant in shrubberies, or any ornamental compartments, in pleasure-grounds, for variety, &c. in their general growth, foliage, flowers and fruit, grow about six or eight, to ten feet high, armed with triple thorns, and garnished in summer with small, oval leaves, and small, pendulous clusters of yellow flowers; the flowers small, having each a small calyx or cup of six leaves, six small oval petals, six short stamina, a pistillum, consisting of a small germen and one style; and the germen becomes a cylindrical berry, containing an oblong seed; the berries growing many together, in small, loose bunches: ripen in autumn, for use, to preserve, pickle, &c. and for sowing, by which to raise the trees, or are also propagated by layers, suckers and cuttings.

The Species of BERBERIS are,

1. BERBERIS vulgaris, Common Berberry Tree.

A small tree or large shrub, (deciduous) growing eight or ten feet high; the head bushy, leaves oval, (*Smallish, light-green*) and peduncles or flower-stalks, having flowers in racems or clusters, succeeded by small pendulous clusters of red berries of an acid taste.—Native of England and most parts of Europe, in woods, the East, and Mount Lebanon. (*Any soil.*)

Varieties.—Common Red-fruited Berberry.

Red-fruited, without stone or seed.

White-fruited Berberry.

Black-fruited Berberry.

2. *Berberis canadensis*, Canada broad-leaved Berberry, (*Supposed a Variety of the Common.*)

A small tree, or moderate shrub (deciduous) growing six or eight feet high; the leaves oblong-oval, (*larger, light-green*) and flowers in clusters.—Native of Canada. (*Any soil.*)

Both these species and varieties of *Berberis* are very hardy to grow in almost any soil and situation; they rise with an erect stem, branching out low into many upright branches, defended with three-parted spines; and the trees commonly send up several root suckers.

They are eligible to cultivate in gardens and orchards, both as small standard fruit-trees, in a moderate supply, where the berries may be in request, for candying, &c. and to introduce in shrubberies for variety and ornament, in which the flowers in summer, and the clusters of berries in autumn, effect an agreeable diversity; and may be admitted in any plantation compartments of the pleasure-ground, where thought necessary; or planted singly in capacious borders, &c. and, in any method of planting, they produce plentiful crops of berries, ripe in autumn, about September and October; and which, in many families, are in great estimation for preserving or candying, being of an agreeable, acid relish; and are also sometimes pickled, and used occasionally for garnish to dishes served up to table; but for these occasions the Common Red-berried kinds only are proper; and for candying particularly, the stoneless-fruited sort is considerably preferable to the Common.

For the above different occasions, the trees are trained in standards, generally each with a single stem, three to four or five feet, and then permitted to branch out at top in full growth; they were also, formerly, sometimes planted for garden hedges, and in which, by proper clipping, will grow close and regular.

The different species and varieties are cultivated in most of the public nurseries, where they may be obtained for planting, which may be performed any time from the decay of the leaves, in October and November, in open weather, to March or beginning of April; and may be planted in any common soil and situation; though, where the berries are required for use, the trees growing in an open exposure to the full sun will produce them in the best perfection.

They are propagated by seed, suckers, layers, or cuttings; but by seed, is eligible occasionally, only for the common sort, as in the varieties, the seedling plants do not always come the same; and of which, the stoneless sort being destitute of seed in the berries, it can be propagated only by the other methods; and which is also the most certain way whereby to

continue any other varieties distinct: however, when required to raise any sorts indifferently from the seed or berries, sow them in October or November, &c. in a bed of light earth, an inch deep; and when the young plants are of one or two summers growth, transplant them into nursery beds, &c. Suckers advancing from the roots of old trees, may be taken up with roots, in autumn, winter, or spring, and planted in a nursery, they at once form proper plants; and layers and cuttings of the young wood in autumn or spring, will be rooted in one year; and in which methods continue them trained in the nursery, with a single stem below, and a full head above; and when from three or four, to five or six feet growth, are of proper sizes to transplant finally where they may be intended.

In their general culture in gardens, &c. keep them cleared from root suckers, prune out rampant shoots of the stem and head, with any irregular branches and dead wood.

BETULA, BIRCH TREE, including also the ALDER.

Class and Order.

Monoecia Tetrandria,
One Habitation, Four Males;

Or Male and Female Flowers, separate on the same Plant or Habitation; and Male Flowers, with four Stamina.

THIS Genus, or Family of *Betula*, comprising also the *Alnus*, or Alder, furnishes several species of large, moderate, and small deciduous trees, valuable both for timber and underwood plantations, and to introduce in large pleasurable plantations, shrubberies, &c. for variety; are all of most hardy growth, twenty or thirty, to fifty or sixty feet high, one of dwarfish size; and garnished with ovate, and heart-shaped, oblong, and roundish leaves, all simple, small, mid-ling, and largish; and with small male and female flowers, in separate, cylindric, and roundish amentums, or catkins, composed of scaly calyxes, and very small florets, succeeded in the female amentums, by a single seed in each floret: ripe in autumn, proper for sowing to raise supplies of the trees; and which are also propagated by layers, and some mostly by cuttings.

Characters.—Male and female flowers, apart, on the same tree, in separate amentums; the males collected in cylindric, loose, scaly amentums, each scale having three small florets, of one petal, four-parted, and have each four stamina; and female flowers in scaly, imbricated amentums, and roundish heads, two florets in each scale, no visible petals, a minute oval germen,

germen, two bristly styles, and succeeded in each female floret by an oval seed.

The Species of *BETULA* are,

1. *BETULA alba*, White, or Common European Birch Tree.

A lofty-growing, straight tree, forty or fifty feet high; the bark white, leaves (*smallish*) ovate, acuminate or pointed, and sawed on the edges.—Native of Britain and the cold parts of Europe, &c. (*Moist or any soil.*)

2. *BETULA nigra*, Black Virginia Birch.

A lofty tree, sixty feet high or more; the leaves (*smallish*) rhomboid-ovate, pointed and doubly-sawed.—Native of Virginia and Canada, in North America. (*Any soil or moist.*)

Varieties of this.—Common smaller-leaved Black Birch.

Broad-leaved Black Birch.

Poplar-leaved Black Birch.

Paper-barked Black Birch.

Brown Birch.

3. *BETULA lenta*, Lenta-twigged, or Poplar-leaved Canada Birch.

A lofty, large tree, growing sixty feet high or more; the leaves (*smallish, dark green*) hearted-oblong ovate, pointed and sharply sawed.—Native of Canada and Virginia. (*Any soil or moist.*)

4. *BETULA nana*, Dwarf Lapland Birch.

A small tree, shrub-like, four or five feet high; the leaves (*small*) orbicular or roundish, and crenated.—Native of the Alps of Lapland, Swamps of Sweden and Russia. (*Any moist or other soil.*)

5. *BETULA Alnus*—(*Alnus*) or Alder Tree (Common.)

A middling tree, growing twenty-five to thirty feet high; the leaves (*middling large*) ovate-oblong, and the peduncles or flower-stalks branching; roundish fruit.—Native of England and other parts of Europe, and in America. (*Moist situations.*)

Varieties.—Long-leaved American Alder Tree.

Glutinous, Round-leaved Turkey Alder Tree.

Hoary-leaved Alder Tree.

Black Alder.

Scarlet Alder.

These five species of *Betula* are all deciduous, or expand their leaves only in summer; the leaves simple, from one or two, to three inches broad, two or three, to four inches long, in the different species.

All the above species and varieties, both of the Birches and Alder, are very hardy, deciduous trees, easily propagated or raised abundantly by seed, layers, and the Alders also by cuttings; and are all adapted to grow in any situation where they may be required, for profitable or ornamental planting, or for variety; the common Birch and Alders growing naturally in most parts of Britain, the former both in moist, swampy soils, dry and other situations, and the latter chiefly in swampy grounds and near water: the trees of both the species are proper to cultivate accordingly in similar soils, as are likewise all the other sorts of Birches and Alder, they being equally hardy; and the Birch kinds in general may occupy any situation, moist, dry, low, or upland; the Alders principally in moist land, though they will also grow almost any where; so that the trees of all the sorts of Birch and Alder admit of cultivation in moist situations, and are eligible to introduce in waste or other grounds, either distinct, or to assist in composing any plantations of large, deciduous trees, designed for profit, variety, shade, shelter, &c. in extensive or other premises, as may be thought convenient; or the Alders being naturally aquatics, they always grow the most thrivingly in moist, swampy, or watery places.

In regard to the particular and general utility of the different species in plantations, all the tree kinds are eligible to cultivate both as forest-trees, in full standards, for timber, and in coppices of under-growth, to cut for small wood; or likewise any particular species, or the whole occasionally to introduce for variety, or to diversify any hardy tree plantations, in extensive pleasure-grounds, parks, and other capacious districts, disposed in groves, thickets, woods, clumps, &c. and in any running boundary plantations extending along the borders or verges of parks, paddocks, and other similar districts; and for all of which purposes, these hardy trees may be admitted in any situations; though the Alders particularly, as aforesaid, may be cultivated to the most considerable advantage, for profit, in any marshy land, or by the sides of water, and in waste, swampy ground, adapted principally for the growth of aquatic trees; likewise the Birches will grow in low, swampy situations, and will also prosper in upland grounds, moist or dry, and barren soils, as scarcely any place comes amiss to these trees in their general growth.

Or these trees, both of the Birches and Alders, might be planted in any low, moist lands, to very beneficial improvement and profit, both to grow for large standards, for timber, and to form coppices, to cut in small growth, for poles, &c. and the Birches also for the brush-wood loppings for the broom-makers, which,

which, in large cities and towns, is in great demand, and of which, amazing quantities are brought to London by land and water carriage, and stacked up in yards and warehouses for use as wanted.

The wood of the Birch and Alder is useful in several trades; the small wood for poles, stakes, &c. and that of the Birches, for hoops to casks or tubs, barrels and other vessels; and the smaller loppings is in great request for birch-brooms, and in both sorts, the larger wood is used by the turners, and for making several husbandry implements; and that of the Alder is also adapted for any under-ground occasions, or laid in water, &c. as it will continue sound in long duration; and the wood of both sorts is eligible for fuel.

So that for profitable plantations, these trees deserve admittance plentifully in all extensive situations, and particularly in any infertile or waste lands, or uncultivated grounds, where but few other plants will prosper; or in any situation where it may be thought eligible or convenient, and where of some considerable extent.

The Alders, as before observed, may be planted to much advantage in swampy, waste grounds, or contiguous to water, as in which places they prosper exceedingly, advancing expeditiously to a large size, requiring but very little culture; and are profitable both to have in close growth, for coppice wood, to cut every five, six or eight years, for various small purposes, and in plantations for large standards for timber; and in both of which, they, in their swift vegetation, afford a quick profit, especially as they may occupy situations and soils not eligible for other cultivation; and in each falling or cutting, they, being cut down low, will shoot up again from the bottom: this tree is also very useful to plant occasionally in young plants, or in small or large cuttings along river sides, or other running water, where liable to undermine the banks; and being planted in a close row along the edges, will root thickly and support the banks securely; and is likewise well adapted to plant for hedges in any low, marshy situations, either as boundary or division fences, to such places where it may be thought necessary; and for which different occasions they may be raised from seed, cuttings and layers in a nursery, and afterwards transplanted as above, or by small or large cuttings or truncheons, half a yard to three or four feet long, or more, planted in the spring at once where they are to remain; in which generally making a deep hole with a stake or instrument, &c. for each cutting; or in moist, soft soils, the ends of the cuttings being sharpened, may be thrust into the ground; but in planting rooted trees, a wide aperture must be opened with a spade for each plant; and of which, those planted close for coppice wood, should be headed down low, to have each advance with several stems from the bottom; but those

designed for full standards, should mostly run such a single stem.

Likewise, all the tree Birches may be planted in similar plantations, as above, in any situation or soil, where it may be convenient, or thought eligible; and for which, are raised principally from seed in a nursery, and planted therein till of proper growth, of three, four, five or six feet, or more, then transplanted finally for the above occasions; or they sometimes propagate by suckers; and likewise, for the same purpose, young seedling plants, rising naturally in Birch woods, or in those where Birch trees abound, are collected for planting in the proper season; and in all of which methods, the trees being planted in the continuing plantation, are managed as observed before, for the Alders, to have them for underwood and large standards.

As to the Dwarf Birch (*Betula nana*) it being of low, shrub-like growth, is principally for variety, and is sometimes admitted in shrubbery collections.

All the sorts of Birches and Alders are raised in most of the public nurseries, where they may be procured in sufficient supplies, to introduce in plantations, for variety, &c. and other occasions; though, where considerable quantities are required for timber and underwood plantations, it would be of much advantage to raise them in private nurseries, to plant occasionally as required: propagated by seed principally, in all the Birches; also the Alders, and the latter likewise, by cuttings and layers, and sometimes the Birches, by suckers from the roots of the trees; all the plants raised by either method, being forwarded in a nursery, till of two, three, to five, six or seven feet growth, for final transplanting.

The season for planting all the sorts is any time in open weather, from October or November, to March.

When designed to plant these trees in any general plantation, for variety, &c. either in assemblage, or occasionally in distinct clumps; they are of proper size for this, when of five or six, to eight, ten or twelve feet high, and which may be planted both in a thicket order, and in more open plantations, groves, clumps, &c. occasionally in extensive out-grounds and parks; or some might be disposed in separate compartments, Birches and Alders distinct.

But to plant them as forest-trees, in woods, for full standards, and in coppices, for underwood, it is most adviseable to perform it while the trees are in young growth, three or four, to five or six feet, especially for continuing large standard trees; and for both purposes they may either be planted in close rows, four to five, or six feet asunder, to draw each other up more expeditiously in a straight growth; and to admit

mit of thinning, by degrees, in their advanced state, leaving a sufficiency to grow for large standards, at moderate distances; or some planted at wider distances, in groves or other open plantations, set ten or fifteen feet asunder, wholly to remain for acquiring a considerable size, before any is thinned or cut down; and where intending to plant principally for under-wood growths, the trees may be set only three or four, to five or six feet square; and may also be headed, that they may advance with several bottom-stems, and that when advanced of five, six or seven years growth, they may admit of cutting for various small uses, and for fuel, &c. and the Birches to cut for hoops once in seven, eight, ten or twelve years; generally, in both cases, retaining some finest stems, singly, to run for standards; and the underwood trees, when cut down, shoot again from the bottom, for cutting on future occasions.

The propagation or method of raising all these trees of Birches and Alders, is by seed, for principal large supplies; especially of the Birch trees, or likewise, occasionally, the Alders, and both the sorts also by layers; and the Alders particularly, propagate freely by cuttings, and by which they are commonly raised, and sometimes both the Birches and Alders by suckers; all the methods of propagation performed either in autumn or spring, or by seed and layers, principally in autumn, about October or November; and the cuttings mostly in the spring season, February or March: the seeds ripen in autumn, and should then be gathered in proper time, before the scales of the amensams open to disseminate them on the ground.

Sow the seed in beds of any common earth, broadcast or in drills, and earthed in, not exceeding an inch deep; and when the seedling plants are come up, and advanced one or two years in growth, transplant them in nursery lines two or three feet asunder, to attain proper size for the plantations intended.

Or by cuttings and layers all the sorts of Alders may be propagated, and the Birches also by layers occasionally; and by which two methods of propagation is generally the most certain process whereby to increase and continue the different varieties of the particular species, distinct in their respective kinds; however, by cuttings, may raise the Alders in general in the spring, both of the young shoots and larger branches in truncheons or poles, three or four feet long, or more, planting the smaller cuttings in a nursery, for a year or two, or more; the others, of a larger size, may be planted at once where they are to remain, in moist grounds, loosening the soil, if hard, and make deep holes with a stake or iron instrument, to insert the cuttings half a yard or two feet in the ground; or to raise any of the sorts by layers, perform it in autumn or spring, taking the lower young shoots and branches, slit-cut them a little on the un-

der side, lay them down into the earth, and they will be rooted in one year; then in autumn, &c. plant them off into the nursery, or large plants set at once where they are to continue.

In the above different methods of raising the Birches and Alders, those advancing in a nursery to obtain proper size for final planting, generally train those for standards with single clean stems, cutting away lateral or side-shoots below, continuing the top-shoots intire; and when advanced three or four, to six, eight or ten feet, are eligible for the respective plantations, in which they may be transplanted, as required, in the seasons and order before intimated.

In final planting, all the nursery-raised plants, furnished with roots, both Birches and Alders; loosen the ground, and dig a hole for each, a moderate depth, plant them regular in the holes, upright, cover in the roots directly with the earth, and tread it down.

The general culture of all these trees, after their final planting in their destined districts, is principally in those growing for standards, to prune up side-shoots of the stem, or straggling under-branches of the head, to have the stems advance in a clean, straight growth; or likewise in underwood plantations, the young plants in the beginning, may have lateral shoots below cut away, to encourage the stems to run up clean and straight; and in the young plantations in general, while the trees are small, keep down large, tall weeds in summer, the first year or two, till the trees advance in their top growth.

The cutting or felling these trees in small or large growth, may be performed any time after the decay of the leaves in autumn, or principally towards the spring.

From Birch trees of large growth, in woods, the sap is extracted wherewith to make Birch wine, effected by tapping the growing trees in the spring, when the liquid sap will flow abundantly.

BIGNONIA, TRUMPET FLOWER.

Class and Order.

Didynamia Angiospermia,
Two Powers, Seeds covered;

Or Plants with Hermaphrodite Flowers, having four Stamina, two of them longer than the other two; and the Seeds contained or covered in a Vessel.

THE Genus *Bignonia* furnishes an elegant, upright tree, and some shrubby climbing kinds; all for ornament and variety in the shrubbery plantations: one species being a beautiful, deciduous tree, adorned with large heart-form leaves; the others shrubby climbers, deciduous and ever-green, garnished with

nated, lance-shape and ovate leaves; and all the species produce clusters of bell-shape, long tubulous, and trumpet-shape flowers; some beautifully ornamental, formed of one long tubulous swelling petal, five-parted at top, and succeeded by bivalvous pods, containing many seeds; by which the species may be propagated, also by layers and cuttings.

Characters.—Flowers hermaphrodite; the calyx cup-shaped, one-leaved, quinquefid or five-parted; corolla or flower, ringed or grinning, long tubulous, bell-shape, five-parted at top, the two upper parts reflexed, the others spreading. Stamina, four awl-shape filaments, two longer than the others; and crowned with reflexed anthera. Pistillum, an oblong germen, slender style, having a roundish stigma; and the germen grows a bivalvous pod, filled with compressed, winged seeds, placed imbricatum.

The Species of BIGNONIA are,

1. BIGNONIA *Catalpa*—(*Catalpa*) or Tree Bignonia.

A deciduous tree of moderate growth, twenty-five to thirty feet high; stem erect, branchy upward—the leaves (very large, light-green) simple, heart-shape, by threes and opposite; and large panicles of whitish flowers, having but two stamina or anthera.—Native of Carolina and Japan. (*Moist, warm soil, or any common.*)

2. BIGNONIA *radicans*, Radicant, or rooting-stalked climbing Bignonia, or Scarlet Trumpet Flower.

A climbing, deciduous shrub, ascending thirty or forty feet high; the stem and branches climbing, rooting at the joints—leaves (*large, dark-green*) pinnated or winged, of many pair of folioles or leaflets, deeply cut at the edges; and large bunches of long tubulous, reddish and scarlet flowers, most beautiful.—Native of America. (*Dry situation.*)

Varieties.—Greater Trumpet Flower.

Minor, or smaller Trumpet Flower.

3. BIGNONIA *unguis cati*, (Cat-claw tendrilled) or Four-leaved climbing Bignonia.

A climbing, shrubby plant, mounting twenty to thirty feet high—the leaves (*largish*) conjugated, or by two pairs together, opposite, with cirrhi or tendrils, short, arched or hooked, and three-parted; and bunches of yellow flowers.—Native of Barbadoes, Domingo, &c. (*Warm, dry situations.*)

4. BIGNONIA *sempervirens*, Ever-green climbing Bignonia.

Evergreen climbing shrub, ascending thirty feet high; the stem volubilate or twining, climbing—the

leaves simple, (*middling size*) spear-shape, opposite; and odorous yellow flowers.—Native of Virginia. (*Warm situation.*)

These four species of hardy tree and shrub Bignonia, are desirable furniture for the shrubbery and other decorative plantations; the first of which, *Catalpa*, to introduce as a beautiful, upright standard tree, adorned with singularly, large elegant leaves, and large branching clusters of dingy-white flowers; the other three species being all climbers, are eligible to plant as such, in any principal compartments, and against walls, buildings, stems of trees, arbours, and other support, by which they will ascend many feet high; some climbing by their tendrils, others by their twining stems, and the *Bignonia radicans* also by its radican or rooting stems, emitting roots into the walls, stems of trees, or any adjacent support, thereby mounting to a lofty growth; and is very ornamental in its trumpet-shape, beautiful, scarlet flowers in summer.

In their temperature of growth, the first and second species are very hardy to succeed in any common soil and situation, the others are more tender, and in this country, demand a somewhat sheltered, warm compartment in the sun.

For principal shrubbery plantations, never omit having some of the *Bignonia Catalpa*, as a most elegant standard tree, clothed with noble, beautiful leaves in summer, and is proper to occupy the most conspicuous situations; and the climbing sorts are proper to admit in particular compartments, and will effect an agreeable variety in their ascending growth; and of which the Radicant Bignonia is a very beautiful flowering-climber, which, and the other climbing kinds, should either be planted against some support, or have stakes to ascend upon, or planted against walls, buildings, stems of trees, &c.

All the sorts are cultivated in the nurseries, where they may be had in autumn or spring, for planting.

They are propagated by seeds, mostly obtained from America, &c. by the seedsmen in the spring; and are also raised from cuttings and layers of the young wood: sow the seed in the spring, either in a bed, or pots of light earth, in a warm situation, or some in pots, placed in a hot-bed or moderate bark-bed, to forward the germination of the seed, having mostly the free air, and the plants, when up, fully exposed, by degrees, all summer, giving them occasional shelter the first year or two, in winter from frost; and afterwards in the spring, planted into the nursery in a warm compartment: cuttings of the *Catalpa*, young shoots, may be planted in the spring months; and if some are also planted in pots, and assisted in a bark or other hot-bed, they will root more expeditiously.

ously in a free growth; or may also be raised by layers of the young wood; and the climbing sorts also propagate freely by cuttings or layers, some also by suckers from the roots, and which methods of raising these sorts is the most advisable, as the plants will flower much sooner than seedlings; the cuttings of which climbing sorts will mostly root freely in the full ground, especially the Radicant Bignonia, or which, and the others, may be forwarded in a hot-bed occasionally.

For final planting in shrubberies, &c. the *Bignonia Catalpa* is of proper size, when three or four, to six or eight feet high, or more; the others when two or three, to several feet, in their climbing growth.

They may be planted in the allotted plantations, either in autumn, about October or November, &c. or in any of the spring months, till April, or occasionally any time in winter, in mild, open weather, disposing them according to their growth before explained; and in their advancing state, the principal care is to train the climbers to some support, and the *Catalpa*, in its standard growth, will only need to have casual, fraggling branches pruned to order in winter; likewise in the climbers, when of advanced growth, have the small, weakly shoots cut out in winter, the strong ones retained, and occasionally shortened more or less, to obtain plenty of lateral young shoots for flowering in summer.

BUPLEURUM, (HARTWORT) or Hare's Ear.

Class and Order.

Pentandria Digynia,
Five Males, Two Females;

Or Flowers having five Stamina or Male Parts, and two Pistillums or Females.

THE BUPLEURUM furnishes for this place a pretty ever-green shrub, of upright, bushy growth, and eligible for the shrubbery; garnished with ovalish leaves, and umbelliferous yellow flowers; the main umbel formed of ten smaller, each composed of many small florets of five petals, succeeded by roundish fruit, furnished with two ovate seeds, by which may raise the plants, and also by cuttings.

General Characters.—Flowers growing in umbels, of many hermaphrodite florets in each; the main umbel formed of ten smaller, having, to the general umbel, a many-leaved involucre, and five-leaved in the smaller or partial umbels; the corolla of the florets five heart-shape petals; stamina five filaments, crowned with roundish anthera; pistillum, a germen under the floret, supporting two small reflexed styles; and the germen grows a roundish-compressed, channelled, two-parted fruit, having two oblong seeds.

One Species, viz.

BUPLEURUM *fruticosum*, Shrubby, Willow-leaved Hare's Ear, or Æthiopian Hartwort.

An ever-green shrub, six or eight feet high; the stem shrubby, branching in a bushy growth—leaves (*middling size*) ovate-oblong and intire, smooth, sea-green; and yellow umbels of flowers, July or August.—Native of the South of France and the East, upon rocks, near the sea. (*Warm, dry soil.*)

This species being an ornamental ever-green, and a flowering-shrub of bushy growth, claims a place in principal shrubbery compartments, assigning it a somewhat warm situation and dry soil; and for which occasion it may be procured at the public nurseries, for planting in autumn or in the spring; and is raised from seeds and cuttings.

To propagate this shrub, may sow the seed in the spring, in a warm border, or in pots, and forwarded in a hot-bed; and cuttings of the young shoots planted in pots of loamy or other good earth, in autumn or spring, and if assisted by a hot-bed in the spring, they will sooner emit roots, or if planted in the full ground in April or May, they will also grow and form proper rooted plants by autumn; when, or in the spring following, may be transplanted into the nursery to acquire two, three, or four feet growth, then is proper for final transplanting into the intended plantations.

BUXUS, BOX TREE, or Box.

Class and Order.

Monoecia Tetrandia,
One Habitation, Four Males;

Or Male and Female Flowers, separate on the same Plant, and the Male Flowers having four Stamina.

THE family of Buxus consist of small tree kinds and low under-shrubby plants, all of the hardy ever-green tribe, to introduce in shrubberies, and the dwarf sort eminent for edgings to beds and borders; are mostly of bushy growth, garnished with small, oval leaves, and very small male and female flowers, of two petals the former, the latter three; succeeded by small, roundish, trilocular capsules, furnished with two oblong seeds; sometimes used for sowing; but the plants are more commonly raised by cuttings, slips, and some abundantly by bottom-rooted suckers or off-sets.

Generic Characters.—The flowers male and female, separate; the males having a three-leaved calyx, and the females a four-leaved cup, concave in each; corolla or flower, in the males two, and the females three concave petals; stamina, four in the males,

crowned with erect, double anthera; and in the females, a trigonal germen, three short styles, terminated by obtuse stigmas, and the flowers succeeded by a roundish capsule of three cells, containing each two oblong seeds.

The Species and Varieties of BUXUS are,

1. *Buxus arborefcens*, Arborefcent, or Tree-Box.

Ever-green, fmall tree, growing fix or eight, to ten or fifteen feet high, or more; the ftem erect, very branchy, bufhy head—leaves fmall, oval, fhining green; and very fmall, greenifh flowers.—Native of the fouthern parts of Europe and of Box-hill, near Dorking, in Surry. (*Dry, or any foil and fituation.*)

Varieties of this.—Broad-leaved Tree-Box.
Narrow fpear-leaved Tree-Box.
Waved-curl'd-leaved Tree-Box.
Silver-ftriped-leaved Tree-Box.
Gold-ftriped-leaved Tree-Box.
Silver-tipp'd-leaved Tree-Box,
Gold-tipp'd-leaved Tree-Box.
Gold-edged Tree-Box.

2. *Buxus fuffruticofus*, Under-fhrubby, or Dwarf-Box.

A fmall, dwarf ever-green, twelve to fifteen or eighteen inches high; the ftem fmall, very fhort and branchy from the bottom—leaves (*very fmall*) roundifh-oval; and minute greenifh flowers.—Native of Europe. (*Any foil and fituation.*)

Varieties of this.—Common Green Dwarf-Box.
Silver-ftriped-leaved Dwarf-Box.
Myrtle-leaved Dwarf-Box.

The Boxes are moft hardy ever-greens, of very branchy and moftly of bufhy growth, very clofely fet with their fmall leaves: both the fpecies and their different varieties are proper to introduce in any fhrubbery compartments, clumps, &c. in which, being ftationed according to their degrees of growth, they will effect an agreeable contrast and diverfity at all feafons, difpofed either principally in compartments of ever-greens, or fometimes in afsemblage, in fmall clumps of deciduous fhrubs: the Tree-Box alfo admits of planting for ornamental hedges in gardens; and the Dwarf-Box is peculiarly adapted to form edgings to borders, fuperior to all other plants for that occafion, as the moft effectual, beautiful, and durable edging; and all the forts admit of being occasionally trained into fancy figures, as pyramids, globes, &c. and the Tree-Box likewife to cultivate for its wood, which, being of a peculiar hard, ponderous nature, is of

ingular value and eftimation in many mechanical trades, and for making various curious utenfils and implements.

All the varieties are cultivated plentifully in the nurseries for the fupply of the public, and may be propagated by cuttings, layers, flips, and the Dwarf-Box alfo by parting the roots, the Tree-Boxes likewife by feed.

The feafon for planting thefe ever-greens is, the Tree-Boxes, either principally in autumn, about October and November, or in the fpring, or even any time in winter, in open weather, efpecially if removed with fome ball of earth to the roots; but the Dwarf-Box may be tranfplanted almoft any time in open weather, from September till May; or for edgings, may be occasionally tranfplanted at almoft any feafon of the year, even in fummer, if well watered.

To propagate the Tree-Boxes, it may be effected both by planting cuttings or flips of the young wood, in autumn or fpring, in a fhady border, and watered; alfo by layers of the lower young branches, layed down in the earth in the above feafons; and in either method, when they are well rooted, tranfplant them into a nursery, to acquire a proper growth for final planting in the fhrubbery compartments, &c.

The Dwarf-Box propagates naturally in very plentiful fupplies, by bottom off-fet fuckers, abundantly well rooted, which may be flipped or divided into rooted fets, at almoft any feafon; and may likewife be increafed by flips of the unrooted branches and fhoofs, planted in autumn or fpring, in a fhady border, and watered in dry weather; though, as this fpecies of *Buxus* increafes very plentifully in numerous rooted off-fets from the bottom, it is moft commonly propagated thereby, which may either be flipped off from remaining old plants, with roots to each, or rather a quantity of the plants taken up and flipped, or divided top and root together, clean to the bottom, into feparate rooted flips or fets, larger or fmall, as may be required, either to plant for training in fmall, bufhy fhrubs, or to plant for edgings, as may be required.

For box edgings, the Common Dwarf-Box is the proper fort, and is of great utility in general gardening, for forming principal edgings to borders and other compartments, being the moft neat, effectual, and eafily kept in regular order, of many years duration; and may be planted in any foil at moft feafons of the year, or principally any time from September or October, to March, April or May, or will even fucceed tolerably by planting in fummer, when particularly required, if well watered; and for which purpofe it fhould always be planted clofe in the rows, as at once to form a compleat, regular edging.

In regard to the method of planting these edgings, generally have the Box plants for this purpose, of short bushy growth, and making up the edge of the border, &c. firm, and the top even by line, stakes, or by direction of the eye, as the different compartments may admit; then, with the spade, cut out a small narrow trench, the inside upright, five or six inches deep, turning out the earth towards the walk; and then, dividing or slipping the Box small, into rooted sets, cut the long roots shorter, and the straggling tops even: plant them in the trench, against the upright side, close, or so near together, as to form at once a compact edging, inserting the sets within an inch, or little more or less, of the tops, drawing in the earth, about the roots and stems, as you proceed in placing them, raising it near the tops, as aforesaid, in a regular manner, and tread it down even, and if dry weather, finish with a good watering.

The after-culture of the Box edgings, is to keep them regular, by clipping once every year at least, in summer, about June, July, and, or in any of the autumn months, till October; or if omitted at the above seasons, may be performed in the spring, about March, April, or May; cutting it even at top and sides, keeping the edging moderately low and thin, not exceeding three or four inches high at most, and two inches broad, it will then appear neat and regular; and generally in the summer clipping it is most advisable to perform it principally when moist weather, as if cut when hot and dry, is apt to change of a disagreeable, withered, or decayed-like appearance.

CALYCANTHUS, ALL-SPICE TREE.

Class and Order.

Icosandria Polygynia,
Twenty or more Males, Numerous Females;

Or Plants with Hermaphrodite Flowers, having each twenty Stamina or Males, and many Pistils or Female Parts.

THE CALYCANTHUS furnishes one hardy species; a small deciduous flowering-shrub for the shrubbery, garnished with oval leaves, and apetalous, purple flowers, singly, having many stamina and germina, succeeded by an oval-roundish berry, with many caudated seeds: seldom ripening in England, but the plant propagates by layers and cuttings.

Characters.—The flower hermaphrodite; the calyx many-parted, coloured like petals; no corolla; twenty or more short stamina, with obtuse anthera; many oval germina, crowned with stigmas, and the germens grow an oval roundish berry-like fruit, furnished with oblong seeds.

One Species.

CALYCANTHUS *floridus*, Florida, Carolina All-Spice Tree.

Deciduous shrub, four or five feet high; the stem shrubby and branchy—leaves (midding) oval, intire, and placed opposite; and fordid-purple flowers, in May or June, having the interior petals longest.—Native of Carolina, (*Dry soil, mostly.*)

This species is of branchy, bushy growth, eligible to introduce in principal shrubbery compartments, as a flowering-shrub, and for variety; its bark imparting an aromatic odour, obtained the name All-spice in America: should generally have a somewhat dry soil and warm situation; may be had at most of the nurseries, and planted either early in the autumn, or principally in the spring, admitted in a conspicuous situation: is propagated by layers of the young shoots, in spring and summer, properly watered; also by cuttings of the shoots, in the spring months, planted in a shady border, or in pots and placed in a hot-bed, to forward their rooting in a more free growth; they, in either method, will be rooted in one season, then transplanted in the spring, and trained each with a bushy head.

CARPINUS, HORNBEAM, or Hornbeam Tree.

Class and Order.

Monoecia Polyandria,
One Habitation, Many Males;

Or Male and Female Flowers, separate, on the same Plant; and the Male Flowers having many Stamina.

The family of CARPINUS consists principally of two species and several varieties, all hardy deciduous tree kinds, cultivated for forest trees, in standards and underwood, and in pleasurable plantations, for ornament and variety; growing twenty to thirty, or forty feet high; clothed in summer with oval and oblong simple leaves, and small male and female flowers, separate; collected in loose scaly amentums or catkins; no petals to the male florets; a six-parted corolla, to those of the female amentums, which enlarges to a scaly cone, containing angular nuts, or seed: ripe in autumn, and by which the trees are commonly raised, and occasionally by layers.

Characters.—Flowers male and female, apart, in the same tree, in separate amentums; the males, collected in cylindric, loose, scaly amentums, each scale having one floret, without petals, containing many minute stamina, crowned by hairy anthera; and females in scaly imbricated catkins, having one flower in each scale, of one small cup-shape, six-parted petal, two germina, supporting four small styles, terminated by single

single stigmas; and the amentum enlarges to a scaly cone, containing in each scale an oval, angular nut.

The Species of *CARPINUS* are,

1. *CARPINUS Betulus*—(*Betulus*) or Common Hornbeam.

Middling tree, growing twenty or thirty, to forty feet high—the leaves (middling, dark-green) oval, (pear-shape, and roughish, remaining on the trees in a withered state all winter; and the strobilus, or seed cones, having plain or flat scales.—Native of Britain, and most parts of Europe, and in Canada, &c. (*Any soil and situation.*)

Varieties of this.—Common Hornbeam.

Gold-striped-leaved Common Hornbeam.

Virginia Common Hornbeam, with longest leaves and cones.

Eastern, or Dwarf Hornbeam, of smaller growth, (eight to ten, or twelve feet) small leaves, and shorter fruit.

2. *CARPINUS Ostrya*—(*Ostrya Italica*) or Hop Hornbeam.

A moderate tree, growing twenty feet high or more—the leaves (middling size, dark-green) oblong-oval, and rough; and the amentums of fruit somewhat like bunches of hops, inflated or swollen scales.—Native of Italy, Germany, and Virginia. (*Any soil and situation.*)

Variety.—Virginia, Flowering Hop Hornbeam, with lanceolate, pointed, deep-green leaves.

These are all very hardy, deciduous trees, that will grow in any soils and situations, not inundated in water, either low or high grounds, or sides of hills, or any where, both in barren and fertile soils, as may be required or convenient, for any plantations intended; and in which both the species are valuable to cultivate, in forest-tree plantations, in standard timber-trees, and in underwood, to cut frequently in smaller growth; as likewise all the sorts have merit to arrange in any ornamental districts of plantation, in pleasure-grounds, parks, or where thought necessary; and to dispose in single standards, groups, clumps, &c. separate or distinct, and in concert with other deciduous trees, in extensive lawns, in parks, and other grounds, for variety, &c. and the Common Hornbeam is adapted to assemble considerably with other hardy trees, planted towards any out-boundaries, in exposed situations, to afford shelter to interior plantations, and other districts, in the winter, as the old leaves, though withering in autumn, remain closely attached to the branches all that season, whereby they more effectually break off the force of winds and cold, from internal compartments;

and as both the species are of a close branchy growth, they were formerly in great repute for garden hedges, both for fences, shelter, and ornamental purposes; though, in the present designs of ornamental gardening, these and other hedges are seldom admitted; however, as the trees are mostly of an upright growth, with close branchy, regular heads, they, in standards, claim admittance in all useful and decorative planting.

Considered as forest-trees, both in standards and under-growth, the two species may be cultivated to good advantage, or particularly the common sort; the wood or timber being strong and tough, is useful for many purposes, and in the turnery way, mill work, &c. and profitable for fuel; as is likewise the underwood, and for poles, stakes, and many other light occasions: and for which the trees may be planted any where, either in assemblage or distinct plantation, set moderately close at first, four to five, or six feet distance, to draw each other up, in a more swift, tall growth, and to admit of thinning some in a few years, for small wood, leaving abundance of the best stems to run for full standards, and the underwood to advance between them, for future cutting, as occasionally required; or others may be planted at wider distances, to stand wholly for large timber, or to attain some considerable size, before any are cut down: and are sometimes cultivated in hedge-rows of fields, &c. both in low pollard standards, for frequent loppings of the branches, and to advance in tall stems and full heads.

For ornamental planting, both the species, and their respective varieties, are eligible to introduce in a diversified manner, in considerable plantations and large shrubberies; or, for the latter, may have only some particular sorts, as the Eastern and Flowering Hornbeam, striped-leaved, or any others, as may be thought eligible for variety, &c. disposed more or less, towards the back or fore-part, with trees of similar growth; and either pruned up to stems, some considerable height, or permitted to branch out nearly in their natural order.

The trees of all the sorts are raised from seed and layers, in autumn, and when from three or four, to six, eight or ten feet growth, are proper for the several plantations for which they are adapted or designed; or all these trees are cultivated in the nurseries, for supply of the different plantations, for which they may be occasionally required; and where they may be procured of proper growth for the purposes intended.

The seasons for planting them is the same as for other hardy trees, either principally in autumn, about November or December, or any time in open weather, from the decay of the leaf to March, &c.

They being propagated by seed and layers; the former is most eligible for raising any considerable supplies

plies of the Common and Hop Hornbeam, for full standards, for timber-trees and other occasions, or also large quantities for underwood; and for which latter purpose, and for hedge-plants, or occasionally for ornamental standards, they may also be raised by layers; though the seedling-raised plants generally make the handsomest standard-trees: however, the different varieties of the two species, may also be raised distinct in their kinds, in the propagation, by layers of the young wood, and sometimes raised by grafting them upon seedling-stocks of the Common Hornbeam.

To raise them from seeds, they should generally be sowed in autumn, about October, November, &c. or in the spring; but if sowed in the former season, they commonly germinate freely in the spring ensuing; sowing them in beds of common earth, and covered in an inch deep; and when the plants are one or two years old, plant them in nursery lines, till of proper growth for final transplanting.

By layers, this may be performed in autumn, or any time from October to March, in open weather; the lower young wood or shoots of last summer, are proper: being laid down into the earth, will be rooted in one year for planting off from the parent stools into the nursery.

Or to raise any particular sorts by grafting, it is effected by inserting shoots of the desired sorts into stocks of the Common Hornbeam in the spring.

In the different methods of propagating them in the nursery, &c. let those intended for full standards be trained each with a single stem, continuing the top intire; and prune off low and strong collateral shoots from the stem gradually, to form them of a clean, straight growth, of five, six or seven feet, clear of branches, then to branch out above in full heads; but those designed for under-growth or hedge-plants, may branch out low, or for the latter, if run up to naked stems, they may be headed down or shortened at top, to gain lateral branches, though they commonly are tolerably branchy quite from the bottom in their natural growth.

When designed to plant the Hornbeam in woods, &c. for timber-standards, it is most advisable to transplant them in young growth, from two or three, to four, five or six feet; or for other occasions, they may also either be planted young, as above, or of larger sizes, as required; that in planting for timber and underwood, they, as before intimated, may be planted only at small distances, five or six feet, more or less; and in their advanced growth, cut down some for underwood, by degrees, leaving sufficiency of the most promising to grow for timber.

Where hedges of Hornbeam may occasionally be intended, any of the sorts are eligible; the Common sort

is the most generally adopted, or any of the smaller kinds may also be employed for this purpose; and for which occasions are principally used for internal hedges, either for inclosing, dividing or sheltering, particular compartments; or may also be planted for outward fences, especially in a double hedge, as they grow very close; and in all of which, if kept neatly clipped every year, they will appear ornamental in summer; and the Common Hornbeam, retaining its leaves in their decayed state all winter, render the hedge more effectual for shelter in that season, than other deciduous kinds; though it may be observed, that during the continuance of the withered leaves, the hedge appears rather shabby. To plant hedges of this kind, have young plants, well feathered or branchy to the bottom, one or two, to three or four feet high, or more, planted a foot to eighteen inches asunder; and may run them up to five, six, eight or ten feet high; clipping them every summer or autumn, on both sides, cutting the top at first, rather sparingly, just to keep it a little regular, till advanced to the intended height, then to cut it close and even accordingly.

CEANOTHUS, NEW-JERSEY TEA.

Class and Order.

Pentandria Monogynia,
Five Males, One Female;

Or Plants with Hermaphrodite Flowers, having each five Stamina or Male Genitals, and one Pistillum or Female.

ONE deciduous, very ornamental flowering-shrub, of low growth, eligible to adorn principal shrubbery compartments; garnished in summer with oval leaves, and numerous, thick spikes of pentapetalous, or five-leaved white flowers, of beautiful appearance, in July and autumn; succeeded by obtuse, dry berries, furnished with oval seeds, proper wherewith to raise supplies of the plant, also by layers.

The *Characters*—calyx, turbinate, one-leaved, acutely five-parted and permanent; corolla, five-roundish, spreading petals; five erect stamina, of unequal length, crowned by roundish anthera; pistillum, a trigonal germen, cylindrical style, with an obtuse stigma; and the germen grows a trilocular, dry capsular berry, with three oval seeds.

The Species is,

CEANOTHUS *americanus*, American Ceanothus, or New-Jersey Tea.

A bushy shrub, three, four or five feet high, branchy from the bottom—leaves (smallest) oval, and three-nerved.

nerved.—Native of Virginia and Carolina. (*Dry situation.*)

This small shrub demands a place in the best shrubberies, for its ornamental flowering in numerous, white spikes, terminating the branches; is somewhat tender while young, and should generally have a warm, dry situation; and is propagated by seeds and layers: sow the seed in autumn or spring, in a warm border, or in pots, and sheltered from frost; or if the pots are placed in a hot-bed in the spring, the plants will come up sooner; give them the full air in summer, protect them from frost in winter, and when a year old plant some separate in small pots, others in the nursery, and when two or three feet high, are proper for the shrubbery; or layers of the young branches, in autumn or spring, will be rooted to plant off in the spring following.

CELASTRUS—(CELASTRUS) or Staff-Tree.

Class and Order.

Pentandria Monogynia,
Five Males, One Female;

Or Hermaphrodite Flowers, having five Stamina or Males, and one Pistillum or Female.

TWO species of shrubs, one ever-green, of upright growth, the other a climber; both very desirable plants for adorning the shrubbery; grow six or eight, to ten or twelve feet high, ornamented with oval and oblong leaves, placed alternate, and loose spikes of white and greenish flowers of five petals; succeeded by three-cornered, red capsules, furnished each with three oval seeds, by which the plants may be raised, or may be propagated principally by layers of the young wood.

Characters.—Flowers hermaphrodite, calyx or cup, small, one-leaved, obtusely, five-parted; corolla, five-oval, spreading petals; five stamina, the length of the flower, crowned with small anthera; a small germen, placed on a large receptacle, deeply ten-channelled, supporting a single style, terminated by an obtuse, trifid stigma; the germen becomes an obtuse, three-cornered trilocular capsule, containing three oval seeds.

The Species are,

1. CELASTRUS *bullatus*, Bullated, or Studded-fruit-ed, upright Celastrus.

A largish, ever-green shrub, branching eight or ten feet high, unarmed or thornless—leaves (*moderate size*), ovate and intire; and white flowers in July, succeeded

by scarlet fruit, elegantly studded.—Native of Virginia. (*Moist or any common soil.*)

2. CELASTRUS *scandens*, Climbing Celastrus, or Bastard Climbing Spindle-Tree.

A twining-climbing shrub, ascending twelve or fourteen feet high, unarmed or thornless; the stem volubilate or twining—leaves (*middling*) oblong and saw-ed; and greenish flowers in June, succeeded by red feed-capsules, opening and display the feed.—Native of Canada. (*Moist or any soil.*)

These two species are very hardy shrubs, demand admittance in all principal shrubbery collections, for ornament and variety, one as an upright ever-green and flowering-shrub, and the other as a climber, and for the curiosity and pretty appearance of their red capsules: they may be admitted in moist or any common soil and situation; the first, as an upright shrub, should be disposed conspicuously, either principally with other ever-greens, or where it may be required; and the second is proper to introduce as a twining climber, in any shrubbery and tree plantations, giving it support of tall stakes or poles, or will twin round the trees and shrubs, or their flexible stems will twist round one another, or any adjacent support: both the species will display an agreeable variety; they flower in summer, which in the first, are white, appearing in July, and in the second, greenish, coming out in June; and are succeeded by ripe feed-capsules, in autumn, but more abundantly in the latter sort.

Both these shrubs are cultivated plentifully in all the general nurseries, for public supply, and may be easily raised by layers and seeds.

To propagate these shrubs, it being effected both by layers and seeds, autumn or spring is the proper season; though, as they grow freely by layers, that method is more generally practised; the young shoots are proper, which bow down and lay in the earth: they will be rooted in one year, then cut them from the parent stools, and planted in the nursery; or seeds may be sowed in the above seasons, in a bed or pots of loamy or other earth, and if in pots, may be placed in a shady place all summer, and plunged in a warm situation in winter, they will come up in the spring, or sometimes not till the second year; and when the plants are of one or two summer's growth, transplant them into the nursery, where, having attained two, three or four feet growth, are proper for the shrubbery, &c.

The season for planting them in shrubberies, &c. is either in autumn, about October or November, &c. or in the spring.

CELTIS, (Lote) or NETTLE-TREE.

Class and Order.

Polygamia Monoecia,

Many Marriages, One House or Habitation;

Or Flowers of different Sexes, as Males and Hermaphrodites, separate on the same Plant.

THE *Celtis* family consists of large, deciduous tree kinds, proper both to introduce in forest-tree plantations, and for ornament and variety in pleasure-grounds, parks, &c. grow thirty or forty, to fifty feet high, or more, and some of smaller growth; all adorned in summer, with largish and small oblong, spear-shape, oval and heart-shape, roughish nettle-like leaves, two, to three or four inches long, and half as broad; and small male and hermaphrodite, greenish flowers, without corolla or petals; succeeded in the latter by small, round, drupaceous black, and purplish berries: ripe in autumn; and by which the trees are commonly propagated.

Generic Characters.—Flowers hermaphrodite and males; the hermaphrodites having a five-parted cup, no petals, five short stamina, crowned with quadrangular, four-furrowed anthera; a central, oval germen, two reflexed styles, terminated by single stigma; male flowers with a six-parted cup, no petals, five stamina, as in the hermaphrodites, no germen or styles; and the hermaphrodite flowers succeeded by small, globose berries, of one cell, furnished with a round nut.

The Species of CELTIS are,

1. *CELTIS australis*, Southern Black-fruited Nettle-Tree.

A large, deciduous tree, growing forty or fifty feet high—leaves (*moderately large*) oval-spear-shaped, placed alternate; and small, black fruit.—Native of the southern parts of Europe, in France, Spain, Italy, &c. (*Any tolerable good soil.*)

2. *CELTIS occidentalis*, Occidental, or Western, Purple-fruited Nettle-Tree.

Moderate, deciduous tree, thirty to forty feet high—leaves (*moderately large*) oblique ovate, sawed, pointed, and placed alternate; and small, obscure-purple fruit.—Native of North America, principally in Virginia. (*Any tolerable good soil.*)

3. *CELTIS orientalis*, Oriental, or Eastern, Yellow-fruited Nettle-Tree.

A small, deciduous tree, ten or twelve, to fifteen feet high, branching horizontally—leaves (*small*)

oblique-hearted, sawed, hairy on the underfide, and placed alternate; and small, yellow fruit.—Native of the East, in the Levant, and in India. (*Dry situation.*)

These three species of *Celtis* are hardy to grow in the open ground, in any common situation and soil, though are most thriving in lightish, rich land; however, they will succeed well enough in any tolerably fertile ground or that in common with other hardy trees, in ornamental and other plantations, in pleasure-grounds, parks, &c. are all raised from seed, principally in the general propagation, and occasionally by layers, and some by suckers: the young seedling plants are sometimes a little tenderish in their infant state, though not materially so, and they soon harden gradually in a year or two; and when of advanced growth, of from three or four, to five or six feet, or more, may be planted out where they are to remain, in any open exposures, or where required; and the trees, when advanced to some considerable large size, will produce plenty of ripe fruit for sowing, as occurs in many of the British gardens, in which there are large trees of these sorts.

All the species are proper to introduce, moderately, in any ornamental planting, and for variety, both in pleasure-ground plantations, and large shrubbery districts; as also to diversify plantations in parks and other grounds, to assemble principally with other trees of the deciduous tribe; and the first and second species are also eligible to dispose in deciduous, forest-tree plantations for timber, the wood being of a tough, pliant nature, is useful in several trades, where wood of that texture may be in request; and in all of which plantations, the trees will display a conspicuous variety in their general growth, different foliage, &c.

The trees of all the sorts are obtained at the nurseries, for any occasions in which they may be intended or required, for planting.

They may be planted either in autumn, soon after the fall of the leaves, or any time from that season, in open, mild weather, till the spring, or principally in the last-mentioned season, in February and March.

The propagation or method of raising all the sorts is principally by seed, or some, occasionally, by layers of the young shoots; and sometimes they afford suckers from the roots, particularly the *Celtis orientalis*: the seeds are often procured from abroad, by the seedsmen, generally arriving in the spring; at which season they may be sowed, or, if attainable, to sow in autumn, about October or November, they will generally come up more freely in the spring following: they may be sowed in a bed of light, yellow earth, or some sowed in pots, to have shelter from severe frost

in winter; or if the pots are plunged in a hot-bed, in the spring, it will forward the germination of the seed, and the plants will come up sooner, when give them the free air all summer; give occasional watering, in dry weather, both to those in the pots and beds; and if the young plants have shelter the first winter, from frost, it will prove of advantage; then in the spring, about March, plant them in nursery-beds, in rows a foot asunder, till advanced of one or two years growth, when they may be transplanted at wider distances, or some of the largest planted where they are to remain; or the whole, when three or four, to five or six feet, are proper for final transplantation: layers and cuttings of the young wood, in autumn or spring, will root in one summer, especially the layers; and suckers from the root may be transplanted in the same season.

In the above different methods of raising the trees, and in the final transplanted growth, train each with a single stem, cutting off lower-shoots, and strong, lateral wood from the stem, and straggling under-branches of the head.

CEPHALANTHUS, BUTTON TREE.

Class and Order.

Tetrandria Monogynia,
Four Males, One Female;

Or *Flowers (Hermaphrodite) having four Stamina or Male Fructification; and one Pistil or Female.*

THE *Cephalanthus*, or Button Tree, so called from its headed flowers, is an elegant, deciduous, flowering-shrub, to admit in principal shrubberies; is of middling growth, with oblong leaves; and loose spikes of many globular heads of yellowish flowers, each head, or aggregate, composed of numerous, small, funnel-shaped florets, of one petal, succeeded by a single seed, collected into round heads: ripe in autumn; and by which the plants are raised, and also by layers and cuttings.

Generic Characters.—Numerous, small flowers, collected into globose heads; a one-leaved funnel-shaped cup to each floret, four-parted at top; the corolla of the florets one funnel-shaped petal, the top divided into four parts; four short stamina, inserted into the petal, crowned with globular anthera; a small germen, a single style longer than the flower, terminated by a round stigma; and the germens grow oblongish seeds, in a globular head.

One Species, viz.

CEPHALANTHUS occidentalis, Occidental, or Western, Button Tree of America.

A moderate, deciduous shrub, five or six feet high, branching by pairs opposite—leaves (*middling, light-*

green) oblong-narrow, placed opposite, and by three together; and yellowish-white flowers in July.—Native of North America. (*Moist, light soil.*)

This is a desirable, flowering-shrub, to introduce for the embellishment of shrubberies and other compartments, in pleasure-grounds, &c. where it will effect a pretty variety, and flower very ornamentally in summer; delights most in somewhat moist ground, but may also be planted in any common soil where it may be required, and should generally have a principal situation: may be had at the nurseries, and planted in autumn or spring; and is propagated by seed, layers and cuttings.

To raise this shrub, the seed may be sowed either in the autumn, if it can be obtained, or in the spring, in a bed of lightish earth, or in pots, and placed in a shady border, &c. in summer, giving water in that season; and when the plants are one or two years old, transplant them into nursery-beds, where train them, till of two or three feet growth, proper for shrubbery; or to propagate it by layers and cuttings of the young wood, perform it in autumn or in the spring, or the cuttings principally in the last-mentioned season; they will be rooted, both layers and cuttings, to plant off in autumn, or spring following, into the nursery, to acquire a proper size, as observed of the seedling plants.

CERCIS, JUDAS TREE, (Arbor Judæ)

Class and Order.

Decandria Monogynia,
Ten Males, One Female;

Or *the Flowers Hermaphrodite, having ten Stamina or Males, and one Stylus or Female.*

THIS Genus, *Cercis*, comprises two curious species of small or moderate, deciduous trees, of the ornamental kind, for adorning shrubberies and other decorative compartments, of planting in pleasure-grounds; grow ten or twelve feet high, branching out low and irregular, garnished with large, heart-roundish leaves, on long foot-stalks, placed without order; and large clusters of papilionaceous-like, bright-purple, and reddish, very ornamental flowers, of five unequal petals, having ten stamina, and one germen and style, growing a long, unilocular, flat pod, containing roundish seeds, by which the trees are generally propagated; sowed in the spring.

Generic Characters.—Hermaphrodite flowers; the calyx bell-shape, one-leaved, convex at bottom, the top five-parted; corolla, or flower papilionaceous, or butterfly-flower-like, having five unequal petals, the two side-ones or wings reflexed, and rising above the standard or middle petal, which is round, and two heart-shaped.

shaped under-petals, forming the carina or keel, enclosing the fructifications; stamina, ten distinct, declinated filaments, crowned with oblong, incumbent anthera; an oblong germen and slender style, terminated by an obtuse stigma, and the germen succeeded by a long, acuminate pod, of one cell, containing a row of roundish seeds.

The Species of CERCIS are,

1. CERCIS *Siliquastrum*—(*Siliquastrum*) or Common European Judas Tree.

A small or moderate deciduous tree, twelve or fourteen feet high—the leaves (*large, light-green*) heart-shape, roundish and smooth; and numerous clusters of ornamental flowers from the sides of the branches.—Native of Italy, Spain, Narbonne, and the East, in Asia, &c. (*Any common soil.*)

Varieties.—Purple-flowered Common Judas Tree.
White-flowered Common Judas Tree.
Blush or Flesh-coloured, flowered.
Narrow podded.
Broad podded.

2. CERCIS *canadensis*, Canadian Downy-leaved Judas Tree.

A small deciduous tree, ten or twelve feet high, generally branching out near the bottom—the leaves (*large, light-green*) heart-shaped, pointed, and downy; and clusters of smaller purple flowers at the sides of the branches.—Native of Canada and Virginia. (*Any common soil.*)

These two curious trees have particular merit, to assemble in ornamental compartments of trees and shrubs; they are both of hardy growth, to plant in any common soil and situation, and may be admitted in principal shrubberies, wilderness quarters, clumps, and other decorative districts of plantations, in pleasure-grounds, in which they will display a distinguishably agreeable variety and ornamental appearance in summer, in their general growth, singular and elegant leaves, and numerous clusters of beautiful flowers; and, if in warm situations, are sometimes succeeded by curious, long seed-pods: the trees may be obtained at the nurseries, of proper growth for planting; and are generally propagated by seed sowed in the spring, and when raised three or four, to five or six feet, are of proper size for the shrubbery or other garden plantations, in which they may be planted in autumn or spring season.

They are propagated principally by seed, which may generally be had of the seedsmen and nurserymen, in the spring; at which season, in March or April, should be sowed in a bed of light earth, covered in half

an inch to an inch deep; or some sowed in pots, and plunged in a gentle hot-bed, along with any exotic tree and shrub seeds, as occasionally have that assistance, it will bring them on forwarder; and, in either method, when the plants are up, give water sometimes in dry weather in summer; and in winter it would be of much advantage to give them shelter from severe frost, with mats, &c.

Then when the seedling-trees are a year old, they may be transplanted from the seed-bed, &c. into nursery-rows, performing it generally in the spring, about March or beginning of April, training them, in their advancing state, each with a single stem, more or less, and a full head; and after having two, three, or four years growth, or advanced so many feet or more in height, they are then eligible for final transplanting in the places where they are to remain.

Or the propagation may also be tried occasionally by layers and cuttings, especially the varieties; or these likewise by grafting upon seedling-stocks of the Common Judas Tree.

The best season for planting those trees in the shrubbery, &c. is the spring, but may also be performed in autumn, at the decay of the leaves, in October, November, &c. and in which planting, generally dispose them in some principal compartments and conspicuous situation; where permit them to grow with full heads, and in their culture, will only require any casual irregular branches pruned to order, and to cut out dead wood.

CHIONANTHUS, FRINGE or SNOW-DROP TREE.

Class and Order.

Diandria Monogynia,
Two Males One Female;

Or Plants with Hermaphrodite Flowers, having each two Stamina or Male, and one Style or Female Fructification.

THE Chionanthus furnishes but one hardy species, a very curious deciduous flowering-tree, of shrub-like growth, for adorning the shrubbery, garnished with large oblong foliage; and numerous long bunches of fringed snow-white flowers, of one funnel-shaped petal; succeeded by a small roundish berry, with one seed, but do not attain perfection plentifully in England: are obtained from America, by which to propagate the plants, and are also raised by layers.

Generic Characters.—The flower hermaphrodite; calyx or cup monophyllous, erect, acutely four-parted; corolla, monopetalous, funnel-shaped, with a short spreading tube, cut above into four long erect seg-

ments; stamina, two short filaments, crowned by heart-form anthera; and the pistillum consists of an oval germen, single style, terminated by an obtuse, trifid stigma; the germen becomes a round unilocular berry, containing a striated seed or nut.

The Species is,

CHONANTHUS virginica, Virginia Snow-Drop Tree.

A small deciduous tree, shrub-like, eight to ten, or twelve feet high—the leaves (*large, dark-green*) oblong, ovate; and peduncles or flower-stalks, trifid or three-parted, sustaining three flowers.—Native of North America. (*Moist soil.*)

This curious flowering-shrub deserves a place in all principal shrubbery collections, beautiful in its large, laurel-like leaves, and long bunches of flowers in May, which being fringed and of a snowy whiteness, the plant obtained the name Fringe or Snow-Drop Tree; it delights mostly in a somewhat moist situation, but may be planted in any common, mellow soil, or as the situation affords; is raised for sale in all the nurseries; and propagated generally by seed, and occasionally by layers; and when the plants are advanced two, three, to four or five feet, is of a proper size for the shrubbery; and may be planted in autumn or in the spring.

To propagate this shrub by seed, this may be sowed in autumn, if attainable at that season: is commonly obtained from America, and may be had of the seedsmen in the spring, when, about March or April, sow it in beds or pots of loamy or other good earth; and if in pots, place them in a shady or east border in summer; or if plunged in a hot-bed as soon as sowed, they will come up sooner the same year, otherwise, sometimes, remain dormant till the second spring, in which case, if the pots are then placed in a hot-bed, it will forward them considerably; observing that as the young seedling-plants are rather tenderish, it would be advisable to give occasional shelter in winter, from frost; and when they are a year old transplant them in the spring, some singly in pots, others in a warm situation in the nursery; or these in pots may have occasional protection the first winter or two; training the plants, in either method, with a single stem and full heads; and when two, three or four feet high, they are proper for the shrubbery, &c. in which those in pots particularly, may be transplanted with balls.

Or to raise them by layers, the young shoots of last summer are proper, slit-laying them in autumn or spring; they will probably be rooted some in one, others will be two years before they are well rooted; or may by the young shoots of the same year in June or July.

CISTUS,—(CISTUS) or ROCK-ROSE.

Class and Order.

Polyandria Monogynia,
Many Males, One Female;

Or Flowers Hermaphrodite, having many Stamina or Male Fructifications, and one Pistillum or Female.

THE CISTUS is fertile in a numerous family of ever-green, ornamental flowering-shrubs, elegant furniture for the shrubbery; mostly of small and moderate growth, from one, two, or three, to five or six feet, generally diffusely-branched and bushy, clothed with simple leaves, oblong, spear-shape, oval, heart-shape, &c. of various sizes, and different shades of light and dark-green, hoary, white, &c. in the different species, most of them exuding a gummy substance; and at the sides and ends of the branches, numerous large purple, and white flowers, of five spreading petals, containing numerous stamina and one pistillum, succeeded by a roundish capsule, filled with seeds, ripening in autumn in most of the sorts, and by which the plants are raised; and are propagated also by cuttings.

Generic Characters.—The flower hermaphrodite; calyx or cup five-leaved, two alternately smaller; corolla or flower, five large, roundish, spreading petals; stamina, numerous small, short filaments, crowned with roundish anthera; a pistillum in the centre, consisting of a roundish germen, single stylus, terminated by an orbicular stigma; and the germen swells to a roundish, covered capsule, of five to ten loculi or cells, filled with roundish seeds.

The hardy Species of CISTUS are,

1. *CISTUS populifolius*, Poplar-leaved Cistus or Rock-Rose.

A moderate shrub, firm stem, very branched, five or six feet high—the leaves (*largish*) heart-shape, acuminate, smooth, and petiolated or foot-stalked; and large white flowers in June and July.—Native of Portugal.

2. *CISTUS laurifolius*, Bay-leaved Gum Cistus.

A middling shrub, strong stem, branching erect, five or six feet high—the leaves (*moderate*) oblong-ovate, three-nerved, smooth above, with the foot-stalks connated or joined at the base; and large, white flowers; June, July, &c.—Native of Spain.

3. *CISTUS ladaniferus*, Ladanum-bearing or Common Gum Cistus.

A middling strong shrub, stem very branched, five or six feet high—the leaves (*middling*) spear-shape, smooth

smooth above, with the foot-stalks joining at the base and sheathing; and white flowers, in umbels, spotted at the base; June, July, &c. the whole plant gummy.—Native of Spain and Portugal.

Varieties.—Common spotted-flowered Gum Cistus.
Entire-white-flowered, without spots.

4. *CISTUS incanus*, Hoary-leaved Cistus.

A moderate shrub, strongish stem, having many hairy branches—the leaves (*middling, whitish*) ob-ovate spatula-shape, hoary, rough, with the interior base, sheathing and joining; and reddish-purple flowers; June, July, &c.—Native of Spain and Narbona.

5. *CISTUS monspeliense*, Montpellier Gum Cistus.

A moderate shrub, slenderish stem, very branchy, four feet high—the leaves (*narrow, dark-green*) linear-spear-shape, both sides hairy, three-nerved, and sessile or fitting close; and long peduncles, sustaining many white flowers; June, July, &c.—Native of France.

6. *CISTUS albidus*, White-leaved Cistus.

A middling shrub, branching erect, four or five feet high—the leaves (*middling, white*) ovate-lance-shape, hoary and white, three-nerved, sessile or close-fitting; and large, bright-purple flowers; May, June, July, &c.—Native of France and Spain.

7. *CISTUS creticus*, Cretan Gum Cistus.

A smaller shrub, the stem branchy, three or four feet high—the leaves (*middling*) spatulate-ovate, without nerves, rough, and having foot-stalks; red flowers, having the leaves of the calyx spear-shape.—Native of the Island Creta, and in Syria.

8. *CISTUS salvifolius*, Sage-leaved spreading Cistus.

A small shrub, three feet high, the stem slender, branching horizontally and spreading—the leaves (*middling*) ovate, hairy on both sides and foot-stalked; and long peduncles or flower-stalks, having one or two white flowers; June, July, &c.—Native of Italy, Sicily, and Narbona.

9. *CISTUS crispus*, Curled or waved-leaved Gum Cistus.

A moderate shrub, three or four feet high—the leaves (*long, narrow, whitish*) spear-shape, three-nerved, downy, and the borders waved and curled; and deep-purple flowers at the end of the branches; June, July, &c.—Native of Portugal.

10. *CISTUS halimifolius*, Sea-Purflane-leaved Cistus.

A middling shrub, branching four or five feet high, of bushy growth—the leaves (*middling, very white*) oval, obtuse, hoary; two leaflets of the calyx linear; and large, yellow flowers, on very long foot-stalks at the ends of the branches; June, July, &c.—Native of Portugal, near the sea.

Varieties.—Broad-leaved, Sea-Purflane-leaved Cistus
Narrow-leaved, Sea-Purflane-leaved Cistus.

11. *CISTUS pilosus*, Hairy-leaved Cistus.

A middling, strong shrub, stem very branchy, of bushy growth, three or four feet high—the leaves (*middling*) ovate, very hairy, and petiolated or foot-stalked; and purple flower terminating the branches; May, June, &c.—Native of Italy and Spain.

12. *CISTUS libanotis*, Rosemary, narrow-leaved Cistus.

A moderate shrub, stem purplish, branching three or four feet high; the leaves revolute, linear and narrow; and white flowers in terminal umbels.—Native of Spain.

13. *CISTUS apenninus*, Apennine Mountain Cistus.

A small, shrubby plant, of low, slender, spreading growth—the leaves (*small*) spear-shape, hairy, the under side hoary, and white flowers.—Native of the Apennines and Italian mountains.

14. *CISTUS humilis*, Dwarf Thyme-leaved Cistus.

A small, under-shrubby plant, of very low growth—the leaves (*very small*) linear, narrow, two-furrowed, underneath, and hoary; a smooth calyx, with white flowers.—Native of Montpellier.

15. *CISTUS Helianthemum*—(Helianthemum) or Sun-flower Dwarf Cistus.

A small, under-shrubby, trailing plant, of slender growth—the leaves (*small*) oblong, revolute, somewhat hairy, with spear-shape stipula; and largish, yellow flowers.—Native of Europe, in dry pastures, &c.

16. *CISTUS italicus*, Italian Dwarf Cistus.

A low, under-shrubby plant, stem erect, branches opposite, spreading—the leaves (*very small*) opposite, lower

lower ones ovate, the upper spear-shape; and pale flowers.—Native of Italy.

Thus far comprising the principal hardy species of shrubby *Cistus*, their merit for garden culture, is to admit them as ornamental ever-greens and beautiful flowering-shrubs, in pleasure-ground compartments; in which it may be observed, that as in their native places of growth, they mostly inhabit dry, warm soils, they generally be planted in similar situations, in shrubberies, &c. or will succeed in any common, tolerably dry ground; and if somewhat sheltered compartments, it will be of advantage to the plants in winter, when severe frost; though they may also be planted in any exposure, in assemblage with other ever-greens and flowering-shrubs, where they may be required; but the Cretan *Cistus*, and *Cistus balsamifolius*, being of rather more tender quality, in winter, than most of the others, particularly the latter, they should generally have a warm, dry situation; however, in our ordinary seasons, the species in general here enumerated, will mostly stand all weathers, and may all be propagated plentifully by seed, layers and cuttings.

However, as most of these shrubs are liable to suffer, more or less, in very severe winters, it will also be proper, where convenient, to have some of the principal or desirable sorts planted in pots, in order for placing under shelter in rigorous frosts, in a frame or glass case, or under awnings of mats, &c. with other shrubs of similar temperature; especially in their young growth, the first year or two after being raised from seed, &c.

All or most these species of *Cistus* are cultivated in the nurseries, for supplying shrubberies and other compartments in pleasure-grounds, either in full collection, or of any particular or desirable sorts required, for planting in the proper seasons, autumn or spring; and when designed to propagate or raise any of the sorts, it is effected by sowing the seed in the spring, in a bed of light earth; and by layers and cuttings in the same season and early part of summer.

These ever-green flowering-shrubs of the different species, are desirable furniture to introduce in principal shrubberies, for ornament and variety, or to beautify any compartments, borders, &c. of pleasure-grounds; disposed, more or less forward, according to their sizes, distinguishable to fight at all seasons; or some principal sorts likewise planted in pots.

In their general growth they are mostly branchy and bushy; many of them rising with an erect stem, branching on every side, their whole length; some grow more shrubby-like, advancing with several stems from the bottom; others are low, under-shrubby plants; and the whole display a pleasing diversity in their different growths, of from a foot or less, to two, three or four,

to five or six feet; some erect, others spreading, and some procumbent; as also in their various foliage, in the different species, at all seasons, and numerous, ornamental flowers in summer, some very large and spreading, others middling, and some smaller; appearing some in May, or the whole principally in June or July, till August; all conspicuous and of long continuance in daily succession; for though they are only flowers of a day, or the same flowers being but of one day's duration, they are succeeded by new ones every following day, abundantly for several weeks, in most of the species, and in many of which are succeeded by ripe seeds.

Several species of these *Cistuses* are remarkable for imparting a gummy matter from the surface of their leaves and shoots, especially in hot weather; which, in the places where they grow naturally in great abundance, is collected for medical preparations, especially Gum Ladanum or Labdanum.

The best season for planting these shrubs is principally either in autumn, about September, October or November, or in the spring, in March and April, when the weather is settled in mild.

They may be introduced both in compartments of ever-greens, and in any general shrubby compartments, composed of ever-greens and deciduous shrubs, in assemblage, and in borders, &c. contiguous to principal walks and lawns; and some planted in pots, to move to any particular compartments, occasionally.

To propagate these shrubs, it may be performed both by seed, as before observed, and by cuttings of the young shoots, also by layers.

Sow the seed generally in spring, about March or April, either in a bed or border of light earth, and molded in half an inch to an inch deep; or some sowed in pots, and those plunged in a hot-bed, to forward the germination of the seed and growth of the young plants, which must have plenty of air admitted; they, in either method, when come up, and when two or three inches high, if very thick, some may be thinned out and pricked in a border, or some singly in pots, or the whole pricked out the following spring; giving them protection in winter from severe frost, and in summer, occasionally watered; and according as they increase in growth, may be transplanted in nursery-rows, one or two feet distance; or when of one, two or three feet size, are proper for final transplanting in the shrubbery, or where they are intended; in which, if convenient, to remove them with small balls of earth to the roots would be of particular advantage.

By cuttings, these should be of the young shoots, in April, May or June, planted either in a shady border, or several together, in largish pots of good earth,

earth, for moving to a shady situation, occasionally in summer, and to shelter in winter; or some cuttings planted in pots in spring, and plunged in any hot-bed of moderate heat, it will forward their rooting sooner, giving the whole shade and necessary watering, they will all root freely the same season, in six or eight weeks; and when a little advanced in a top-growth, plant them out, some singly in small pots, others in a bed or border; give water and shade in hot weather, shelter them in winter, and may afterwards be transplanted into the full ground.

Likewise by layers of the under-branches, the larger and other kinds may also be propagated, layed in autumn or spring.

In their general culture they may be permitted to advance in their natural, branchy, bushy growth; or any of the large sorts may have irregular or low, straggling branches pruned; and to cut out casual, dead shoots, killed by frost or other accidents.

CLEMATIS, (Climber) or VIRGIN'S BOWER.

Class and Order.

Polyandria Polygynia,
Many Males, Many Females;

Or Flowers (Hermaphrodite) having many Stamina or Males, and many Pistillums or Females.

THE CLEMATIS comprise several species of climbing, shrubby plants, to admit in shrubberies and other compartments of the pleasure-ground, for variety, as climbers, and some for their ornamental flowering; producing long, slender, trailing stems, ascending upon support of trees, shrubs, bushes, poles, &c. many feet in one season; clothed, some with compound, winged leaves of many folioles, others with trifoliate, ternate and simple leaves; and numerous flowers, singly and in clusters in the different species, blue, red, white, &c. each formed of four oblong petals, without any calyx, containing many stamina and pistillums; succeeded in the latter by many roundish seeds, terminated by the permanent styles, which in some sorts ripen plentifully in this country, others not, and by which the plants may be raised; but as they grow freely by cuttings and layers, they are more commonly propagated by those methods.

Characters.—The flowers hermaphrodite, no calyx or cup; corolla or flower, four oblong, loose petals; stamina, numerous, short filaments, having the anthera attached to the sides; pistillum, many roundish-compressed germina, supporting awl-shaped styles, longer than the stamina, terminated each by a single stigma; and the germina become roundish-compressed seeds, collected into a head, and terminated by the styles, forming a tail to each seed.

The Species of the hardy Shrubby CLEMATIS are,

1. CLEMATIS *Viticella*—(Viticella) or Virgin's Bower.

A climbing, shrubby plant, rising with many stems or branches, ten to fifteen or twenty feet high—the leaves double-compound, branching into divisions composed of many oval, intire folioles or leaflets, by threes; and blue and other coloured flowers singly; June and July.—Native of Italy and Spain, in hedges. (*Any soil.*)

Varieties.—Common single Blue Virgin's Bower.
Purple-flowered Virgin's Bower.
Red-flowered Virgin's Bower.
Double-flowered Virgin's Bower.

2. CLEMATIS *Viorna*—(Viorna) or Purple American Virgin's Bower.

A climbing, shrubby plant, ascending ten or twelve feet high—the leaves double-compound, of many heart-shape folioles, by threes, the folioles sometimes trifid; and purple flowers singly, with coriaceous petals; July.—Native of Carolina and Virginia. (*Any soil.*)

3. CLEMATIS *crispa*, Curled-flowered American Climber.

A moderate, shrubby climber, growing four; to five or six feet—the leaves simple and three folioled, with the folioles of the leaves both intire and three-lobed; and purple flowers singly, curled or waved internally; July.—Native of Carolina. (*Any soil.*)

4. CLEMATIS *orientalis*, Oriental or Eastern Clematis.

A moderate, shrubby climber, extending eight or ten feet—the leaves compound, nine-folioled, with the leaflets cut, angular, lobated wedge-shape; and yellow-green flowers, having the petals hairy within; April and May.—Native of the East.

5. CLEMATIS *cirrhosa*, Cirrhose or Climbing-ten-trilled, Ever-green Virgin's Bower.

An ever-green, shrubby climber, extending six or eight feet, branchy and bushy—the leaves simple, ovate, sometimes single, double and ternate; and with climbing cirrhi or clasps; large, greenish flowers in winter.—Native of Spain and Portugal. (*Any soil.*)

6. CLE-

6. *CLEMATIS virginiana*, Virginia broad three-leaved Clematis.

A strong, shrubby climber, extending many feet—the leaves ternate or three-foliated, having the folioles heart-shape, sub-lobated angular and climbing; and dioecous, white flowers; June, July.—Native of North America. (*Any soil.*)

7. *CLEMATIS Vitalba*—(*Vitalba*, White Vine) White, wild Climber, or Traveller's Joy.

A strong, shrubby climber, extending twenty or thirty feet—the leaves pinnated, of many heart-shape, climbing leaflets, by fives or sevens; and many bunches of white flowers; June, July, with seeds, having long, white beards.—Native of England and most parts of Europe and America, in hedges, &c.—(*Any soil.*)

Varieties.—Indented-leaved Traveller's Joy.
Intire-leaved Traveller's Joy.

8. *CLEMATIS maritima*, Maritime or Sea Clematis.

An under-shrubby plant, erectish and trailing; the stem simple, six-angled—leaves pinnated and linear.—Native near the Adriatic Sea, Venice, and Montpelier.

These eight species of *Clematis* are very hardy plants, to grow in any common soil and situation, and to admit in shrubberies and other compartments, for variety in their climbing growth and ornamental flowering; and are all easily propagated, some by seed occasionally, or the whole more commonly and expeditiously by layers, and sometimes by cuttings; each method performed, either in spring or autumn, or the layers and cuttings also in summer, and will root the same season.

They being mostly trailing and climbing plants, advance with long, slender stems and branches, extending many feet, in a swift growth, in their peculiar manner, either trailing on the ground or ascend upon any adjacent support, some in a creeping order, others climbing by their tendrils or clasps, attaching themselves to trees, bushes, hedges, &c. and as they ascend, flower at the joints, in their respective seasons, several of which appear very ornamental; others, though less conspicuous, display an entertaining variety; and therefore the plants considered as climbers, are proper to introduce in particular compartments, where they can have support, or some to run over rural bowers, arbours and seats, more particularly the Common Virgin's Bower, for the superior beauty of its flowers, which is also eligible to train against walls, trellises, poles, &c. in any conspicuous situation; and which, and the other sorts,

may also be admitted in shrubberies, wood-walks, wilderness compartments, recesses, to ascend upon trees, shrubs, bushes, or other support; in all of which, they will have an agreeable effect in their climbing growth, various foliage and flowers; but of which, the *Clematis Viticella*, or particularly the double variety thereof, exceeds most of the others in its ornamental flowers; however, all, or any of the other sorts, are eligible to admit in the order above-mentioned, for variety, and to diversify particular districts, where thought necessary.

Most of these plants are raised in the nurseries for sale, where any desirable sorts may be procured for planting.

They may be planted in autumn or spring, or almost any time in mild weather, from October, to March or April.

They are propagated sometimes by seed, sowed in autumn or spring; but principally by layers, in spring and summer, which will soon emit roots the same year; chusing the young shoots, or branches furnished therewith; peg them down in the ground, and lay the shoots in earth, the stem of each two or three inches deep, the top continued upright, a few inches above the surface; they will be sufficiently rooted to plant off in autumn; or likewise cuttings planted in the spring will be rooted the following summer: and in all of which, when the plants have advanced in top-shoots, of one, two or three years growth, they are proper for transplanting where they may be required.

When in the allotted compartments in the pleasure-ground, &c. being planted where they may have support, conduct the stems thereto; or where any are against arbours, walls or trellises, train them with some regularity, and in their advanced growth, prune out weak, or very crowding and irregular wood, or where any extend out of bounds, shorten them accordingly; but those planted to ascend up trees, poles, &c. may run in their natural order.

CLETHRA—(CLETHRA)

Class and Order.

Decandria Monogynia,
Ten Males, One Female;

Or Flowers (*Hernaphrodite*) having ten Stamina or Males, and one Pistillum or Female.

THIS genus *Clethra* furnishes but one species, a deciduous flowering-shrub, of upright, moderate growth, having oblong leaves, and terminal spikes of white, ornamental flowers, of five petals, succeeded by roundish capsules, filled with angular seeds; not always ripening plentifully in this country: are obtained from

from America for sowing, or the plant propagates by layers, cuttings, and suckers.

Generic Characters.—The flower hermaphrodite; the calyx one-leaved, five-parted, and permanent; corolla or flower, five oblong petals, longer than the cup; ten stamens the length of the petals, crowned with oblong, erect anthers; pistillum, consisting of a roundish, central germen, an erect, permanent style, terminated by a trifid stigma; and the germen grows a roundish, trivalved capsule, full of angular seeds.

One Species, viz.

CLETHRA alnifolia, Alder-leaved Clethra.

A moderate shrub, five or six feet high—the leaves (*middling large*) oblong spear-shaped, sawed, and placed alternate; and spikes of white flowers at the ends of the branches; July.—Native of Carolina, Virginia, and Pennsylvania. (*Moist situations, or any common soil.*)

This being an ornamental flowering-shrub, demands a place in principal shrubberies; delights most in moist ground, but will grow in any common soil and situations: may be obtained at the nurseries for planting, in autumn or spring, generally allotting it some principal compartment in a conspicuous situation, in which it will make a pretty appearance when in flower, and effect variety in its general growth.

It is propagated by layers, cuttings, suckers, and occasionally by seed; by layers and cuttings the young shoots are proper, in autumn or spring, they will be rooted, some probably by the autumn following, or sometimes not sufficiently till the second autumn; or may lay young shoots of the year in June, to root sooner; and cuttings of the young shoots may be planted in the spring, in a shady border; likewise suckers from the root, digged up with fibres, form at once rooted plants, which set in a nursery for a year or two; and when the plants, by either method, are of two or three feet growth, they are proper for the shrubbery.

By seed, generally obtained in the spring, sow it in March or April, in a bed or pot of good earth; give occasional shade and water in hot weather; and when the plants are a year old, transplant them in the nursery till of proper size, as above.

CNEORUM, WIDOW WAIL.

Class and Order.

Triandria Monogynia,
Three Males One Female;

Or Flowers Hermaphrodite, having three Stamina or Male Fruifications, and one Pistillum or Female.

THE CNEORUM comprises but one species, a small bushy ever-green, for the shrubbery, flowering orna-

mentally great part of summer and autumn; is closely adorned with small leaves, and many small, yellow flowers, singly, of three narrow petals, succeeded by a globular, trilobated, dry berry, having three seeds: ripe in autumn, and by which, sowed in autumn or spring, the plant is propagated, also by cuttings.

Characters.—The flower hermaphrodite; calyx small, tridented, and permanent; corolla, three oblong, narrow petals, erect; three stamens, erect, and shorter than the flower, crowned by small anthers; a central, obtuse, three-cornered germen, having a short, erect style, terminated by a spreading, trifid stigma; and the germen becomes a globular, trilobated, dry berry, of three round seeds.

One Species, viz.

CNEORUM tricoccum, Three-seeded Cneorum or Widow-Wail.

A low, ever-green shrub, closely branching and bushy, three feet high—the leaves (small) oblong-oval, narrow, and closely placed; and yellow flowers, singly, in May or June, to the end of the summer.—Native of Spain and Narbona. (*Dry situation or any.*)

This dwarf, ever-green shrub, being ornamental both in its close, bushy growth, and long continuance in flower, claims a place in all principal shrubbery collections, allotting it a front situation; either in assemblage, chiefly in ever-green clumps, &c. or towards the front of other compartments; in a dry, gravelly, or any soil as may be convenient: may be had at the nurseries for planting, in autumn or spring, and is easily raised by seeds and cuttings in the same seasons; and young plants often rise naturally from scattered seeds.

To propagate the plant, sow the seed in the autumn or spring, but if the former season, they will generally come up more freely the spring following; sowing it half an inch to an inch deep in any light earth; and when the seedlings are one year old plant them in a nursery; and may plant cuttings or slips of the young shoots in a shady border, or forwarded in a hot-bed in the spring.

In either method of raising the plants, they, when advanced in the nursery twelve to eighteen inches, or two feet, may be planted in the shrubbery; there proceed in their natural growth.

COLUTEA, BLADDER SENNA.

Class and Order.

Diadelphia Decandria,
Two Brotherhoods, Ten Males;

Or Papilionaceous Flowers, having two Sets of Stamina or ten Stamina or Males in two Sets or Brotherhoods.

THE COLUTEA furnishes three hardy deciduous flowering-shrubs, desirable furniture for shrubbery plantations;

plantations; are of large and moderate growth, garnished with pinnated leaves, of many pair of oval and hearted folioles or leaflets, terminated by an odd or end foliole; and long loose clusters of papilionaceous or butterfly-shaped, yellow, and red flowers, with unequal petals, consisting of a standard, two wings, and a carina or keel below, succeeded by large, inflated, bladder-shaped pods, of one cell, containing many kidney-shaped seeds: ripe in autumn, and by which the shrubs are generally propagated.

Generic Characters.—The flower hermaphrodite; of the papilionaceous or butterfly-shaped kind; the calyx bell-shape, monophyllous, five-dented and permanent; corolla or flower, four unequal petals, consisting of a large standard above, two side-wings and a carina below, all varying in shape; stamina, ten filaments, in two sets, nine being joined, one standing separate, each crowned by single anthera; a pistillum, consisting of an oblong central germen, an ascending style, terminated by a linear, bearded stigma; and the germen grows an inflated or swollen, bladder-like, unilocular pod, furnished with several kidney-shape seeds.

The hardy Species of COLUTEA are,

1. COLUTEA *arborescens*, Tree Colutea, or Common Bladder Senna.

A large deciduous shrub, eight to ten, or twelve feet high; the stem tree-like—leaves winged or pinnated (*middling, light-green*) of four or five pair and an end foliole; the folioles obcordate-oval; and pale, yellow flowers, in June and July.—Native of France, Italy, and Austria. (*Any common soil.*)

Varieties.—The two following are supposed accidental varieties of the common sort.

2. COLUTEA *media*, Middle or Pocock's shrubby Colutea.

A middling shrub, (deciduous) more slender, spreading branches, six to seven, or eight feet high; the stem shrubby—leaves pinnated (*middling size*) of eight or nine pair and an odd foliole, the folioles oval, intire; and bright, yellow flowers; May or June.—Native of the East. (*Dry or any soil.*)

3. CALUTEA *orientalis*, Oriental Shrub Colutea.

A middling shrub (deciduous) branching in a regular head, six or seven feet high—leaves pinnated (*middling size*) of five or six pair and an end foliole, heart-shaped; and dark red flowers, spotted with yellow; June or July.—Native of the Levant. (*Dry or any soil.*)

All these species and varieties are of hardy growth, to succeed in any common soil and situation; and are principal shrubs to assemble in shrubby clumps, and

other decorative plantations of middling shrubs and trees, in pleasure grounds, in which they will effect a distinguishable variety and ornamental appearance in summer, in their pinnated leaves, numerous papilionaceous flowers, and curious inflated or puffed, bladder-like pods; especially if in disposing them in the allotted compartments, they are judiciously placed, more or less, behind or forward, according to their growth, and that of the other shrubs, with which they are to assemble, so as the whole may be distinctly conspicuous.

They may be obtained for planting, at all the public nurseries, in proper growth, of two or three, to four or five feet; and the planting performed in autumn, or any time in open weather, from October to March, or April; and are propagated or raised abundantly by seed, and occasionally by layers.

The propagation or raising these shrubs is generally by seed, in the spring, sowed in a bed of common earth, either in drills or broad-cast, and earthed in an inch deep; or may also try layers, in the same season, or in autumn, of the young shoots: the seeds will soon vegetate and the plants come up freely, and attain some tolerable growth by the end of summer; and the layers will be rooted for planting off in autumn or spring; when transplant the seedlings from the seed-beds, and also the layers from the stools, each in nursery-rows, to acquire eligible size for the shrubbery or other plantation districts intended.

When the seedling-shrubs, and others, raised as above, are from two, to three or four feet high, they are of proper growth for final planting, in shrubberies and other places, where required, for ornament and variety.

The general season for planting these shrubs is either in autumn, at the decay of the leaves, or in the spring, or even any time from October or November to April; observing generally in planting, if any have long perpendicular tap-roots, they should be pruned, that they may throw out lateral roots horizontally, after being planted.

In their general growth, they require but very little culture, only to prune up low, straggling, or casual, rude shoots, in the head.

CORIARIA (Tanner's Shrub) or MYRTLE-LEAVED SUMACH.

Class and Order.

Dioecia Decandria,

Two Habitations Ten Males;

Or Flowers Male and Female, distinct, on two separate Plants; and the Male Flowers having ten Stamina.

THIS Genus affords but one hardy species a small flowering-shrub, of the deciduous tribe, of thicketty, bushy

bushy growth, garnished with small, oblong leaves, and spikes of whitish flowers, male and females on separate plants, of five oval petals; and succeeded in the females by an angular berry, with five seeds, which are seldom used for sowing, as the plants propagate plentifully by suckers.

Characters.—Flowers male and female, separate on two different plants, having a calyx five-leaved; a corolla or flower, five oval petals attached to the cup; and in the male flowers ten stamens, crowned by oblong anthers; the females furnished with a pistillum, becoming an angular berry, containing five kidney-shaped seeds.

One Species of hardy CORIARIA, viz.

CORIARIA myrtifolia, Myrtle-leaved Sumach.

A small shrub, with many slender stems, three or four feet high—the leaves (*small*) ovate-oblong, and small spikes of whitish flowers in summer.—Native of Montpellier, in France. (*Loamy or any soil.*)

Varieties.—Male *Coriaria*, producing male flowers only.

Female *Coriaria*, producing female flowers only.

These shrubs having creeping roots, send up many sucker-stems in a thicketty growth; is employed in shrubberies for variety, and to supply vacancies, where a full growth is required in any particular compartments: they may be had at most of the nurseries, for planting, in the proper seasons; and may be propagated plentifully by the abundant root-suckers taken up in autumn or spring, with roots, and planted in a nursery for a year or two, or some at once where they are to remain, or will grow by layers.

In their growth in shrubberies, it does not require any particular culture, only, if thought necessary, to clear out-suckers where too considerably increased.

CORNUS, CORNELL TREE, or CORNELIAN CHERRY, Dog-Wood, &c.

Class and Order.

Tetrandria Monogynia,
Four Males, One Female;

Or Plants, having Flowers, containing four Stamens or Males, and one Pistillum or Female Part.

THE Cornel family furnishes three hardy species, and several varieties, of moderate tree and shrub kinds, all of the deciduous tribe; employed, principally, for diversifying shrubberies, as flowering-trees and shrubs;

and some, occasionally, for their fruit: grow eight or ten, to fifteen or twenty feet high, in the different species; garnished in summer with oblong, oval and heart-shaped leaves, of middling sizes; and many small, yellowish and white flowers, in umbellate clusters, in a four-leaved involucre; with each floret, a monophyllous four-dented cup, four petals, four stamens, and a roundish germen and slender style; succeeded by a roundish berry, including a small nut or stone: ripe in autumn, by which the species are propagated, also by layers and cuttings.

Generic Characters.—Hermaphrodite flowers, many together in an umbellate bunch, contained in one general involucre, four-leaved and coloured; a small calyx one-leaved, four-dented to each flower; the corolla or flower, four small, plane petals; stamens, four erect filaments, higher than the petals, crowned by roundish anthers; a round germen under the calyx, having a slender style, terminated by an obtuse stigma; and the germen grows a roundish or oval, drupaceous berry, containing a nut, furnished with an oblong kernel.

The Species of Woody CORNUS are,

1. *CORNUS mas*, Male, Cornel Tree, or Cornelian Cherry.

A small, deciduous tree, growing fifteen feet high or more; a tree stem—the leaves oblong over-arched; and flower-umbells and involucres equal; with close growing flowers in February or March, succeeded by cherry like, eatable fruit, for tarts.—Native of Austria, America, &c. (*Any common soil.*)

Varieties.—Red-berried Common Cornel Tree, or Cornelian Cherry.

White-fruited Cornel Tree.

2. *CORNUS sanguinea*, Bloody Twig, Female Cornus, or Common Dogwood.

A smaller tree or large shrub, eight, to ten or twelve feet high, with blood-red shoots—the leaves (*middling size*) oblong-cordate, pointed; and cymose, naked flower umbells.—Native of England and most parts of Europe, in hedges, and in America. (*Any soil.*)

3. *CORNUS florida*, Florid, Male Cornus, or Virginia Dogwood.

A large shrub, eight or ten feet high, with red shoots—the leaves (*largish*) oblong; and white flowers in corymbus bunches, having a large, white involucre, folioles over-arched.—Native of Virginia and other parts of North America. (*Any common soil.*)

Varieties.—Common Broad-leaved Virginia Dogwood.
Narrow-leaved Virginia Dogwood.
White-involucrumed Virginia Dogwood.
Red-involucrumed Virginia Dogwood.
Blue-berried American Dogwood.
White-berried Penfylvanian Dogwood.
White-leaved American Dogwood.

All these species and varieties of *Cornus* are esteemed principally to plant for ornament and variety, in pleasure-grounds, &c. and the Cornelian Cherry also, occasionally, as a fruit-tree, in small standards or in espaliers, for its cherry-like berries, particularly the red sort: which ripening in autumn, of an acid relish, are sometimes preserved for making tarts; but the trees of which, in both the varieties, and those of all the other species of *Cornel*, are more generally employed in composing shrubberies, and in diversifying any decorative plantations; and for all of which occasions they are easily raised abundantly by feed, layers, cuttings, and grafting.

They are all very hardy, deciduous tree and shrub kinds, to grow in any common soil and situation; and from their natural growth, modes of flowering and fruiting, are commonly adapted to introduce in ornamental plantations, and any large clumps or other compartments of flowering-trees and shrubs, in pleasure-grounds, in which they will display a proper diversity in their different growths, some singular in their red shoots; and the whole effect a conspicuous variety in their different leaves, and umbells of flowers, in spring and summer, which in the *Cornus mas*, and some of the Virginia Dogwoods, appear early in the spring, at the sides and ends of the branches, in small, close umbells; others appearing in summer, in large, white umbells, terminating the branches and shoots ornamentally; succeeded in most of the sorts by clusters of red, white, blue, and other coloured berries: ripe in autumn, and some continue in winter; and in which season the red-twigged Dogwoods exhibit an agreeable appearance.

So that for any ornamental planting in large shrubbery compartments, both in clumps and running plantations, all the species of *Cornus* are proper to arrange in assemblage; and for which may be had at all the nurseries, and planted any time in open weather, from the decay of the leaves in autumn to March.

Likewise the *Cornus mas*, or Cornelian Cherry, may be admitted in the fruit-tree collection, particularly the red-berried kind, for its fruit, which in some families is esteemed for its acid quality to preserve for tarts; and for which the trees may be trained either in small standards, in gardens or orchards, or trained in espaliers, to obtain the fruit in best perfection: generally ripening in autumn, about September.

All the sorts of *Cornus* are propagated or raised by feed, layers, suckers, and sometimes by cuttings, and occasionally by grafting any particular variety.

By feed or berries, these ripening in autumn, may be sowed in that season, or in the spring; but if sowed in autumn they will more certainly all come up next spring, the others probably not so freely, or sometimes not wholly till the year following: they may be sowed in any beds of common earth, and covered in an inch or two deep: when the plants come up, give occasional watering in dry weather; and when of one or two summers growth, transplant them in autumn or spring into a nursery, trained with a single stem and branchy head; and when advanced two or three, to four or five feet, are of proper size for final transplanting in the places where intended.

Or by layers, cuttings and suckers; chuse for the two former, the young shoots, which lay and plant in autumn or spring, and will be rooted by the following autumn, more especially the layers; and suckers rising from the roots, may be taken off in the autumn or spring; and all of which planted in a nursery for a year or two, or till of proper growth, or wanted for the intended plantations.

When, by either of the above methods of propagation, they are raised to three, four or five feet growth, they are of eligible size for the shrubbery and other plantation districts intended, planted therein at the proper season; and in which plantations the principal culture is only to prune out any low, straggling branches, or to reduce long ramblers of the head.

Or if any of the Cornelian Cherry are planted for fruit-trees, permit the standards to advance in full heads, or, occasionally, prune any casual irregularly, as above; and where any are trained in the espalier order, arrange the branches to the trellis mostly at their full length, horizontally, four or five inches asunder, and have a regulation of pruning and training annually, as directed for the Common Cherry-Tree.

CORONILLA, JOINTED-PODDED COLUTEA,
and Scorpion Sena.

Class and Order.

Diadelphia Decandria,
Two Brotherhoods, Ten Males;

Or Papilionaceous, Hermaphrodite Flowers, having ten
Stamina or Males, in two Sets or Brotherhoods.

THE family of *Coronilla* affords four hardy flowering-shrubs of the ever-green and deciduous tribes, to admit in the shrubbery; all of upright, small and middling

ding growth, clothed with pinnated or winged leaves, formed of many pair of small folioles, terminated by an odd one; and papilionaceous or butterfly-shaped, or pea-bloom, yellow flowers, in bunches and loose spikes at the sides and end of the branches; each flower composed of a heart-shape vexillum or standard, two oval wings, and a short carina or keel, with ten internal stamina, an oblong germen, and single style; and the germen becomes a Jointed-Pod, containing oblong seed, ripe in autumn, proper for sowing to raise supplies of the plants, which are also propagated by layers.

Characters.—The flowers, hermaphrodite, papilionaceous—the calyx one-leaved, very short, bifid, erect and permanent; corolla or flower, a heart-shaped, and in some a narrow vexillum or standard, two oval or oblong wings, and a short, compressed pointed keel or carina; stamina, ten filaments in two sets, nine being joined and one standing separate, broad at top, crowned with small anthera; a pistillum, consisting of a long, taper germen, supporting a bristly, ascending style, terminated by an obtuse stigma; and the germen grows a jointed taper pod, having oblong, kidney-shaped seeds.

The Species are,

1. *CORONILLA coronata*, Coronated Jointed-Podded Colutea.

A small, ever-green shrub, two feet high—the leaves pinnated (*small*) of nine ob-oval lobes, the inner ones approaching the stalk, with two-parted, opposite stipula; and close bunches of yellow flowers; May or June.—Native of the South parts of Europe. (*Warm, dry situation.*)

2. *CORONILLA glauca*, Glaucaous or Sea-green Coronilla.

A small, ever-green shrub, two feet high—the leaves pinnated, (*small, glaucous or sea-green*) of seven lobes, with lanceolate stipula, and roundish bunches of bright-yellow flowers, in April or May.—Native of France. (*Warm, dry soil.*)

3. *CORONILLA argentea*, Silvery-leaved Coronilla of Creta.

A small, ever-green shrub, two feet high—the leaves pinnated, (*small, silver-coloured*) of eleven silky silvery lobes, the outer ones largest, and bunches of yellow flowers, in April or May.—Native of Creta. (*Warm, dry situation.*)

4. *CORONILLA Emerus*—(Emerus) or Scorpion Sena.

A middling, deciduous shrub, seven or eight feet high—the stem angular, leaves pinnated (*middling, light-green*) of seven lobes; and long peduncles, generally with three yellow flowers; the claws of the corolla triply longer than the calyx; flowering in May, June, &c.—Native of Mesfilea and Montpelier. (*Any common soil.*)

Variety.—Dwarf, Scorpion Sena.

Of the above species of *Coronilla*, the first three are somewhat tenderish in winter, more liable to suffer by severe frost than the fourth sort; so should, generally, have a warm, dry situation, and some of each kept in pots, to move under protection of a frame or green-house, in rigorous weather, or during the winter season; and are likewise admitted wholly in the green-house collection, more particularly, the second and third: however, they being planted in a dry soil and sheltered situation, in the full ground, will stand our ordinary winters tolerably well; but the fourth sort, *Coronilla Emerus* or Scorpion Sena, is sufficiently hardy to grow in any common soil and situation, and is more generally known and cultivated as a hardy flowering-shrub, than the others.

They are all desirable furniture, as ornamental flowering-shrubs, to admit in pleasure-grounds, in beautifying the shrubbery and other compartments: may be obtained at most of the nurseries, to plant in autumn or spring; but more commonly the Scorpion Sena; disposing the three smaller ones towards front, in a warm situation; the other piece any where, more or less inward, to assemble with other shrubs of similar dimensions of growth; they will make a pretty variety in their pinnated leaves, and papilionaceous flowers in summer.

They are propagated mostly by seeds, and occasionally by layers.

By seed, which ripening in most of the sorts in autumn, but more abundantly in the Scorpion Sena, is sowed in March or April; the first three sorts sow in a warm border, the other in any bed of light earth, an inch deep; give water in dry weather, both before and after the plants are up; and when those of the three former are two or three inches high, prick some in pots or in a border, watered and shaded from the sun, till fresh rooted; and the fourth sort, having one or two summers growth in the seed-bed, should be transplanted in autumn or spring, in nursery-rows; and in which the different sorts to continue for two or three years, or till of proper size for the shrubbery.

Likewise

Likewise by layers of the young shoots the Coronillas are, occasionally, propagated, or more generally the Scorpion Sena, laying the tender shoots in the spring, and they will be rooted to plant off in autumn or spring following, and managed as the seedlings.

When designed to plant these Coronilla shrubs, it may be proper to remark, that as they generally run with long, naked tap-roots, especially, the Scorpion Sena, it is advisable to transplant them finally into the shrubbery, or where intended, while they are of but moderate growth, in which, the roots being smaller and more fibrously, they will sooner root effectually than large plants of this kind; and as to future culture, it is the same as intimated for other flowering-shrubs.

CORYLUS, HAZEL-NUT TREE, FILBERT,
&c.

Class and Order.

Monoecia Polyandria,
One House, Many Males;

Or Male and Female Flowers, separate on the same Tree,
and the Male Flowers having many Stamina.

THE *Corylus* furnishes several species and varieties of hardy, deciduous trees and shrubs, all of the nuciferous or nut-bearing tribe, proper both to cultivate as fruit-trees, &c. in gardens and orchards, and in pleasurable plantations, for variety; consisting of moderate tree kinds, ten to fifteen or twenty feet high, and some of a shrubby growth; garnished, in summer, with largish, cordate-roundish, rough leaves; and male and female flowers, apart, on the same tree; the males collected in small, loose, scaly amentums, and the females in large, two-leaved cups, having in each female an oval germen and two bristly styles; and the germen grows an oval nut, containing an eatable kernel, each nut inclosed in its large, lacerated cup, defending it to maturity: ripening in August and September, in perfection for eating, and by which the trees are propagated; also by suckers, layers and grafting.

Characters.—Male and female flowers, growing separate on the same tree—the males consisting of many small florets, are collected into long, small, scaly amentums or catkins, each scale including a small floret, having each many minute stamina, crowned with oblong anthera; and female flowers without petals, inclosed in roundish buds, fitting close to the branches, furnished each with a two-leaved torn cup, sitting under the flower, enlarging and continuing, a round germen in the centre, with two bristly styles longer than the cup, terminated by single stigmas; and the germen becomes an oval, pointed nut, inclosed in the permanent torn cup.

The Species of CORYLUS are,

1. CORYLUS *Avellana*—(Avellana) or Common Hazel-Nut Tree.

A moderate or small, deciduous tree, growing ten to fifteen or twenty feet high, or more—the leaves (*middling*) hearted-roundish; ovate-obtuse, stipula at the base; and nuts oval, roundish and oblong, in the different varieties.—Native of Britain and most other parts of Europe, in woods and hedges. (*Moist, strong land, or any soil and situation.*)

Varieties.—Common Hazel, of the woods and hedges. (*Oval-roundish nuts.*)
Long Wood Nut. (*The nuts very long.*)
Cluster Wood Nut. (*Large Nuts in Clusters.*)
Great Cob Nut. (*Remarkably large, ovalish.*)

2. CORYLUS *fativa*, Cultivated Nut Tree or Filbert, supposed a feminal, improved variety of the Common Hazel.

A moderate tree, branching more erect, ten to fifteen feet high, or more—the leaves (*largish*) hearted-roundish, with oblongish, obtuse stipula; and larger oblong nuts.—Native, principally, of gardens and orchards. (*Rich or any common soil.*)

Varieties.—White-kernelled Filbert.
Red-kernelled Filbert.

3. CORYLUS *transylvanica*, Transylvanian or Eastern Nut Tree, supposed a Variety of the Common.

A middling tree, twenty feet high or more—the leaves (*large*) cordate-roundish, and large, roundish nuts.—Native of Transylvania. (*Any common soil.*)

4. CORYLUS *Colurna*—(Colurna) or Dwarf Byzantine Nut Tree.

A small tree, (shrub-like) four to five or six feet high—the leaves (*middling*) cordate-roundish, with linear, acute stipula; and large, roundish nuts.—Native of Byzantium or near Constantinople. (*Any common soil.*)

Variety.—(*Corylus barcelona*) or Barcelona Nut, supposed a variety of the Bazantian, or probably of the Common; (*the nuts large, roundish.*)—Native of Spain.

5. *CORYLUS cornuta*, Cornuted or Horned American Nut.

All those species and varieties of *Corylus* are hardy, deciduous trees, adapted to grow in any common soils of a garden, orchard, or that of any tree and shrub plantations, in pleasure-grounds; and are proper both to cultivate for their production of nuts, as being all of the eatable kind, and to effect variety in shrubberies, &c. as also the Common Hazel, to raise in woods, as a forest-tree, or principally for underwood, in coppices and hedge-rows; and for which occasions they may all be raised abundantly, by sowing the nuts in autumn or spring; and the desirable varieties, principally, either by layers or suckers, and, occasionally, by grafting or budding any principal kinds upon Common Hazel Stocks, as the varieties seldom come the same from the seed or nuts, in thorough perfection.

The *Corylus*, in all the different species in their mode of bearing, produce the flowers at the sides of branches; the males catkins appearing in winter and spring, and the females in the latter season; and being then impregnated by the farina of the males, they advance in a slow growth till August or September, defended all the while by the large calyx, which, at the maturity of the fruit, changes brown at top, at which time the nuts are in perfection for eating.

For the different purposes of planting in gardens, orchards, shrubberies, &c. they should generally be trained in small standards, either with quarter, half or full stems, from two or three, to four, five or six feet, to branch out above in full heads, in their natural order, in which they will produce plentiful crops of nuts, annually, without much trouble of culture; and they may also be occasionally trained in rough hedges, in particular districts, to run up at top, in a natural growth, without cutting; or in the same manner, may have filberts in single or double ranges, to form shady walks; and in both of which, all the sorts will bear very agreeably in plentiful productions.

To cultivate as fruit-trees, some of all the sorts may be admitted in gardens and orchards, both in quarter, half and full standards, as before observed, to branch out above in full heads; and for which may have any of the principal varieties of the Common Hazel Nut, but more abundantly of the two varieties of Filbert, for the superior excellence of their large nuts, with kernels of the finest flavour; and may also have some trees of the Transylvanian, Byzantine and Barcelona kinds, all which produce nuts of large size; though the Filbert claims precedence for general culture in their more plentiful production of finest fruit, sooner acquiring maturity in fullest perfection of ripeness in the kernels, in August and September.

Likewise in shrubberies, and other plantations, in pleasure-grounds, may introduce all or any approved species and varieties of *Corylus*, both of the Common Hazel kinds, Filberts and other sorts, trained in smaller or larger standards, suitable to different compartments, and disposed in assemblage with any hardy trees and shrubs, and on the borders of wood walks, shady walks, &c. in which they will add to the collection, and effect a pleasing diversity, both in their growth and production of fruit.

And to cultivate as forest-trees or underwood, the Common Wood Hazel is of considerable utility, more particularly in plantations of under-growth, in close coppices and in hedge-rows, to run up to stems of larger or smaller size, to cut for poles, exceedingly useful in numerous occasions, as hurdles, hoops, &c. and being raised in close growth, each plant may run up with several stems in their natural order, to cut once in five, six or seven years, as they will shoot out again in numerous bottom-suckers and stems; or some may be left single, for standards, clearing away all suckers to one main stem on each stool; and to prune up the said stems from lateral branches, that they may advance in a clean growth for larger wood.

All or most of the principal sorts of *Corylus*, are raised in the public nurseries, in which they may be obtained in a collection, or as may be required, for furnishing garden plantations, both in fruit-trees and for variety; but for any considerable planting, they may be expeditiously and abundantly raised with great facility, in the several methods of propagation.

They will succeed in any common soil and situation; and the Common Hazel, where required in large supplies, in coppice-wood, &c. may be cultivated in any strong, moist land, or in low or high ground, in moist or dry soils, as the premises afford, or where thought convenient or eligible to have plantations thereof.

The season for planting these trees of the different species and varieties of *Corylus*, is any time in open weather, from October or November, to March or beginning of April.

For planting, may either, occasionally, have strong suckers arising from the roots of the trees, chusing those of one or two years growth, two to three or four feet high, taken up with good roots; and planted at once where they are to remain, they will soon advance in considerable growth, in full heads, and produce fruit of their respective varieties; or have trees that have been previously trained in a nursery, raised either from suckers, layers or nuts, &c. to three, four or five feet growth; though it should be remarked, that for the approved varieties, both of the Common
Hazel

Hazel and the Filberts, those raised from suckers and layers, more certainly produce fruit the same in their respective properties, which is not the case in seedling-plants; for although the Filberts will sometimes come the same from the nuts, yet the fruit is generally inferior in size and goodness, and the plants longer before they bear than the sucker and layer-raised trees, or generally the layers are preferable to the suckers; or these sorts (Filberts) are also sometimes propagated by grafting, as an effectual method to continue the permanency of the two varieties thereof.

The propagation or method of raising these trees being by nuts, suckers, layers, and grafting, each is according to the following practice.

By nuts, these may be sowed in autumn or spring; or to avoid their being devoured in winter by vermin, or destroyed by the weather, they may be preserved in a box of dry sand, in a cellar or other close apartment, until February, then sowed; performing it either in drills, a foot asunder, and two inches deep, or the earth raked off the top of the bed, the above depth: sow the nuts thickly on the surface and earth them over evenly; and when the plants are come up one or two years growth, transplant them in nursery-rows, in which to advance two or three years or till of proper size for final transplanting.

By suckers, these rise plentifully from the roots of old trees, and when of one or two years growth, they may be dug up in autumn, winter, or spring, with roots, forming at once proper plants, and may be planted in a nursery, or large ones at once, where they are to remain.

Or by layers, this is an effectual method by which to propagate the principal varieties, to continue them permanent in their respective kinds, such as the Filberts or any other sorts; and which is performed in the young wood in autumn or spring, bowing down some pliant lower branches, peg them securely into the earth, then lay the young shoots thereof, admitting the stem of each three or four inches deep, keeping the top upright several inches above ground; they will root freely, ready for planting off next autumn, into a nursery for a year or two, or till of a proper growth for garden plantations; and will produce fruit similar to that of the parent tree.

Also by grafting, may propagate the Filberts, or any other particular sorts, having seedling or sucker-stocks of the Common Hazel or Filberts, raised two to three, or four feet high, or more; and upon which perform the grafting in February or March, with grafts of the desirable kinds; inserted either low in the stock, and the first main-shoot of the graft run up, more or less, for a stem, or grafted at two, three, or four feet height;

and in either method permit them to branch out above in full heads.

In the above different methods of propagating these trees, they, in their advancing growth, may be trained each with a single stem, either low, of one, two, or three, to form dwarf trees, or with four or five feet stems, for taller standards; and so agreeable to these intimations, cut away lateral shoots below accordingly, to the height the stem is intended, and then permitted to branch out freely above, in their natural manner; or for particular occasions, some may advance with several stems from the beginning, in a branchy, bushy growth.

When intending to plant these trees in gardens, orchards, &c. in standards, such as Filberts, or any other principal kinds, they may be planted at ten, to fifteen or twenty feet distance; or if only in one single row in any particular parts, ten, or twelve feet may be sufficient; or may occasionally plant some to form Nut and Filbert hedges, planted three to four, or five feet asunder in the row, to run up in full growth without cutting; or sometimes planted in the same manner, in double or single range, for a shady Filbert walk, permitted to run up in a natural order below and above; but generally observing, that where planted in detached standards, it is proper to keep them clear below from bottom-suckers, as also to cut away strong, rambling shoots, from the stem and head; or also any planted in a close row in gardens, hedge-fashion, that as they will increase in numerous suckers in a thicketty growth, the suckers should be eradicated occasionally in the sides, to keep the bottom within some regular limits, more open to admit the sun and air, and to encourage and continue the upper parts in a good state of bearing, which will also have the same effect as the standards.

The fruit, or nuts of these trees, ripen in autumn, principally in August and September, in which their mature ripeness is generally when the outer cover or cup, in which the nuts are contained and inclosed, begin to change brown, or when the nuts readily quit the said cover; for if gathered before they attain that state of maturity the kernels have not their proper flavour, but eat watery and insipid; or however, should not be gathered generally before they acquire tolerable perfection, only when required to have some as soon as they begin to ripen, gather but a few at a time, as wanted for immediate eating; and when required for keeping any considerable time, they should be ripe in the fullest maturity: are generally gathered in their husks, except when dead ripe, in which they naturally drop out, or may easily be detached from the cups; that to preserve them for future use, deposit a quantity, when thorough ripe and dry, in a box, cask, &c. and close covered with straw, a foot thick, or more.

When

Where it may be designed to have a coppice of the Common Hazel, they may either be planted in suckers, in rows, three or four, to five or six feet asunder; or the nuts sowed in drills, that distance, to remain.

CRATÆGUS, WILD SERVICE, and HAWTHORN,
&c.

Class and Order.

Icosandria — Digynia,

Twenty or more Males, Two Females;

Or Plants with Hermaphrodite Flowers, having twenty or more Stamina or Males, and two Pistillums or Females.

THE CRATÆGUS comprises a large family of many species and varieties of deciduous, berry-bearing trees and shrubs, for useful and ornamental planting, some of which both for fruit-trees in gardens and orchards, and for variety in shrubberies, &c. others most valuable for hedges, (*the Hawthorn*) and the whole to arrange in decorative plantations; are of smaller and larger growth in the different species, ten, fifteen, to twenty or thirty feet high, mostly armed more or less with thorns, and in summer clothed with simple leaves heart-shape-lobated, three-lobed, oval, spear-shape, &c. and numerous umbellate bunches of small white flowers in May and June, composed each of a five-parted cup, five roundish petals, many stamina, and two styles; succeeded by bunches of small and large, roundish, fleshy berries, with two seeds: ripe in autumn; and by which, sowed in autumn or spring, the trees are raised, also by layers, grafting and budding.

The Species of CRATÆGUS are,

1. CRATÆGUS *terminalis*, Terminal-fruited, or Common Wild-Service Tree.

A middling or largish tree, growing thirty or forty feet high, or more—the leaves (*moderate size*) heart-ed, seven-angled, the lobes divaricated asunder; and bunches of brownish-red, eatable berries.—Native of England, Germany, Switzerland, Burgundy, &c. (*Loamy or any soil.*)

Varieties.—Sawed-leaved Wild-Service.
Round-leaved Wild-Service.

2. CRATÆGUS *Oxyacantha*—(*Oxyacantha*) Hawthorn or White-thorn Tree.

A small or moderate tree, of bushy growth, growing fifteen or twenty feet high—the leaves (*smallish, dark-green*) obtuse, sub-trifid or three-lobed, and saw-ed; flowering in May and June: the haw-berries ripe

in autumn.—Native of most parts of Europe, and of great value for hedges. (*Any soil.*)

Varieties.—Common, single-blossomed, Red-berried Hawthorn, White-thorn or Quickset.

Double-blossom Hawthorn.
Scarlet-berried Hawthorn.
Yellow-berried Hawthorn.
White-berried Hawthorn.
Glastonbury, Early-blowing Hawthorn, or Glastonbury Thorn.
Maple-leaved Hawthorn.

3. CRATÆGUS *Aria*—(*Aria*) White-Beam or White-leaf Tree.

A middling-large tree, growing thirty or forty feet high—the leaves (*largish, whitish-green*) ovate, unequally sawed, and hoary underneath.—Native of England and most parts of Europe. (*Loamy, chalky, or any soil.*)

Variety.—(*Cratægus Aria suecica*) or Swedish White-Beam Tree—branches thornless; the leaves elliptic sawed, transverse sinuated, and hairy underneath.—Native of Sweden and England.

4. CRATÆGUS *Azarolus*—(*Azarolus*) or Azarole Thorn.

A smaller tree, eighteen or twenty feet high—the leaves (*largish*) obtuse sub-trifid, or somewhat three-lobed and a little indented; and bunches of largish, red, eatable berries; in autumn.—Native of Italy and Montpellier. (*Any common soil.*)

Varieties.—Strong-thorned Azarole.
Thornless Azarole.
Jagged-leaved Azarole.
Double-flowered Azarole.
Large, Red-fruited Azarole.
Smaller, Yellow-fruited Azarole.
Long-fruited Azarole.
(*Aronia*) or Eastern Parsley-leaved Azarole.

5. CRATÆGUS *coccinea*, Scarlet-fruited Azarole Thorn, or Great American Azarole.

A smaller tree, twenty feet high—the leaves (*mid-dling*) ovate, repand or waved-angulated, sawed, and smooth; large, scarlet fruit.—Native of Virginia and Canada. (*Any common soil.*)

6. *CRATÆGUS Crus-galli*—(*Crus-galli*) or Cock-spur Thorn, or Virginia Azarole.

A smaller tree, eighteen or twenty feet high—branches thorny, robust spines; the leaves (*middling*) spear-shape-ovate, fawed and smooth; and large, red berries.—Native of Virginia. (*Any soil.*)

Varieties.—Long-thorned Cock-spur Thorn.
Short-thorned Cock-spur Thorn.
Pear-leaved Cock-spur Thorn.
Plum-leaved Cock-spur Thorn.
Willow-leaved Cock-spur Thorn.

7. *CRATÆGUS tomentosa*, Downy, Gooseberry-leaved *Cratægus*.

A smaller tree, ten or fifteen feet high—the branches thorny; leaves (*moderate*) wedge-form-ovate, somewhat angulated, fawed and downy-hairy underneath; and yellow fruit.—Native of Virginia. (*Any situation.*)

8. *CRATÆGUS viridis*, Green-leaved, thornless *Cratægus*.

A small tree, ten or fifteen feet high—branches thornless; the leaves (*small*) lance-ovate, somewhat three-lobed, fawed, and smooth, green on both sides. Native of Virginia. (*Any soil and situation.*)

These species and varieties of *Cratægus* are all of very hardy growth to plant in any common soil and situation; their principal merit is, in the greater part, to diversify tree and shrub plantations in pleasure-grounds; some also for their production of fruit, and the Common Hawthorn, in particular, for hedges: are all of the deciduous tribe, garnished with leaves, from May to October; flower mostly in May and June; the flowers principally white, produced in bunches at the sides and ends of the branches, succeeded by clusters of berries, ripening in September and October; principally, in most of the species, for sowing, and some for eating, such as the Common Wild-Service, and occasionally the *Azarolus*; and by which all the species are easily propagated, or any particular species and varieties, by layers, grafting and inoculation.

They being valuable both for useful and ornamental planting, we may reckon among the more useful kinds the Common Hawthorn, for its great utility in forming the most effectual of all hedge fences, commonly called quick-set hedges, superior to all for outward fences, or where required for a strong, durable hedge, fencible against man and beast, and grows also very close to afford shelter; and the Wild-Service and *Cratægus Azarolus* to cultivate in the fruit-tree

collections for their eatable berries, which ripening in October, and being then gathered in their bunches, and hung up across lines in any dry apartment till they become soft and mellow, they eat with an agreeable tartish flavour; and the trees of which two species may be admitted, as fruit-trees, in a moderate portion, or as required, in gardens, orchards, pleasure-grounds, parks, avenues, &c. in full standards; likewise the first, and some other species, advancing to some considerable stature and large growth, may be introduced in forest-tree plantations, in company with other deciduous timber trees, or in any large plantation districts, for variety.

Or all the different species and their respective varieties are very eligible to assemble in ornamental plantations and shrubberies, in which they will increase the collection, and several sorts, both of the species and varieties, appear very ornamental and curious in their different growths, flowers and fruit; and the species in general will display a proper diversity and entertaining variety; and are well adapted to arrange in extensive or large pleasurable plantations, considerable shrubberies, and in clumps; and the larger tree kinds also to dispose in groves, avenues, grand walks, and other districts, associated principally with other hardy, deciduous trees.

The Hawthorn, for hedges, is a most useful tree in its close, bushy, thorny growth, branchy from the bottom, proper both for outward hedges in gardens and fields, and for internal divisions, both as a fence and for shelter to particular districts; and may be kept close and regular, by an annual clipping towards the latter end of summer, or in autumn or winter; or in field hedges they are often permitted to run up rough, and when grown tall and the bottom naked, are plashed and laid down to thicken all parts equally, in a close, regular manner, in which, and those kept regular by clipping, as before observed, they form close, impenetrable hedges.

For this occasion of hedges, proper sets for planting are raised by sowing the haws in autumn, which, on account of the hard, bony nature of the seed, seldom vegetate or come up in less than two years; and when the plants are one to two or three years old, are proper for planting, which for outward hedges, a ditch and bank being formed, is effected generally, either by inserting them into the side or top of the bank, principally in a double row, six inches to a foot asunder; or otherwise, if planted on level ground, are defended with some kind of fence till advanced in growth; but for interior hedges, especially in gardens, are commonly planted in the level ground; or for division hedges in fields, a bank is generally raised two or three feet by means of a ditch on each side, and the hedge planted along the top, in a single or double row; the ditch and bank defends it till grown up in
proper

proper strength, and afterwards during its continuance.

Or sometimes the haw-berries are sowed at once in the place where the hedge is intended, keeping the ground very clean till the plants come up, and during their young growth.

The Wild-Service and Azarolus, when any are intended principally for fruit-trees, they being raised in standards three or four, to five or six feet growth, may then be planted in gardens or orchards, or where thought proper, at fifteen to twenty or thirty feet distance, kept trained to clean stems, and permitted to branch out above in full heads; they, when of a proper age, will produce plentiful crops of berries annually, which ripening in October, gather in bunches; and the Services in particular, hang them up in the fruitery, or any apartment, till they become mellow, and may then be eaten, as wanted, in winter.

All or most of the species and varieties of the *Cratægus* are cultivated in the common nurseries, for public supply, and where they may be had in collection, or in any approved species or varieties, as shall be required, occasionally, for planting.

The general season for planting these trees is any time after the decay or fall of the leaves, in autumn, in open weather, till the spring, middle or beginning of April; or the Hawthorn, for hedges, may be planted principally in the spring, or any time when convenient, during the above-mentioned planting season.

They are propagated in the different species by seed, and occasionally by layers, in any particular species and varieties, or also by grafting and budding, as before intimated.

By seed or berries, which in most of the sorts ripen plentifully in autumn, and may be sowed in that season, such as the Hawthorn, and all others as can be procured at that time, or early in the spring, either sowed at once in beds of common earth two inches deep, or as the seeds or stones of the berries being of a very hard, bony nature, that they generally remain till the second year before they germinate, they, previous to sowing, are very commonly in autumn, buried in a heap together in a trench in dry ground, or in large pots plunged therein, covered over with earth six inches thick, or more, raised in a ridge above; and thus to remain a year, or till next autumn following, or second spring, to prepare for vegetation, then taken up and sowed either in drills or broad-cast on the surface, and earthed in two inches; they will thus come up freely in the spring, advancing six inches to a foot in growth, or more, by the end of summer, and then, or when they are one or two year's old,

should be transplanted in nursery-rows, to grow to a proper size of three or four, to five or six feet, or more, for the different plantations for which they are designed or adapted; or the Hawthorn plants particularly, intended for hedges, are proper sets for that purpose, both immediately from the seed-bed, and after having one, two or three years transplanted growth in nursery-rows; the latter of which may be most eligible, when desirous of having the hedge formed more expeditiously in good strength from the beginning; however, in regard to the other species, intended generally for detached standards, larger or smaller, they being transplanted in nursery-lines, should remain therein till trained up to a requisite size of three or four, to five or six feet high, or more, as intimated above, for final transplantation in the particular districts where they may be required.

By layers of the young shoots may, occasionally, propagate any particular species or variety, performing it in autumn, chusing those as are situated low, convenient for laying, or that are placed on plant-branches, which can be readily bowed down to the ground; so laying the shoots in the earth three inches deep, keeping the tops upright, they will be rooted, for planting off next autumn, into the nursery, for training.

Also by grafting and budding any desirable variety, to continue it permanent in its respective kind, may be performed upon any seedling-stocks of the *Cratægus* family, such as the Hawthorn, or any other raised in the nursery, as has been directed; the grafting is performed in the spring, by inserting young shoots of the former year into the proper stocks, and the budding in July or beginning of August, by inoculating buds of the intended sorts into the sides of the said stocks, at six inches, to one, two, three, or four feet high, or more; they will each unite with the stocks, advance in shoots above, and form new trees of the respective varieties.

In the above different methods of raising the several species and varieties of *Cratægus*, continue them trained to a proper growth in the nursery, some with clean stems for standards, others may branch out low when designed to have them of a shrub-like growth; and in the whole, when they are advanced from three or four, to five, six or eight feet, are proper for the respective plantations; or the Common Hawthorn plants, designed for hedges, are eligible for this, when of from one, to two or three feet high.

Hawthorn hedges being of great utility as growing fences, both, occasionally, for gardens, and more generally for inclosing fields and any out-grounds, they are raised different ways, as either by planting young sets previously raised in a nursery, to one, two or three feet growth, or sometimes by sowing the seed or haws at once where the hedges are intended, though

more generally by sets or ready-raised plants; and which in the order of planting is, for outward fences, generally performed by inserting the sets either horizontally into the side, or upright on the top of a bank, raised by the excavated earth in forming the outward ditch, the latter serving also as a defence to the young hedge; or sometimes for division hedges in fields, a bank four or five feet wide at bottom is formed with the earth of a small ditch on each side, raised two or three feet high, faced with square spits of turf from the top of the ditch, or elsewhere, and the middle filled up with earth from the excavation of the ditch aforesaid; the bank being two or three feet wide at top, the hedge is planted thereon in a double row; or for interior hedges in gardens, or where they can be fenced from cattle, the hedge is planted on level ground, without forming any ditch and bank; but in the other methods, the sunk ditch and raised bank serves as a proper guard to keep off cattle, &c. from annoying the hedge in its advancing growth.

For these different methods of planting quick-set or Hawthorn hedges, the sets or plants may be of one or two years old; or of three or four years, having been transplanted in nursery-rows one or two years, or more; the sets being the size of a goose quill, to the thickness of a finger, and, previous to planting, if naked below, may be headed down one third, or half way, to have them branch out strongly quite from the bottom.

Where necessary to plant outward hedges for fences, it, as before explained, is expedient to form a ditch and bank, the ditch to be on the outside, forming the bank close along the inner edge, with the excavated earth, as digged and thrown out of the ditch; raising the bank therewith moderately, sloping inward, and either in advancing in the formation of the ditch and bank, the sets being headed to six or eight inches, plant or lay them horizontally or slanting into the side of the bank, first one row, placing the roots inward and the tops out, three or four inches, or more, landing over the roots with earth from the ditch, and raised six, eight, to ten or twelve inches, another row is placed and earthed over in the same manner; or sometimes the ditch and bank being previously formed, the sets are dibbled into the sides, horizontally, in two rows, the above distance; or also, sometimes, instead of planting into the sides, the ditch and bank formed as above, are planted upright at top, which being previously levelled for their reception.

The general methods are, line out the ditch a yard wide at top, then to be digged out sloping on the sides, two or three feet deep, and the first spits of earth laid along the top of the inner edge of the ditch to form the beginning of the bank; or, where convenient, previously lay a row of square spit turfs, grass side downward, and in either method, back up behind with earth from the ditch; then, if intended to plant in the

side of the bank, lay a row of sets upon this bed of earth, the roots inward, a little sloping to the back part, with the tops towards the ditch in a rising direction, two, three or four inches out of the ground, and about six inches asunder, earthing them over with mold from the ditch, forming the ditch and bank as you proceed; and having advanced six, eight or ten inches higher in the banking, lay another layer of sets, each opposite the intervals of those of the first row, and earth them over in the same manner; so finish the formation of the ditch and bank, each moderately sloping, raising the latter six inches to a foot or more above the sets; or as before observed, if quite small sets, and the ditch and bank is first formed, may plant the sets by dibble, horizontally, or a little more or less towards an upright position; but if judged more eligible or convenient, may first form the ditch and bank as just intimated, raising the bank to its full intended height of one, two or three feet, forming a level border at top; plant two rows of quick in an upright direction, either by dibble, if small-rooted sets, or if large, cut a small trench for each row, one side upright; plant the sets against the upright side, turn in the earth about the roots, and tread it gently thereto.

Or where proposed to have middle or division hedges in fields, &c. and that a double ditch with a raised bank between is intended, in order for planting the hedge at top, line out the basis of the bank five feet wide, allowing also for a two or three feet wide ditch on each side, forming the face of the bank with square spits of grass turf where attainable, placed either the grass side outward, or laid topsy-turvy or grass downwards, beginning the first layer close along the inner edge of the ditches, which at the same time proceed in digging out and forming, employing the excavated earth thereof in backing up the turfs or outer surfaces of the banks, and filling up the middle space; continuing to raise the front, drawing each side in gradually, finishing the whole two feet to a yard high, by two or three feet wide at top, where, forming a level bed or border of earth, plant two rows of sets therein a foot asunder, and upright, in the manner explained in the foregoing directions.

To plant these hedges on level ground in a garden, &c. or for outward hedges, where they can be defended with some kind of temporary fence in their young growth; and in either of which, the ground being digged and levelled, the planting is effected by cutting out with a spade, a small trench six or eight inches deep, one side formed upright; plant the sets against the upright side, as advised in planting on the top of a bank, placed six inches apart, and earth in the roots and body of the sets; and if a double hedge is intended, plant another row in the same manner, six or eight inches to a foot, from the first planted, treading the earth gently to the plants of each row.

Or

Or where it may be intended to raise a quick-set hedge, by sowing the haws at once in the place where the hedge is required, they should be sowed as soon as gathered, in autumn, September, October or November; when digging and levelling the ground either equal with the general surface, or for sowing on the top of a raised bank, draw drills with an hoe, two or three inches deep, in a single or double row; sow the haws in the drills moderate thick, and mold them over; then observing, as they will not vegetate till the second spring, should keep the ground clear from weeds in the interim; and when the plants come up, if too abundant, some may be drawn out, leaving a sufficiency of the best to form the hedge.

In the different methods of planting these hedges, where it appears necessary in exposed places, to have some defence against the depredations of cattle, till the hedge is grown up in strength; it should be added soon after planting, either with rails, open paling, hurdles, or a dead hedge of stakes and bushes, as may be convenient; likewise, keep the young hedges clear from rampant and climbing weeds, till the quick is advanced in growth, which, though often neglected in those planted for outward fences, should be attended to with particular care.

The young hedges in their advancing growth, especially those designed for regular training, should be managed accordingly, that when advanced in young shoots, should be clipped moderately at the sides, but cut sparingly at top, till arrived to the proper or intended height, only just run over with the garden shears, topping any rampant shoots which out-grow the others considerably, that the whole may advance equally, and soon attain the desired height aforesaid, of four, five or six feet; and thus may run over the whole top lightly every year while the hedge is in training, to have it advance even and regular, as well as to make it shoot out below, thickening as it advances, clipping the sides also even; and where the hedge is required to aspire to some considerable height of five, six or seven feet, to afford shelter against winds and cold blasts, in particular districts, it may be permitted to run up faster at top, and generally cut up taper on the sides in a gradual manner, to have the top considerably thinner or narrower than the bottom part.

However, where designed as a strong outer-fence, a hedge of three, four or five feet height may be sufficient, especially if growing on the top of a bank, and may be cut more at top accordingly, that it may thicken considerably quite from the bottom, in a strong, robust growth; but if on level ground, may be run up five or six feet, or more; and then, in all of which, kept to the proper standard, by an annual clipping.

Then when the trained hedges are advanced to the intended height of four, to five, six or seven feet,

agreeable to the above intimations, they should be kept in regular order, by constant clipping once every year at sides and top, to continue them of the proper width and height; generally in those arrived to full growth, cutting them in generally to the old cut of the former year, and the clipping performed straight and even, commonly keeping the hedge narrowest upward to the top in a gradual manner.

The proper season for clipping these hedges is principally in summer, from the middle or latter end of June, to August or September, when the shoots being green and tender, the clipping is performed with considerable facility, expedition and exactness; or where any particular hedges are required to be kept in the neatest order all summer, two clippings should be performed twice every year in that season; the first about the middle or latter end of June, and the second towards the latter end of August; but where only one clipping in summer is allotted, it should generally be performed in July or August, or beginning of September, after the hedge has done shooting, that it may continue close for the remainder of autumn, and all winter, till following summer; if, however, the clipping is omitted in the above seasons, it may be performed any time in winter; but the shoots being then hardened, the work cannot be so easily effected as in summer or autumn.

Though, as to common thorn hedges in fields, they, in the greater part, are permitted to run up rough without any clipping, till advanced to a tall growth; then generally, when grown up in large stems and branches, and naked in the lower parts, the large naked wood is thinned out, and the remaining smaller stems and branches are plashed or laid down horizontally, to thicken the hedge in a close growth, quite from the bottom; is effected by leaving some of the strongest stems for growing stakes, then the other stems and large branches are gashed with a hedge-bill in a sloping cut, especially those not sufficiently pliant to bend down, so laying the whole along in a slanting position the way of the hedge, plashing them between the upright, standing stems, which should be headed to the intended height of the hedge, three or four feet; when thus plashed, and the whole is layed, then with a hedge-bill aforesaid, trim the sides and top somewhat regular; it thus forms a strong, thick hedge, equally close from top to bottom.

CUPRESSUS, CYPRESS TREE.

Class and Order.

Monoecia Monadelphica,
One House, One Brotherhood;

Or Male and Female Flowers, separate, on the same Tree, and the Male Flowers having the Stamina, or Anthera united in one Body.

THIS Genus of CUPRESSUS furnishes three species and several varieties of eminently beautiful evergreen

green trees, and one deciduous kind; all of the coniferous or cone-bearing tribe, principally for ornamental plantations, and some also to introduce in the forest-tree collection; grow to a considerable lofty stature, mostly very branchy quite from the bottom, in a regular, pyramidal growth; some with upright, others in spreading branches, very closely set with minute, imbricated, and spreading leaves; and small male and female flowers apart on the same tree; the males in oval amentums, and the females in roundish, scaly cones, no corolla or petals; and in the males no stamina, but several united anthers; in the female florets, a very short style; and the conical female heads become small, roundish, scaly cones, furnished with angular seeds, involved in the scales, ripe late in autumn; and by which the trees are commonly propagated, sowed in the spring, in beds of light earth.

The Species of hardy CUPRESSUS are,

1. CUPRESSUS *semper-virens*, Ever-green Common Cypress Tree.

A largish, ever-green tree, growing thirty to forty feet high, or more—the branches quadrangular; leaves (*small, dark green*) imbricated or lying over one another, and erect.—Native of Creta and other parts of the Levant. (*Gravelly, or any dry situation.*)

Varieties.—Upright Common Cypress Tree—having erect branches; growing thirty, to forty or fifty feet high.

Horizontal or Spreading Cypress Tree—the branches spreading horizontally; growing twenty to thirty feet high.

Portugal Cypress Tree, or Cedar of Goa—the branches irregular-spreading; growing twenty to twenty-five feet high.

2. CUPRESSUS *Thyoides*—(Thyoides, or Arbor-vitæ-like) Dwarf Cypress, or White Cedar.

A small, ever-green tree, twelve to fifteen feet high;—the branches two-edged; leaves (*small, dark green*) imbricated or lying over one another; and small, blue, berry-like cones.—Native of Canada. (*Moist or any common soil.*)

3. CUPRESSUS *disticha*, Distichous-leaved, or deciduous Cypress.

A large, deciduous tree, growing forty or fifty feet high—the leaves (*small, light green, pinnated-like*) placed distichous or two-ranked, and spreading.—Native of Virginia and Carolina. (*Moist or any common soil.*)

Most of these species and varieties of Cypress are superbly-beautiful trees in their clove, branchy, pyramidal growth, closely garnished with very small leaves, imbricated or lying over one another in the ever-green kinds, in the other spreading and two-ranked on the branches; and in all of which, are desirable ornaments for beautifying pleasure-ground plantations, principal shrubberies, and other compartments; and to dispose in ranges, in forming grand walks, groves, &c. likewise to plant in clumps and single standards, upon capacious lawns and other open compartments of grass ground; are also peculiarly adapted to adorn avenue walks, leading to any ornamental garden edifices, as temples, grottos, &c. and the larger tree kinds, both of the ever-green and deciduous species, are proper to assemble in forest-tree plantations, as the timber is of the utmost value for its great diuturnity and aromatic property; more particularly the several varieties of the *Cupressus semper-virens*; and the trees in general, in their growing state, impart a very fragrant, balsamic odour, esteemed exceedingly salutiferous; so that these curious trees demand admittance in all principal plantation districts, both for ornament and utility.

They are all sufficiently hardy to grow in any situation and common soil, in general with other trees, or where they may be required, in larger or smaller supplies, for the above-mentioned occasions of planting; which may be performed either principally in autumn, in October or November, or in the spring, February or March, to the beginning or middle of April, especially the ever-green kinds.

These trees, in their native places of growth, in the Levant and America, rise to a considerable altitude or height, and grow to a very large substance in the trunk, for principal timber trees, especially the first and third species; and of which there are trees of a large size in many of our British gardens, in which all the sorts thrive abundantly well, and effect a singularly fine variety, and superbly ornamental appearance in their mode of growth and closely-placed foliage; the flowers not very conspicuous, are produced in the spring at the sides of the young branches, in male and female amentums and heads, which, in the latter, are succeeded by the small seed-cones: ripening in the end of autumn and beginning of winter, or, when not ripening in sufficient abundance, are obtained, from abroad, by the seedsmen, for sowing in the spring.

All the sorts are raised abundantly in the public nurseries, of a proper growth, of two or three, to four, five or six feet, or more, for planting; and where they may be obtained, in the proper seasons of autumn and spring, for shrubberies, and other plantations in which they are intended.

The general season for planting these trees is principally either in the autumn or spring; the ever-green kinds may be transplanted early in autumn, from about the middle or latter end of September, or any time in October and beginning of November; or also any time in the last-mentioned month, in open weather, not generally in the dead of winter, except they can be transplanted with balls, or in a very mild season, but declined if appearance of severe frost, and may be planted freely in the spring months, till April; and where convenient to remove any with balls of earth, it will be of singular advantage; or the deciduous Cypress may be transplanted in the general planting seasons, October, November, &c. or, occasionally, any time during the winter, when mild, and in the spring.

In planting these trees, that when designed to associate them in any general shrubbery or other plantations of different trees and shrubs, it is advisable to dispose the ever-green sorts principally in compartments, consisting mostly of that tribe; or sometimes dotted thinly in some principal deciduous clumps, &c. likewise may observe the same order in planting the deciduous Cypress; and likewise trees of all the sorts may be dotted singly on grass lawns, or, occasionally, in small clumps or groups of three or more together, in the same places, and in other similar compartments, in a diversified order.

Sometimes, in the ancient stile of gardening, the Upright Ever-green Cypress was formed into handsome, tall hedges in pleasure-grounds, for ornament, though seldom employed now for that occasion, since most sorts of ornamental hedge-work is abolished the English gardens.

To propagate or raise the Cypresses, it is effected principally by seed sowed in the spring, which may be had of the seedsmen, and being cleared out of cones, sow in March or April, in a bed of light ground, either in small drills or on the surface, and covered in with mold half an inch deep; or some sowed in pots of light earth, to move to shade in summer and shelter in winter, the seed will soon germinate, and the plants come up freely the same season, or early part of summer; give water occasionally in that season, and shade when very hot, as likewise give occasional shelter in winter from severe frost; and when they are advanced of one or two years growth in the seed-beds, transplant them in the spring, March or April, into nursery-beds, in rows a foot asunder, and when of advanced growth, in a year or two, transplanted at wider distances, to obtain eligible size, of three or four, to five, six or seven feet height, for final transplanting into the continuing plantations in which they may be intended.

They may also be propagated, occasionally, by layers and cuttings of the young shoots in the spring.

In the general growth of these trees, they, in shrubberies, and other ornamental districts, may be permitted to assume their natural, branchy manner; or some occasionally pruned up moderately in the under, straggling branches, to form a clean stem below, and let the whole advance above in full growth; and when any are planted in forest-tree plantations, they should be trimmed up below gradually, to run up with clean, single stems, in a tall, straight growth.

CYTISUS—(CYTISUS) or Base Trefoil Tree,
and Laburnum.

Class and Order.

Diadelphia Decandria,
Two Brotherhoods, Ten Males;

Or Plants with Hermaphrodite Flowers, having the
Stamina or Males disposed in two Sets, and in each
Flower ten Stamina.

THE CYTISUS family consists of several species and varieties of deciduous flowering-shrubs and trees, and one ever-green flowering-shrub; all employed for ornamenting shrubberies and other decorative planting; are of small, moderate, and large growth, three or four, to five or six feet high in the lesser shrubs, and the larger or tree-like kinds, fifteen to twenty feet high, or more; the whole garnished with trifoliate leaves, or consisting each of three distinct folioles or leaflets; and numerous, long pendulous and erect spikes, and umbellate clusters, of papilionaceous, yellow flowers, at the sides and ends of the branches, in May and June; having each a bell-shape bilabiate cup; a corolla, composed of an oval vexillum or standard, two obtuse wings, and a bellied carina or keel, with ten stamina in two sets, and one style; succeeded by oblong leguminous pods, containing kidney-shape seeds: ripe in autumn, and by which the species are propagated, also by cuttings of the young shoots.

The hardy Species of CYTISUS are,

1. CYTISUS *Laburnum*—(Laburnum) or Tree Cy-
tusus, commonly called LABURNUM.

A moderate, deciduous tree, fifteen or twenty to thirty feet high—the leaves (*large*) trifoliate, with the lobes or folioles ovate-oblong; and long, pendulous, single spikes of yellow flowers; May or June.—Native of Helvetia, Savoy, the Alps, &c. (*Any soil*.)

Varieties.—Broad-leaved Laburnum.
Narrow-leaved Laburnum.
Long-spiked Laburnum.
Short-spiked Laburnum.
Variegated-leaved Laburnum.

2. *CYTISUS sessilifolius*, Sessile-leaved Cytifus.

A middling, deciduous shrub, five or six feet high—the leaves (*smaller*) trifoliolate, with the folioles or lobes roundish, and with the floral leaves sessile or sitting close to the branches; and erect spikes of yellow flowers, having the calyx bractea leaves triple.—Native of Italy and France. (*Any soil.*)

3. *CYTISUS nigricans*, Black Cytifus.

A middling, deciduous shrub, five or six feet high—the leaves (*small, dark green*) trifoliolate, the folioles or lobes ovate-oblong; and upright, single spikes of yellow flowers.—Native of Austria, Hungary, Bohemia, and Italy. (*Any soil and situation.*)

4. *CYTISUS supinus*, Supine or Trailing Cytifus.

A small, deciduous, procumbent shrub, of three or four feet growth—the branches procumbent or trailing; leaves (*small*) trifoliolate, the folioles or lobes ovate; and terminal umbels of yellow flowers.—Native of Siberia, Italy, Sicily, and France. (*Any soil.*)

5. *CYTISUS austriacus*, Austrian Upright Cytifus.

A middling, deciduous shrub, four, to five or six feet high—the stem erect; leaves (*small*) trifoliolate, the lobes or folioles spear-shape; and yellow flowers in terminal umbels.—Native of Austria, Siberia, and Italy. (*Any situation.*)

6. *CYTISUS hirsutus*, Hirsuted or Shaggy-cupped Ever-green Cytifus.

An ever-green shrub, six or seven feet high—the leaves (*small*) trifoliolate, with the folioles or lobes oval; and simple, lateral peduncles or flower stalks, sustaining yellow flowers, having hairy or shaggy, trifid cups, which are bellied-oblong.—Native of Spain, Siberia, Austria, and Italy. (*Any common soil.*)

All these species of *Cytifus* are hardy to grow in any common soil and situation; very desirable, ornamental flowering-trees and shrubs, for the pleasure-ground; and the Tree Cytifus or Laburnum is also eligible to assemble in any large, deciduous tree plantations, and likewise, occasionally, among forest-trees, as it grows swiftly to some considerable size, or to plant among coppice wood; though this, as well as all the other species of *Cytifus*, is generally esteemed principally for ornamental planting; in which they effect an agreeable variety in their trifoliolate leaves in summer, and flower very conspicuously in May and June, in numerous spikes and bunches of yellow flowers, all of the pea-bloom form, or what the botanists call papilionaceous or butterfly-shaped; and are succeeded by many

longish, narrow pods of the legumenous kinds, furnishing plenty of ripe seed in autumn, useful for sowing, when required, for the propagation of the species, as all the sorts are generally raised by that means, and sometimes by layers and cuttings, to propagate particular species and varieties.

They may all be had at the nurseries, in full collection, or of any particular sorts required, of proper growth for planting; which may be performed in autumn or spring, or any time in open weather, from October to March; especially all the deciduous kinds.

For ornamental planting, they may be introduced in any principal or general shrubbery districts, clumps, and other compartments; in which generally assemble all the deciduous tree and shrub kinds, principally with others of that tribe; and the ever-green *Cytifus* may either have a conspicuous situation, mostly in the ever-green clumps, &c. or in any other principal part of the pleasure-ground, where it may be distinguishable both as a neat ever-green, beautiful at all seasons, and as a pretty flowering-shrub, like the others of the same family, in summer.

They are all easily propagated generally by seed, and some, occasionally, by layers and cuttings.

Sow the seed in March, in a bed of common, light earth, each sort separate, either in drills or broad-cast, and earthed over an inch deep; the seed will soon vegetate, and the plants come up the same year, and advance several inches to a foot high, by the end of summer; continuing them in the seed-bed till next spring, then transplant them into nursery-rows, in which train them with a single stem below, and run them with full heads above, to a proper growth of two, three or four, to five or six feet, according to that of the different sorts eligible for the shrubbery, &c. or the Laburnum, in its largish growth, will transplant successfully of six, seven or eight feet.

Layers and cuttings of the young shoots in autumn or spring, will be properly rooted by the autumn following, when, or in spring, may be transplanted into the nursery, and trained as intimated above, for the seedling plants.

DAPHNE, WOOD LAUREL, and Mezereon.

Class and Order.

Ostandia Monogynia,
Eight Males, One Female;

Or Plants with Hermaphrodite Flowers, having eight Stamina or Male Fructification, and one Pistillum or Female.

THE family of DAPHNE comprises several hardy species of small and moderate shrub kinds for the shrubbery,

shrubbery, consisting of one ever-green, and the others deciduous flowering-shrubs, from two or three, to four or five feet high in the different species, garnished with spear-shape ovate and linear simple leaves, and numerous, small flowers in spring and summer, produced mostly along the sides of the shoots; composed each of one small funnel-shape, four-parted corolla, containing eight short stamina, an oval germen supporting one style; and the germen grows a roundish berry, furnished with one roundish, fleshy seed, ripening in summer and autumn; and by which, sowed in the autumn or spring, the plants are propagated; also some, occasionally, by layers of the young shoots and suckers from the root.

The Species of DAPHNE are,

1. DAPHNE *Laureola*—(Laureola) or Common Wood Laurel.

A small, ever-green shrub, with slender, upright stems, two or three feet high—the leaves (*long, narrow*) spear-shape, smooth; and racems of small, greenish flowers at the axillas or angles.—Native of Britain, &c. in woods, Switzerland, France, and Mount Baldo. (*Any lightish soil.*)

Variety.—Striped-leaved Laureola.

2. DAPHNE *Mezereum*—(Mezereum) commonly called Mezereon.

A moderate, deciduous shrub, of bushy growth, three, to four or five feet high—the leaves (*smallish*) ovate-spear-shape; and numerous, small, purple and other coloured flowers along the sides of the shoots, by threes together, sessile or sitting close; February and March.—Native of England and the northern parts of Europe, in woods. (*Light, or any soil.*)

Varieties.—Purple-flowered Mezereon; red berries.
Red-flowered Mezereon; red berries.
Crimson-flowered Mezereon; red berries.
White-flowered, Yellow-berried Mezereon.
Variegated-leaved Mezereon.

3. DAPHNE *Cneorum*—(Cneorum) Cluster-flowered, Narrow-leaved Daphne.

A small, beautiful, deciduous shrub, one or two feet growth—the leaves (*small*) spear-shape, naked; and clusters of purple flowers, terminating the branches, sessile or close-fitting.—Native of Switzerland, Hungary, Pyrenean Mountains, &c. (*Any common soil.*)

4. DAPHNE *alpina*, Alpine Downy-leaved Daphne.

A small, deciduous shrub, of two or three feet—the leaves (*small*) spear-shape, somewhat obtuse,

hoary on the under side; and close-fitting flowers in aggregates at the sides of the branches.—Native of the Alps of Switzerland, Geneva, Italy, and Austria. (*Any light soil.*)

5. DAPHNE *Tarton-raira*—(Tarton-raira) or Silvery-leaved Daphne.

A low, spreading, deciduous shrub, of one or two feet—the leaves (*small, whitish*) ovate, nervous, both sides downy, silky, and silvery-like; and close-fitting white flowers in aggregates at the sides of the branches.—Native of France. (*Lightish, rich soil, or any.*)

6. DAPHNE *Thymelæa*—(Thymelæa) or Milkwort-leaved Daphne.

A moderate, deciduous shrub, of three or four feet growth—the stem single; leaves (*small*) spear-shape; and close-fitting greenish flowers at the axillas.—Native of Spain. (*Light, or any common soil.*)

7. DAPHNE *Gnidium*—(Gnidium) or Flax-leaved Daphne.

A small, deciduous shrub, two or three feet—the leaves (*small, narrow*) linear-spear-shape, pointed; and flowers in panicles at the end of the branches.—Native of Spain, Italy, and France. (*Lightish, or any common soil.*)

8. DAPHNE *villosa*, Villose or Hairy-leaved Daphne

A small, deciduous shrub, two or three feet growth—the leaves (*small*) spear-shape, plane, ciliated, hairy, crowded; and close-fitting lateral flowers, singly.—Native of Portugal, Spain, &c. (*Any light, common soil.*)

All these species of *Daphne* are proper furniture to introduce in shrubberies for ornament and variety; the first sort, *Laureola*, is a curious hardy, little ever-green; and the Mezereon is a desirable flowering-shrub, singularly beautiful in its early flowers, in January or February, when but very few others appear, produced numerously along the upper part of the shoots, and impart a fragrant odour; the *Cneorum* and *Tarton-raira* are also delightful, little shrubs, as also the Alpine Daphne; and which three last-mentioned species, and the *Laureola* and the Mezereon, are the most noted, and deserving of culture; the other three sorts are eligible to admit for variety: are all hardy enough to grow in any common, lightish soil, or where they may be required; disposed principally towards the front of shrubbery compartments, and in

borders, &c. and are all easily raised from seed; also by layers, and some by suckers.

They are all cultivated in the nurseries for sale, more particularly the first five species, where they may be procured for planting in the proper seasons.

The season for planting them, may be either in Autumn, about October or November, or any time in mild open weather during the winter, or in any of the spring months, February, March, and beginning of April; generally allot them principal compartments of the shrubbery, disposed more or less towards the front part, in a diversified order, in assemblage with other hardy flowering shrubs of moderate growth; or the *Laureola* introduced principally in the front of evergreen clumps, and in the borders of wood walks, as being naturally a wood plant.

To propagate these shrubs, it is effected principally by seed, (the berries) sowed in autumn, in October or November, or in the spring, February or March, in beds of light earth, either in drills, six inches to a foot distance, or broad-cast on the surface, and earthed over an inch deep, they will come up freely the first year; keep them clean from weeds, and when they are of one or two summers' growth, four or five to six or eight inches high, transplant them in autumn or spring into nursery-beds, trained to a single stem below, and permitted to branch out above; and in their advanced growth of about a foot and a half to two or three feet, are proper for the shrubbery.

Or, by layers of the young shoots, in autumn or spring, most of the sorts may also be propagated, especially in default of seeds, or to propagate the varieties, to continue them more certainly in their distinctive differences; they will be rooted for planting off in autumn following.

Likewise where suckers from the roots occur, they may be taken up in autumn or spring, with roots to each; and planted, they at once form young plants.

When the plants, raised by any of the above methods of propagation, are from a foot and a half to two or three feet growth in the nursery, they are of proper size for final transplanting into the pleasure-ground, in shrubberies, clumps, borders, &c. in which the requisite to culture is that in common with other shrubs, hoed clean from weeds in summer, and the ground digged between them in winter, when you may prune casual irregular shoots or branches.

The roots of old Mezereon shrubs are valuable in medical preparations, and for which the druggists give a good price per pound.

DIOSPYROS, INDIAN DATE PLUM.

Class and Order.

Polygamia Dioecia,
Many Marriages, Two Houses;

Or Flowers of different Sexes, as Hermaphrodite, Male and Female, upon two separate Plants in the same Species.

THE *DIOSPYROS* comprises two hardy deciduous trees, of moderate and smaller growth, employed in pleasure-ground plantations for ornament and variety; clothed in summer with oblong, simple leaves, in one species, curious in being of different colours; and hermaphrodite and female flowers on the same, and male flowers on distinct plants; composed of monophyllous or one-leaved four-parted cups, a corolla, monopetalous, or of one petal four-parted, containing eight stamina and one quadrifid stylus, succeeded, in the hermaphrodite and female flowers, by large globular, baccaceous or berried fruit, furnished with many seeds, by which the trees are propagated.

The Species of *DIOSPYROS* are,

1. *DIOSPYROS Lotus*—(Lotus) False Lotus, or Indian Date Plum.

A moderate deciduous tree, growing twenty feet high or more—the leaves (*moderately large*) oblong, the surfaces of different colours.—Native of Mauritania, France and Italy. (*Dry situation.*)

Varieties.—Broad-leaved Date Plum.

Narrow-leaved African Date Plum.

2. *DIOSPYROS virginiana*—Virginian Diospyros, or Pishamin Plum.

A small deciduous tree, growing fifteen or eighteen feet high—the leaves (*moderately large*) oblong, with the surfaces all of one colour (green)—Native of North America. (*Dry, or any common soil.*)

These two species of *Diospyros* are proper to assemble in shrubberies, and other plantation compartments in pleasure-grounds, principally in the deciduous tree collections, in which they will increase the variety very agreeably; and may be planted in any situation in a moderately dry, or any common soil, in company with other trees and shrubs; and for which occasion they may be had at the public nurseries, and planted in autumn or spring.

They are propagated by seed, which may be sowed in the spring in a bed of light earth, an inch deep, or in pots, plunged into a gentle hot-bed to forward the germination of the seed, and bring up the plants sooner,

sooner, to obtain a stronger growth before winter, when it would be of advantage to give them shelter from frost; and then transplanted into the nursery in the spring to acquire proper growth of three, four, or five feet, for final transplanting in the intended plantations.

DIRCA, LEATHERWOOD.

Class and Order.

Otandria Monogynia.
Eight Males, One Female;

Or Plants with Hermaphrodite Flowers, having eight Stamina, or Males, and one Pistillum, or Female.

THIS Genus, DIRCA, furnishes but one species, a small deciduous shrub, proper to introduce in shrubbery compartments for variety; is garnished with ovate leaves in summer, and club-shape ventricose flowers, of one petal, containing eight stamina and one style; succeeded by roundish berries, having each one seed; and by which the shrub is propagated, also by layers and cuttings.

DIRCA palustris, Marsh Leatherwood.

A small deciduous shrub, with tenacious shoots and bark—the leaves (*moderate*) oblong, and pointed, and white flowers.—Native of Virginia. (*Moist, or any situation.*)

This shrub may be introduced in shrubbery compartments to encrease the variety; delights in moist situations, or may be planted in any common soil, in autumn or spring.

It is propagated by seed sowed in the spring, also by layers and cuttings of the young shoots.—Sow the seed in a bed of common earth, in February or March, and earthed in an inch deep; and when the plants are come up, and of one year's growth, transplant them in autumn or spring into the nursery, to attain proper strength for the shrubbery: layers and cuttings in autumn or spring will be rooted in one year; and when, by either method of propagation, the shrubs are two or three feet high, they should be finally transplanted in the plantations intended.

ELÆAGNUS, WILD OLIVE, or Oleaster.

Class and Order.

Tetrandria Monogynia,
Four Males, One Female;

Or Plants with Hermaphrodite Flowers, having four Stamina, or Male Fructifications, and one Pistillum, or Female.

THE ELÆAGNUS furnishes one large hard deciduous flowering-shrub, for ornamenting the shrubbery,

growing ten or twelve to fifteen feet high, clothed with spear-shape silvery leaves, and small apetalous flowers, composed of quadrifid or four-parted coloured cups, no corolla or petals; four stamina, and one style, succeeded by small oval, olive-shape, drupaceous fruit, furnished with an oblongish obtuse nut, by which, where attainable, the species may be propagated, but is more generally raised from layers, and occasionally by cuttings of the young shoots.

ELÆAGNUS angustifolia, Narrow-leaved Wild Olive.

A large shrub, or small tree, growing twelve to fifteen or sixteen feet high—the leaves (*smallish*) spear-shape, light green, whitish, shining.—Native of Bohemia, Spain, Syria, and Cappadocia. (*Any common soil.*)

This shrub merits a place in principal shrubberies for ornament and variety, in assemblage with other hardy shrubs and trees; may be had at the nurseries for planting, which may be performed in autumn or spring; assign it a conspicuous and somewhat warm situation, and it will succeed in any common soil.

It is propagated principally by layers of the young wood, and occasionally by cuttings: perform the laying in autumn or spring, they will be rooted by autumn following; when, or in spring, separate them from the stools, and planted in a nursery; or cuttings of the young shoots in the spring may be planted in pots, and placed in a hot-bed to forward their rooting more effectually, and afterward transplanted in nursery-rows; and when the plants, in either method, are three or four to five or six feet high, they are of proper growth for the shrubbery.

EMPETRUM, BLACK-BERRIED HEATH, or Crow-Berry.

Class and Order.

Dioecia Tetrandria,
Two Habitations, Four Males;

Or Flowers, Male and Female, distinct on two separate Plants of the same Species, and the Male Flowers having four Stamina.

THIS Genus furnishes but one hardy species; a low procumbent under-shrubby ever-green, garnished with very small ovate leaves, and small tripetalous male and female flowers separate, on two distinct plants; the males having four stamina, and the females one pistillum, succeeded by roundish berries, containing small seeds, and by which the shrub is propagated, also by layers, and bottom-suckers and off-sets.

One Species, viz.

EMPETRUM nigrum, Black-berried Empetrum.

A low ever-green of trailing growth—the branches procumbent or trailing; leaves (*minute*) ovate, and small flowers, succeeded by black berries.—Native of the cold parts of Europe, on mountainous and boggy places. (*Moist soil.*)

This under-shrub may be admitted in small shrubby clumps for variety, allotting it a moist situation; may be planted in autumn or spring, placing it somewhat forward in the intended compartments; is propagated by seeds, layers, and off-sets and suckers from the bottom. Sow the seed in the spring in a shady border of moist soil; and the plants, when of a few inches growth, transplanted, either where they are to continue, or in a nursery, to obtain a little strength for final planting; layers of the branches in autumn or spring will root freely; and off-sets or suckers may be taken up at the same seasons, with roots, and planted.

EPHEDRA, SHRUBBY HORSE-TAIL.

Class and Order.

Dioecia Monadelphia,
Two Habitations, *One Brotherhood;*

Or Male and Female Flowers distinct, on two separate Plants, and the Stamina of the Males joined in one Body.

THE *EPHEDRA* comprehends two species of small shrubby ever-greens, employed in shrubberies for ornament and variety; are small under-shrubs of three or four feet growth, branching in many slender rushy-like shoots, and similar small, jointed leaves, and male and female flowers, separate on two distinct plants, collected in amentums or catkins; the flowers are without corolla or petals, males seven stamina in one body, and in the female florets two oval germens and short styles; the germen grows a small berry-like squamous fruit with two oval seeds, which, when they can be obtained, may be sowed to raise the plants; but these are more generally propagated by suckers, or occasionally by layers.

The Species of *EPHEDRA* are,

1. *EPHEDRA distachya*, Twin-spiked, Shrubby Horse-Tail.

A small, shrubby ever-green, three feet high—the shoots and leaves small, rushy-like, jointed, and peduncles or flower-stalks opposite, with the flower-spikes or amentums in pairs.—Native of Narbone in France, and Spain, on rocks and hills by the sea. (*Any common soil.*)

2. *EPHEDRA monostachya*, Single-spiked Dwarf Shrubby Horse-Tail.

A low under-shrubby ever-green, two or three feet high—the shoots and leaves shorter and smaller; many peduncles or flower-stalks; and the flower-spikes or amentums solitary or single.—Native of Siberia, on mountains and sterile places. (*Any dry soil.*)

These two shrubby ever-greens are admitted in curious shrubby collections for the singularity of their growth, in which they effect an agreeable diversity at all seasons of the year in their shoots and leaves: they may be obtained for planting, at most of the nurseries, in autumn or spring; may be planted in any common soil, and should generally have a forward situation towards the front part of the intended compartments of shrubby clumps, &c.

They are propagated principally by suckers, which may be taken off in autumn or spring with roots, forming at once rooted young plants, and either planted where they are to remain, or in a nursery for a year or two, or till they acquire more strength and larger size for final transplanting.

Likewise many propagate them by layers, in the autumn or spring, and will be rooted for planting off the autumn following.

EPIGÆA, TRAILING ARBUTUS.

Class and Order.

Decandria Monogynia,
Ten Males, One Female;

Or Plants with Hermaphrodite Flowers, having each ten Stamina or Males, and one Pistillum or Female Part.

ONE species, a trailing, creeping evergreen, flowering-shrub of small growth, adorned with ovate leaves, and loose, terminal bunches of monopetalous, white flowers, having a double, six-leaved calyx or cup, a tubulous, salver-shape corolla, of one petal, cut at top into five parts; ten stamina, a globose germen crowned by a quinquefid or five-part stigma, succeeded by a roundish pentangular fruit with many seeds; by which the plant may be raised; but it commonly propagates plentifully by its rooting branches and off-set suckers; likewise by layers and cuttings.

One Species, viz.

EPIGÆA repens, Creeping Epigæa, or Trailing Arbutus.

A low, trailing ever-green, with creeping, rooting-shoots;—leaves (*smallish*) ovate-oblong, rough; and

and small bunches of white flowers at the ends of the branches.—Native of Virginia and Canada. (*Any common soil.*)

It is admitted in shrubberies as an ever-green and flowering-shrub; may be procured at the nurseries, and planted in spring or autumn, assigning it a forward situation: is propagated by the trailing rooting stems, and off-set suckers, taken off in the autumn or spring, and planted in the shrubbery, or in a nursery, for a year or two, also by layers and cuttings of the shoots.

ERICA, HEATH.

Class and Order.

Octandria Monogynia,
Eight Males, One Female;

Or Plants producing Hermaphrodite Flowers, having eight Stamina, or Males, and one Pistillum, or Female.

THE ERICA furnishes several hardy species of small under-shrubby, ever-green, flowering plants, for the shrubbery, of spreading and upright bushy growth, one to two or three feet high, closely garnished with minute simple leaves, by two, three, four, and five together; and many small quadrifid flowers; purple, red, &c. arranged along the upper part of the shoots; having four-leaved, coloured cups, the corolla or flower small, monopetalous, swelling, four-parted, containing eight small stamina, and one pistillum, succeeded by a quadrilocular or four-celled seed capsules, ripening seed in autumn; by which the plants may be raised, and are propagated also plentifully by off-set suckers, and layers of the branches.

The principal hardy ERICAS are,

1. ERICA vulgaris, Common Wild Heath.

A small, spreading shrubby plant—the leaves (very small) arrow-shape, opposite; and the corolla or flower bell-form, unequal, with the anthera two-horned, included.—Native of England and most parts of Europe, on sterile commons, or heaths. (*Any soil.*)

Varieties.—Common Purple-flowered Heath.
White-flowered Common Heath.

2. ERICA ciliaris, Ciliated-leaved Portugal Heath.

A small, shrubby plant, two feet high—the leaves (small) ovate-oblong, acute, placed by threes, the edges ciliated or hairy; and the corolla ovate, irregular; the flowers three-clustered, with the anthera simple, included.—Native of Portugal. (*Any dry soil.*)

3. ERICA cinerea, Ash-coloured-barked Heath.

A dwarfish under-shrub, the bark whitish—the leaves (*small narrow*) linear, smooth, growing by threes; and ovate flowers clustered; with two-horned anthera, included.—Native of the middle parts of Europe and the East. (*Any common soil.*)

4. ERICA multiflora, Many Flowered Heath.

A small shrub of two feet growth—the leaves (*small, long*) by fives, and spreading; with flowers cylindrical, numerous, purple, with simple bifid anthera.—Native of England, France, and the East. (*Any common soil.*)

5. ERICA Tetralix—(Tetralix) or Four-leaved Red Heath.

A small under-shrub—the leaves (*small*) awl-shape, ciliated, or hair-edged, placed by fours, spreading; and flowers (dark-red) sub-globose, crowded, longer than the leaves, with anthera two-horned, included.—Native of the northern parts of Europe, in marshy places. (*Moist, or any soil.*)

6. ERICA triflora, Three-flowered African Heath.

A small shrub—the leaves (*small*) growing by threes, flowers sub-globose, somewhat hairy, placed by threes together, peduncles or flower-stalks three-leaved, and with bifid anthera, included.—Native of Æthiopia. (*Warm, dry situation.*)

The three following, which, like the foregoing, are small shrubby ever-greens, are also sometimes introduced among the hardy Ericas, but should have a warm sheltered situation.

7. ERICA mediterranea, Mediterranean Purple Heath.

8. ERICA australis, Southern Heath.

9. ERICA longiflora, Long-flowered Heath.

All these species of ERICA are admitted in shrubberies, flower-borders, and other compartments of the pleasure-ground, for variety and ornament, both as small shrubby ever-greens, and several of them also are very pretty little flowering shrubs, of very ornamental appearance in summer, in their small but numerous flowers; will all succeed in any common soil, but generally allot the last four sorts a warm sheltered situation; or some also planted in pots to move under shelter of a frame or green-house in winter: may be supplied with most or all the sorts at the nurseries for planting, which may be performed in autumn or in any of the spring months, assigning them places in some principal compartments and front situation
conspi-

conspicuous to sight, and where they may not be overpread by larger seeds.

They are propagated by off-set bottom suckers from the roots, and occasionally by layers and feed; the suckers may be detached in autumn or spring, and planted in a nursery till they acquire a little strength for the shrubbery, or some planted therein at once to remain: layers and cuttings in the spring will be rooted by the following autumn; or cuttings or slips of any principal sorts planted in pots in the spring, and plunged in a hot-bed, or covered close with a hand-glass, it will forward their rooting sooner.

Or where seeds can be obtained, they may be sowed in the spring, in a bed of light earth; and when the plants are come up, and advanced a few inches in growth, should be transplanted in nursery-beds, or some of the tenderest sorts planted in pots, to move under shelter in winter.

When the plants, raised by either of the above methods, are of one or two feet growth, they may be transplanted in the places where intended.

EUONYMUS—(*Euonymus*) or SPINDLE TREE.

Class and Order.

Pentandria Monogynia,
Five Males, One Female;

Or Plants with Hermaphrodite Flowers, having five Stamina or Males, and one Pistillum or Female.

THE EUONYMUS comprise two principal species, consisting of a large deciduous flowering-shrub, or small tree, and an ever-green of middling growth, with several varieties of the former, and one of the latter; all employed in the shrubbery plantations for variety and ornament; are of upright branchy growth, garnished with oblong-ovate, and spear-shape leaves; and spreading whitish flowers, in clusters and singly; having in each flower a monophyllous or one-leaved cup, four or five-parted, a corolla of four or five oval spreading petals, five stamina and one pistillum; and the germen grows a quadrangular and pentangular succulent capsule, of five loculi or cells, furnished with red berry-like seeds; the capsules, when ripe, opening naturally and disclose the seeds, ripening in autumn; and by which, and by layers and cuttings, the species are propagated.

The Species of EUONYMUS are,

1. EUONYMUS *europæus*, European, or Common Spindle Tree.

A large deciduous shrub, or small tree, growing twelve to fifteen feet high—the leaves (*moderate size*)

oblong-ovate, and white flowers mostly quadrid or cut into four parts; succeeded by four-cornered seed-pods, opening when ripe, and disclose the red, granulous seed.—Native of England and most parts of Europe, in hedges, &c. (*Any common soil.*)

Varieties.—(*tenuifolius*) or Small-leaved Common Spindle Tree.
(*latifolius*) or Broad-leaved Common Spindle Tree.
Striped-leaved Common Spindle Tree.
Red-feeded Common Spindle Tree.
Pale Red-feeded
White-feeded Spindle Tree.

2. EUONYMUS *americana*, American Ever-green Spindle Tree.

A middling size ever-green shrub, growing six or eight feet high—the leaves spear-shape, (*middling size*) and all the flowers quinquesid or five-parted.—Native of Virginia. (*Any common soil.*)

Variety.—Striped-leaved Ever-green Spindle Tree.

These shrubs are adapted to assemble in any common shrubbery compartments and other decorative plantations, in pleasure-grounds, both as flowering-shrubs; and the first species also for the curious singularity of its seed-pods, opening naturally, and display the red, granulous seeds very ornamentally in autumn, and great part of winter; and the second sort is a showy ever-green shrub, to increase the variety in compartments of that tribe, or where it may be required; are all very hardy, will grow in any common soil and situation, and are easily raised by feed, layers, and cuttings.

They are cultivated in all the nurseries for sale, in which they may be had, of proper growth for planting, in autumn or spring, or any time in open weather, from October to March.

To propagate or raise supplies of these shrubs, it is effected by feed, layers, and cuttings, as before intimated. Sow the seed in autumn or spring, in a bed of common earth, and covered in about an inch deep; and when the plants are one or two years old, plant them into the nursery to obtain proper growth for final transplanting in shrubberies, or where they may be designed: layers of the lower shoots and branches, in autumn or spring, will root in one summer, to plant off in the proper season following; and cuttings of the young shoots planted in a shady border, will also emit roots and grow.

In the different methods of propagation, when the plants advance in growth, prune them up a little below,

low, from low straggling branches, to have them form full heads above; and when they are advanced from two or three, to four or five feet high, they are proper for the shrubbery, &c.

They may be planted in autumn or spring, or any time in mild weather, from October or November, to March or April.

FAGUS, BEECH TREE, and CHESNUT.

Class and Order.

Monoecia Polyandria,
One Habitation, Many Males;

Or Male and Female Flowers, separate, on one and the same Plant; and the Male Flowers having many Stamina.

THIS Genus comprise three species and several varieties, all of the deciduous tree kind, of large, lofty, moderate, and small growth; consisting of forest, fruit, and ornamental trees; some growing sixty, to seventy or eighty feet high, or more; others not exceeding fifteen or twenty feet: adorned in summer with large oval and spear-shape simple leaves; and small male and female apetalous flowers apart on the same tree, collected in globular and cylindric amentums or catkins, each flower having a four or five-parted calyx, no corolla or petals; the male flowers having many stamina, and the females three styles; and in the female flowers the germen grows a large roundish echinated prickly capsule, furnished with two or more nuts, small in the Beech, in the Chesnut large, with eatable kernels, ripening in autumn; and by which the trees are principally raised or propagated, also any particular varieties, by layers, or, occasionally, by budding and grafting.

The Species of FAGUS are,

1. FAGUS *sylvatica*, Wood or Common Beech Tree.

A large, lofty, deciduous tree, of straight handsome growth, sixty or seventy, to eighty feet high, or more—the leaves (*middling*) ovate, slightly sawed, and roundish amentums of flowers, succeeded in the females by triangular nuts, called Beech-Mast.—Native of England, other parts of Europe, and of Canada. (*Chalky, stony, or any common soil.*)

Varieties.—Yellow-striped-leaved Beech Tree.
White-striped-leaved Beech Tree.
American Purple-leaved Beech Tree.

2. FAGUS *Castanea*—(*Castanea*) or Chesnut Tree.

A large, lofty deciduous tree, growing fifty or sixty feet high, with a noble spreading head—the

leaves (*large, shining green*) spear-shape, pointed-sawed, naked underneath; and flowers in longish amentums, succeeded in the females by large prickly capsules, containing two or three roundish nuts, with eatable kernels.—Native of Spain, Italy, and other southern parts of Europe. (*Dry, or any common soil.*)

Varieties.—Cultivated or large Sweet-kernelled Common Spanish Chesnut.
Wild or smaller Chesnut.
Gold Striped-leaved Chesnut Tree.

3. FAGUS *pumila*, Dwarf American Chesnut Tree, or Chinquepin.

A small, deciduous tree, growing ten, to fifteen or twenty feet high—the leaves (*middling*) spear-shape-ovate, acutely sawed, hoary on the under-side; and the female flowers succeeded by clusters of round prickly capsules, containing small nuts singly, having sweet eatable kernels.—Native of North America. (*Moist, or any soil.*)

These three species of FAGUS, and their respective varieties, have great merit, as useful and ornamental trees, to dispose in all principal large plantations, in extensive pleasure-grounds, parks, &c. but of which the Beech and Common Chesnut have considerable merit to cultivate as most valuable forest or timber-trees, they growing to a lofty stupendous stature, with a stem of great magnitude; the timber strong and durable, of superior worth in many useful occasions in which substance and strength is required, as also to cultivate in under-wood, in coppices, to cut for poles, and other small or light purposes; likewise, the trees, being of handsome growth, are of great estimation to assemble in large, pleasurable deciduous plantations, in groves, thickets, woods, clumps, &c. and the Chesnut Tree in particular, growing with a beautiful spreading head and most ample foliage, forms a delightful umbrage in summer, is peculiarly adapted to arrange in avenues, or in forming grand shady walks and groves; and is likewise valuable to plant as a fruit tree, in parks, and on the boundaries of orchards, and in avenues in any out-grounds, or where convenient, in any open situation; they, when advanced of some considerable growth, will produce plentiful crops of nuts, which, in favourable seasons, ripen, in tolerable perfection, in autumn.

The *Fagus pumila*, or Dwarf Chesnut, being of small growth, is employed principally to assist in composing large shrubberies and other decorative plantations, in pleasure-grounds, in assemblage with other deciduous trees and shrubs.

And the Beech Tree, besides its utility for the before-mentioned purposes, was formerly in much estimation for ornamental garden hedges, and hedges
for

for shelter, shade, &c. as, in its first growth, it branches out thickly from the sides quite to the bottom, and, with proper cutting, is readily formed into close handsome hedges of any height required, six, eight, or ten, to fifteen feet high, or more.

All the species of *Fagus* being of the deciduous kind, expanding their leaves only in summer, should assemble principally in plantations of the same tribe of trees, or some occasionally in distinct plantations of the respective sorts, especially of the Beech and Common Chestnut, in smaller or larger compartments, in groves, clumps, &c.

The different species of these trees in their general growth and foliage in summer, make an agreeable variety in plantations; and the trees, when of advanced growth, flower in April, May, and June, in the different sorts, but the flowers are not conspicuous; they grow in amentums and roundish heads, which, in the Beech, are succeeded by plenty of small triangular nuts, falling from the capsules in autumn, when they may be gathered up, as many as wanted, for sowing; and where they are produced in abundance, are excellent for feeding and fattening swine, and the larger sorts of poultry; and in the Chestnut and Chinquepin, the fruit being produced in large, round, prickly capsules, these, when ripe, open and disclose the nuts, having brown membranous shells, filled with a tender sweet kernel, which, in the Chestnut in particular, often ripens abundantly in some tolerable perfection in September, in warm dry autumns, and of which may select a quantity of the largest and best-ripened to preserve for eating in winter; though they seldom ripen with equal goodness of flavor as those which are annually imported from Spain and Portugal.

The trees of all the sorts are hardy to grow in any situation, and will prosper in almost any common soil.

To cultivate for forest or timber-trees, the Beech and Common Chestnut should be admitted as principal sorts, both in assemblage with other trees, and occasionally in distinct plantations of these kinds separately; and in either of which the plantations may be formed both of young plants previously raised in a nursery, two or three to four, five, or six feet growth, and planted five or six to eight, ten, or fifteen feet distance; and occasionally by the seed or nuts, sowed in the places where the trees are to remain, the ground being plowed and harrowed, and drills formed four to five or six feet asunder, and three inches deep, sowing the nuts in the drills, and earthed over; and in the advanced growth of the young trees, some may be transplanted elsewhere, or when of larger size, some cut down in a thinning order for poles, &c. leaving abundance of the strongest singly, to run for large standards for timber.

The Chestnut, when designed to have any as fruit-trees for their production of nuts, may be planted in orchards, parks, hedge-rows, and in avenues, at thirty or forty feet distance; or some dotted singly, or in small clumps on extensive lawns, and other open spaces of grass ground, and all permitted to branch out in full heads, mostly in their natural order.

Proper trees of all the sorts for planting, in any plantations intended, may be had in eligible supplies at the public nurseries, of three or four to six, eight or ten feet growth, to plant in autumn or spring; or where large supplies of the Beech and Chestnut are required for considerable plantations in woods for timber-trees, they may be raised abundantly in home nurseries for that occasion, by sowing the mast and nuts in autumn or spring, raising the trees three or four to five or six feet for final planting.

The general season for planting these trees, is either in the autumn, at the decay of the leaves, or in the spring months, or performed, occasionally, any time in open weather, from October or November till the latter end of March.

The propagation or method of raising all the species of *Fagus* is principally by the seed or nuts, and by which, sowed in autumn and spring, the trees may be raised with great facility and abundance; and will advance in a free growth; or any particular or desirable varieties of the Beech and Common Chestnut, are propagated by layers, grafting and budding, to have them continued permanent in their respective properties with greater certainty than by seed.

However, to raise the common species, being provided with proper supplies of Beech-mast and nuts, in autumn or spring, the former may be sowed in autumn, about October or November, or in winter, in open weather, or in any of the spring months, in beds of common light earth, and covered in two inches deep, as directed below for the Chestnuts; but these latter, and the Chinquepin Nuts, will be most adviseable to sow principally in the spring, about February or March, they being preserved sound till that time; when they should be sowed either in drills two inches deep; or the earth raked off the bed that depth, sow the nuts on the surface moderately thin, press them down gently into the earth with the back of the spade, then, with the earth raked off, cover them in regularly; they will all germinate freely in the spring, come up in that season, or early part of summer, when keep them clear from weeds; and when the young trees are of one or two summer's growth, they must be transplanted in autumn or spring, into the nursery, in rows two or three feet asunder; in which, train each with a clean single stem, by pruning up lateral shoots below gradually, as the plants advance in growth, preserving the top-shoots entire, and always the main leader to aspire in height

as fast as possible in full growth, and having attained three or four to five, six, eight or ten feet stature, they are proper for final transplanting in the intended plantations.

Likewise by layers of the lower young shoots, any particular sorts may also be propagated: they will root in one season for planting off in autumn or spring following.

Also by grafting or budding any desirable varieties upon seedling-stocks of their respective species, is a certain method whereby to propagate them permanent in their particular kinds.

When designed to make plantations of the Common Beech and Chestnut in woods, for forest or timber-trees, it is advisable to plant them while of moderately young growth, of three or four to five or six feet, or not exceeding eight or ten; and the planting may be performed any time in open weather, from the fall of the leaf in October or November to March, in which some may be planted in close rows of five or six feet distance to admit of having some in coppice-wood, to cut occasionally, when of some advanced growth, in a thinning order for poles, &c. as formerly observed, leaving a sufficiency of the most promising trees, at ten to fifteen feet, to grow up for timber standards; others may be planted at once at proper distances, of ten to fifteen feet, to remain wholly for standards to acquire a large growth before any are felled for timber; generally observing, in the advancing growth of those designed for large trees, it is advisable to keep them to clean stems, by pruning up the lateral and under-branches by degrees, in order to encourage their running up more expeditiously and straight.

In planting any of these trees for ornament, they may generally be disposed in assemblage with other tree kinds, in forming any large plantations in pleasure-grounds, parks, groves, thickets, clumps, &c. or some planted to form Beech and Chestnut compartments distinct; and in their advancing growth, prune up the lateral and straggling under-branches, and permitted to branch out above in full heads, or in which may reduce any considerable irregularity that may casually occur.

FICUS, FIG TREE.

Class and Order.

Polygama Trioecia,
Many Marriages, Three Habitations;

Or with Flowers of different Sexes, as Male, Female,
and Androgynous, upon three separate Trees.

THE FICUS furnishes but one hardy species, an eminent fruit-tree, which affords many fine varieties of

the fruit; is a deciduous tree of moderate growth, with large, palmated leaves; and with flowers male, female, and androgynous, on three distinct trees, all wholly concealed within the common receptacle, or outer cover, which appears first like a small, round, green bud, arising from the sides of the young shoots, enlarging by degrees, forming a sort of general cover, inclosing, in a concealed manner, numerous, minute chaffy florets, without petals, lining, as it were, the internal surface thereof, having in each male floret three stamens, and the females two pistillums; and the said general receptacle, or cover, and the contained flowers, &c. become the fruit gradually increasing to a large size, attaining maturity in autumn, full of a soft pulpy substance, ripening, tender, delicious, and rich for eating, in August and September; some roundish others top and pear-shape, and full of large seeds, not always ripening in good perfection in this country for sowing, but the several varieties of the trees propagate freely by suckers, layers, and cuttings.

Only one hardy Species of FICUS, viz.

Ficus Carica—(Carica) or Common Fig Tree.

A moderate deciduous tree, growing ten to fifteen or twenty feet, producing large, long, succulent shoots—the leaves (*large*) palmated or hand-shape, cut into three or five lobes; and fruit-buds at the sides of the young shoots in the spring.—Native of the southern warm parts of Europe and Asia. (*Rich, loamy, or any good garden earth.*)

Varieties.—Common Fig Tree.
Dwarf Fig Tree.

Many Varieties of the Fruit, viz.

Early white Fig—a small, roundish fruit, flattened at the top, ripening of a whitish yellow colour, for eating, in August.

Early blue or purple Fig—a middling-size, longish, pear-shape fruit, ripening of a blueish or purple colour, for eating, beginning or middle of August.

Large common blue Fig—a large, longish, pear-shape fruit, ripening of a dark-blueish purple colour, for eating, the end of August and in September.

Brown Ischia Fig—a large, shortish, globular fruit, ripening brown or chestnut colour without, purple within; ripe beginning and middle of August.

Black Ischia Fig—a middle-size, short, roundish-top-shape fruit, almost black when ripe, but red within; ripening in August.

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White

White Genoa Fig—a large, shortish, globular, or somewhat top-shape fruit, ripening of a whitish-yellow without, red within; ripe in August and September.

Black Genoa Fig—a largish, long fruit, ripening of a dark-purple colour, or almost black, covered with a purple farina, bright red within; ripe the beginning or middle of August.

Malta Fig—a small, short fruit, flat at top, ripening of a brownish colour without, and purplish-brown internally; ripe in August and September.

Green Ischia Fig—a moderate size, oblongish fruit, globular at the crown, ripening greenish without, purple within, end of August and in September.

Brown Naples Fig—a large globular fruit, ripening of a lightish brown colour, marked with white, and purplish-brown within; ripe end of August and in September.

Long brown Naples Fig—a largish, long fruit, ripening of a dark brown, reddish within; ripe in September.

Small brown Ischia Fig—a small pear-shape fruit, ripening of a lightish-brown without, the pulp somewhat purple; ripe middle or latter end of September.

Madonna, or Brunswick Fig—a large, long, pear-shape fruit, ripening of a brown colour without, and a lightish-brown pulp; ripe end of August and in September.

Yellow Ischia Fig—a large, long, pyriform fruit, ripening yellow without, the inside purple; ripe in September.

Black Provence Fig—a large fruit, ripening of a blackish-purple colour, for eating, end of August and in September.

These are the principal varieties of Figs the most general known in the British gardens, though there are several others occasionally cultivated, but the sorts above described are such as will mostly ripen in perfection, and the trees, in most of the varieties, produce plentiful crops; however, there are but few gardens which are furnished with all the sorts here mentioned, and in the greater part the Common Blue and the White Figs are the sorts principally cultivated for the general supply, as they more commonly produce the most abundant crops, ripening in full maturity; but where there is plenty of garden-room, it is

proper to have several different varieties, especially where there is some considerable extent of walling, as they generally require to be trained as wall-trees, against walls of a south aspect, full to the sun, in order to obtain the fruit in the best perfection; or several sorts will also produce tolerable crops of fruit on espaliers, planted in a sheltered, sunny exposure, as likewise on standards, in similar situations.

The trees of all the varieties will prosper in any common soil of a garden; or where the ground is loamy, it generally promotes plentiful crops of large fruit; however, all the sorts may be planted in any tolerably-good ground that the garden affords, or in common with other fruit-trees, both against walls, and some in espaliers and standards, as above intimated.

But, for the general supply, it is proper to allot a principal portion in wall-trees, planted in borders against south walls, both to obtain the fruit earlier in all possible perfection, and that the trees may have better protection in winter from severe frost, which, as the young shoots are succulent, is apt to kill many of them where detached and full exposed; and even those trained close to walls are also sometimes greatly damaged in rigorous winters, when not covered with mats, or the branches un-nailed, tied together in small bundles, fastened down low to stakes, and covered with straw; for, as the Fig trees bear only upon the young shoots of the preceding year, if these are greatly injured by the frost, the production of fruit will be proportionably less.

All the varieties of Fig trees produce the fruit always upon the young shoots of a year old, the fruit-buds arising principally on the upper parts of the said shoots, and likewise the young shoots of the same year yield a secondary production of fruit in summer and autumn; but these never or rarely acquire any tolerable perfection in this country, as may be observed by their remaining of a green immature state upon the shoots in winter, after the leaves are fallen, and should generally be then pulled off, and to depend only on the spring production arising on the shoots of the last year, for the principal crop ripening in full maturity; and therefore, in those trained in wall-trees and espaliers, requiring a regulation of pruning and training every summer and winter, a general supply of the young shoots of each year must be retained in all parts of the trees for bearing, and some proportionable part of the old cut out in the winter-pruning, to give room for training the successional supply of the young bearing wood to produce the Figs next summer, as the same individual shoots never bear but once, though they produce others, as likewise the older branches, for future bearers, and those produced one year bear the fruit the year following; and thus the succession of bearing wood is continued annually; the fruit being

emitted in spring immediately from the eyes of the shoots, gradually increases in volume till August and September, then ripening of a white, blueish, purple, black and brown colour, as in the description of the different varieties.

As the Fig tree furnishes many varieties in regard to the different sorts of the fruit, proper trees of the desired kinds for planting may be had at most of the nurseries, either young or of a trained growth, to commence immediate bearers; or may be expeditiously raised by suckers, layers, cuttings, and either planted at once in young growth, where they are to remain, or trained in a nursery for two or three years, till furnished with a tolerable head of branches, then transplanted in the garden.

The season for planting Fig trees is principally either in autumn, about October or November, at the decay of the leaves, or in February, March, or beginning of April; or may also be occasionally planted in any of the winter months in open, mild weather.

In planting Fig trees, it must be observed, that as they are originally exotics, from southern, warm countries, they in this require warm situations in the full sun, to have them produce fruit in good perfection; so should be principally planted as wall-trees, against south walls, and some on those of south-east and west aspects, but mostly full south walls for the principal supply; for although the trees will grow any where, they will not ripen fruit effectually, unless they have the advantage of warm, sunny exposures; they may likewise be planted in espaliers, in similar aspects, in the full sun, to promote good crops of fruit; and in all of which, for wall-trees and espaliers, should be planted fifteen or eighteen to twenty feet distance, to have good scope to extend the branches, at their full growth, and these arranged to the wall, &c. horizontally, five or six, to eight or ten inches asunder, with the shoots always extended at their whole length; and the trees will require a regulation of pruning and nailing every summer and winter, when observe always to reserve a general supply of the young shoots of each year at the above distances, for successive bearers, as formerly intimated; and, at the same time, in winter-pruning particularly, to cut out a proportionate part of the old bearers and long-extended, naked, old branches, to afford proper scope to arrange the succession-bearing shoots, which, as before observed, must never be shortened in these trees, as the shoots mostly bear towards the upper parts; that, if shortened, it would destroy those parts less or more on which the fruit is principally produced, and force out from the lower eyes a considerable superfluity of useless wood in summer; and therefore, generally, both in the summer and winter-pruning, let the shoots necessary to retain for training to the wall, &c. remain entire, unless any have the top parts injured by frost in

winter, when may prune them down to the live wood; but all the others train in at their natural length.

But as Figs will also succeed in standards, especially the white and blue sorts of the earliest ripeners, and which being trained in dwarf or half-standards, with stems of one or two, to three, four, or five feet, branching out above in full heads, they may be planted in a warm situation, exposed to the sun; and they will often produce tolerably good crops of Figs, ripe, for eating, in August and September.

Having thus far given the general intimations relative to the species and different varieties of the Fig, with their nature of growth, order of bearing, different methods of propagation, planting and training, shall now proceed to explain the particulars of culture.

First, with respect to the methods of propagating and raising Fig trees, all the varieties propagate freely by suckers, layers, and cuttings; though the two latter methods are generally preferred to the former, as the suckers from the roots are often less compact and firm than the shoots produced above on the branches, more succulent, and liable to injury from frost, and disposed to run more to suckers and superfluous wood than the trees as are raised from layers and cuttings of the branch shoots; however, good trees are occasionally raised by all the above methods.

The season for performing the propagation in the different methods, is either in autumn, at the fall of the leaf, or in any of the spring months.

Suckers from the roots of the trees are proper to detach for planting when of one summer's growth, taken off either in autumn or spring following, digging them up with as much root as possible; and of which, chuse the strongest, robust and firm, rejecting long, slender, soft shoots, and planted either in rows in a nursery, in order to be trained of proper growth for transplanting in the garden; or some may be planted at once where they are to remain, especially those designed for walls and espaliers; and for which they should be topped in the spring to promote their shooting out below for a supply of lateral branches, advancing immediately from or near the bottom, to furnish the wall, in a proper expansion, regularly from the bottom aforesaid, upward; but those designed for standards should not be topped, but permitted to run with a single stem, two, three, to four or five feet, then encouraged to branch out above, and form a full head.

Layers of the young shoots and branches, in autumn or spring, will be rooted in one year; for which chuse strong, robust, compact, firm shoots, of a year or one summer's growth, situated on some of the lower

pliant branches, or occasionally young branches of two or three years old, furnished with a terminal shoot; and to perform the laying, bow down the shoots or branches, opening an oblong cavity in the earth, lay the stem or body of the branch, or shoot therein three or four, to five or six inches deep, pegged down and earthed over, raising the top of each layer several inches to a foot above ground, not shortened, but preserved entire, they will be properly rooted by the following October, when, or in November or spring, may be separated from parent tree or stool, with good roots, and planted either in a nursery for one, two, or three years, to increase in growth, and acquire a head of branches; or some of the strongest may be planted at once in the places where they are to continue; especially for wall and espalier trees, and in either methods train them as advised for the sucker-raised trees, to have them for walls, espaliers, and standards, or either of which, as required.

And cuttings of shoots in autumn, or early in spring, will root well in one summer; chuse, for this occasion, some robust, short-jointed shoots, of well-ripened firm growth, which cut off at their full length; or also, where convenient, may take off an inch or two of the former years wood, adhering at the bottom of the cutting; though this is not absolutely necessary, only as it may readily occur; preserving each cutting entire at top; so plant them in a shady border, inserted six or eight inches into the ground, in rows a foot or eighteen inches distance: they will be rooted by the end of the following autumn, when, or in spring, they may be transplanted either into a nursery, at wider distances, to train of proper growth, for walls, espaliers, or standards, as observed of the others, or planted at once, for wall-trees, where they are to remain.

In the above different methods of raising Fig trees, train them for the purposes intended, either principally for wall-trees, in which they may be topped in the spring to make them emit lateral shoots, to form a proper spread from the beginning, to furnish a regular expansion of branches from the bottom upward, as before intimated; and after being thus formed in the first setting off, all the after-shoots that are well-placed may be continued entire, cutting off fore-rights, and others as are ill-placed, for training, and train in the regular supply of branches horizontally to the wall at their full length: the same method should also be observed in those trees designed for espaliers; but for standards, run up the main shoot for a stem, two or three, to four, five or six feet, cutting away all laterals till advanced to those heights, then permitted to branch out at top to form the head, branching out all round; and of which prune casual irregular-growing, or cross-placed branches, and permit the other general branches to advance in their natural growth.

The planting of Fig trees, either for walls, espaliers, or standards, should generally be performed while they are of moderately young growth, of three or four, to five or six feet extent, or but little more, as these trees do not, like several others of the fruit-tree kind, succeed well when transplanted of any considerable large size; or where finally planted, when young, immediately in suckers, or rooted layers and cuttings of one or two years old, they commonly sooner establish their roots more effectually, and make prosperous trees.

To plant them for wall-trees, allot south walls, as before observed, for the principal supply; and some may be planted on east and west walls, or also in espaliers; and, in all of which, planted at fifteen or eighteen, to twenty feet distance; or if planted twenty, at least, asunder, their extending branches will completely fill that space, which, according as they advance, arrange horizontally to the wall and espalier, five, six, or eight inches asunder, increasing the number of branches annually and trained in at the above distances, one above another, till they cover the wall, &c. in a regular expansion, generally extending the shoots and branches at their whole length; that is, not to shorten the ends of the shoots, for the reasons before explained.

For standard Figs, some trees may be planted in a warm situation, at twenty or thirty feet distance, and the heads permitted to branch out all round nearly in their natural order, except, occasionally, to prune out any crowding or ill-growing branches; and when the tops of the shoots, or others, are wholly killed by the rigours of frost, prune them in the spring, down to the live wood.

The wall and espalier Fig trees will require a summer and winter pruning and training every year, to continue them in eligible regularity, and abundantly fruitful.

The summer-pruning and dressing of Fig trees consists of giving a regulation in the young shoots of the same year, in cutting out the irregular and superabundant, and nailing in the requisite supply of the proper and well-placed shoots, both for increase of branches, where necessary, and for succession bearers the year following; and this operation may be commenced in June or July at farthest, when the year's shoots will be considerably advanced; observing of which, at this time, to displace principally only the fore-rights, advancing from the front of branches, with others as are remarkably ill-placed for training; and being careful now to select and retain an abundant supply of all the side-shoots and terminals at the end of the branches, with all other regular-placed shoots that can be possibly trained to the wall with tolerable regularity.

regularity, in order to have plenty to chuse from in the principal winter pruning, both for increase of wood, where wanted, and very abundantly for next year's bearers, in all parts of the trees; cutting out close all the ill-placed productions; and let the supply of retained shoots be nailed in close and regular to the wall, all at their full length, never shortened, neither in summer or winter-pruning, in these trees, for the reasons before given; or in casual vacant spaces, where additional supplies of wood is necessary, may pinch or prune the tops of contiguous shoots of the year, early in June, to a few eyes or buds, to obtain laterals the same season to furnish the vacancy; but, except in this particular, continue the general shoots intire, and according as they extend in their summer's growth, nail them along regular, and keep the whole trained close, to admit the beneficial influence of the sun, air, &c. to promote the growth of the present fruit, to ripen in proper season with a rich flavour.

The maturity of the fruit is principally in August and September, when having acquired full size, they change from green to their respective colours of white, blue, purple, black, &c. become soft, the skin, or outer cover, thin, and loose at the end next the stalk; and at which tokens of mature ripeness they should be gathered while in good perfection.

In autumn, when the fruit is all gathered, and the leaves of the trees are fallen, in October or November, it will generally be observed, that many green fruit, quarter or half grown, remain on the branches, which being the after production in the shoots of the year, and which never attain perfection in this country, should be pulled off, and then all the projecting shoots should be nailed up close to the wall, that they may remain more secure from being injured by severe frost, to have a proper abundance, in sound condition, to chuse from in winter-pruning, to train in for next year's bearers; or in rigorous frosts, if some principal trees are either defended with large thick mats, or the branches un-nailed from the wall, fastened down low to stakes, and covered thick with straw litter, it will more effectually protect the shoots; but in mild weather remove all the covering.

The winter-pruning of Figs comprises a general regulation, both in the young wood and older branches; and which operation may be proceeded in either in autumn, after the decay of the leaves, or deferred till spring, the latter of which is rather most advisable, on account, that as the shoots, in their peculiar succulent nature, are liable, in severe winters, to be many of them killed, or greatly damaged, by the frost; and that if the trees are pruned in autumn, or beginning of winter, cutting out the superabundant, and leaving only what are necessary to furnish the tree in regular order for bearers, and rigorous frosts succeed the operation, and kill or injure most of the retained

shoots, there is no resource for more that year, to make good the deficiency; but by leaving the whole till the end of winter, or early part of spring, February, or beginning of March, there is greater chance, out of the whole, to find enough that have escaped the depredations of the frost, for training to the wall in sufficient supply for bearing the fruit the ensuing year in full crops.

Thus, agreeable to these intimations, proceeding to the operation of winter-pruning, and in which observe, that having advised in summer to lay in abundant supplies of young wood to have plenty to chuse from in this pruning, these will now probably require thinning more or less, cutting out the worst or most unpromising, leaving a sufficiency of the best in all parts; and at the same time to prune out part of the old bearers and naked branches to make room for the successive bearing wood, as explained below in the general particulars.

Observe, previous to this pruning, it is proper to un-nail all the young shoots, and most of the smaller branches; then, proceeding to the business, be careful to select, for bearing, and occasional supplies of wood, the most robust, short-jointed, firm shoots, of moderate length, and that are best placed on the sides and at the termination of the mother branches, to be left in all parts from the bottom to the top, and utmost extent of the tree, for training in, six or eight inches asunder; and from which prune away the superfluous, with all weak and improper shoots, fore-right and others ill-placed, cutting them close to whence they proceed or originate, together with part of the former bearers, to admit of proper room for the succession supply, as above observed; either some cut clean out to their origin, or others pruned down to some eligible young shoot situated thereon, as it may seem proper, according to circumstances in different parts of the tree; likewise casual, long, naked, old branches, extended a considerable length, and not furnished with lateral young wood, or that the said wood is situated principally only at the extremity, should be retrenched, or cut down either to the bottom, or to some convenient lower shoot or young branch it may support, this then terminating the reduced old branch; and in the general pruning, always contrive every mother branch to terminate in a young shoot; either naturally situated at the end, or where any particular branch is extended considerably, it may be pruned down to an eligible shoot to remain for a leader, continuing all the retained shoots intire, and to be trained at their whole length to the wall.

As soon as one tree is pruned, nail the whole regularly to the wall, arranging the shoots and branches horizontally, six or eight inches distance, extended straight, and equally on both sides of the tree.

Where

Where any are trained in espaliers, they should be managed as directed above for the wall Figs, in regard to the summer and winter-pruning, &c.

Early Figs are obtained by having trees planted in forcing-houses, or hot-walls, &c. and forced by means of fire-heat, commencing in January or beginning of February, and continued every night and cold days all the spring months, till the beginning or middle of May; thereby forwards the trees in fruiting, to produce ripe fruit in June and July, and sometimes will furnish a second crop ripening in September.

They may be forced along either with other choice fruit-trees, as peaches, nectarines, vines, &c. or in a separate or distinct forcing-house or hot-wall, &c. as may be convenient.

The trees for this purpose should be such as are trained principally in the wall-tree manner, or some occasionally in small standards: they are planted in the borders of the forcing apartments, either in young plants, or trained trees, obtained at the nurseries, to commence bearing as soon as possible, and may sometimes be procured in pots, for transplanting, with balls of earth to their roots, or some to continue in the pots for forcing; or the trees may be removed successfully from the full ground: they should be planted in the forcing places principally in autumn, about October or November, placed some in the borders towards the back wall, and the branches trained to a light trellis-work of posts and rails; the forcing them by fire may be commenced the latter end of January, or beginning or middle of February; but the glasses may be put on close a month or more before, to protect the shoots from frost, and prepare the trees for forcing; in which make moderate fires in the furnace of the flues every evening, and supported till nine or ten o'clock to heat the flues sufficiently, to warm the internal air till morning, when also make a moderate fire, and in very cold weather may be continued all day; and when the trees begin to bud, admit air, in mild, open weather, in the warmest time of the day, especially when sunny; and as the warm season advances, encrease the portion of air, by drawing open some of the top or front glasses two or three to five or six inches, shut close when cold; likewise give occasional waterings to the borders, and over the branches of the trees; so continuing the assistance of fire-heat, fresh air, water, &c. till May, the Figs will set in tolerable abundance, swell, and begin to ripen in June or July.

Or sometimes the trees are forced by means of bark-bed heat, having a long capacious pit within the forcing-house, in which is made the bark-bed, in January or beginning of February, to continue in constant heat day and night; or the forcing is sometimes effected by bark-bed and fire heat together, making the fires only principally of nights or cold mornings.

GAULTHERIA—(GAULTHERIA)

Class and Order.

Decandria Monogynia,
Ten Males, One Female;

Or Flowers (Hermaphrodite) having ten Stamina or Males, and one Pistillum or Female.

THIS Genus, GAULTHERIA, furnishes but one species, a low, trailing, under-shrubby ever-green, having ovate leaves, and small greenish flowers, with a double calyx, and a monopetalous five-parted corolla, containing ten stamina, and one pistillum, or style, succeeded by a pentangular capsule, with many seeds, by which the plant is propagated, and by layers and cuttings.

One Species, viz.

GAULTHERIA *procumbens*, Procumbent or Trailing Gautheria.

A small, trailing under-shrub, of two or three feet growth—the leaves (small) ovate.—Native of Canada. (*Sandy, or any common soil.*)

This small shrub is admitted in shrubberies for variety and ornament, may be obtained at the nurseries, and planted in autumn or spring; and is propagated by seed, sowed in March or April; and the plants of one or two summers growth, transplanted in nursery-rows, to acquire strength for the shrubbery; likewise by layers and cuttings of the trailing shoots, in autumn or spring, will be rooted in one summer.

GENISTA, Dwarf, or JOINTED BROOM.

Class and Order.

Diadelphia Decandria,
Two Brotherhoods, Ten Males;

Or Flowers (Hermaphrodite) having the Stamina or Males disposed in two Sets, and in each Flower ten Stamina.

THE *Genista* Family comprise eight or ten hardy species of small deciduous flowering-shrubs, very floriferous and ornamental for adorning the shrubbery; are of moderate, or small, and slender growth, two or three to four or five feet; garnished in summer with small ovate-lanceolate, spear-shape, linear, and ternate leaves in the different species, and many papilionaceous yellow flowers, singly, and in bunches at the sides and ends of the branches; having monophyllous, or one-leaved, two-lipped calyxes, a corolla of four unequal petals, consisting of an oval reflexed vexillum, or standard, two short wings, and a long

a long carina, or keel, and with ten stamina in two sets, or nine joined; the other separate, and one pistillum, succeeded by roundish, bilvalve, leguminous pods, containing kidney-shaped seeds, ripe in autumn, and by which the shrubs are generally propagated, sowed in autumn or spring.

Principal Characters.—Flowers hermaphrodite; having a monophyllous, or one-leaved, tubulous, bilabiate cup, with the upper lip two, and the under three-parted; corolla or flower papilionaceous, composed of an oval, acute, reflexed standard, two shorter wings loose, a long, erect carina, or keel, the top indented; ten stamina in two sets, or nine joined, one separate, crowned with single anthera; an oblong germen, supporting a rising style, terminated by an acute, twisted stigma; and the germen grows a roundish, swelling pod, two-valved, with one cell, containing kidney-shaped seeds.

The hardy shrubby GENISTAS are,

1. *GENISTA sagittalis*, Arrowed, Dwarf, Jointed Broom.

A small, under-shrubby, herbaceous-like plant—the branches two-edged jointed, spreading on the ground; leaves ovate-lanceolate; close spikes of yellow flowers at the ends of the branches; June and July.—Native of Germany and France, in sandy sterile ground.

2. *GENISTA tinctoria*, Tinctorous, or Dyers Genista, or Common Dyers Broom.

A low shrub, three feet high—the branches roundish, striated, or channelled, erect; and small, lanceolate, or spear-shape, smooth leaves, with terminal, loose spikes of small yellow flowers; June, July.—Native of England and Germany.

Varieties.—Broad-leaved Dyers Broom.
Narrow-leaved Dyers Broom.

The branches of this species being used in dyeing yellow, derives the name Dyers Broom.

3. *GENISTA florida*, Florid, Spanish Dyers Broom.

A small shrub, three feet high—the branches striated, or channelled—leaves (*small*) spear-shape, hoary-silky; flower-racems, one-ranked, with the flowers yellow; June and July.—Native of Spain.

4. *GENISTA tridentata*, Tridented-leaved Genista, or Portugal Dyers Broom.

A small, low under-shrub, one to two or three feet;—the branches three-sided, somewhat jointed; leaves

(*small*) tricuspidate, or three-piked, and loose spikes of yellow flowers at the ends of the branches; June and July.—Native of Portugal.

5. *GENISTA anglica*, English Dwarf Broom, or Petty Whin (Little Furze.)

A low, shrubby plant, two or three feet high—the stems armed with spines, singly, flower-branches thornless; leaves (*small*) spear-shape; with yellow flowers in terminal clusters; April and May.—Native of England, &c. on heaths and commons.

6. *GENISTA candicans*, Upright Montpellier Broom.

A moderate shrub, three to four or five feet high—stem erect; the leaves (*small*) ternate, or by threes, hairy underneath; peduncles or flower-stalks lateral, mostly five-flowered and leafy, with yellow flowers, succeeded by hairy pods.—Native of Montpellier and Italy.

7. *GENISTA germanica*, German Dwarf Broom.

A small shrub, three feet high—the stem thorny, with the spines compound-branching; flower-branches thornless, and leaves (*small*) spear-shape, with short terminal spikes of yellow flowers, in June.—Native of Germany.

8. *GENISTA pileosa*, Hairy Dwarf Broom.

A small, decumbent, branchy shrub, two or three feet high—the stems decumbent, or declining to the ground, and set with tubercles; leaves (*small*) spear-shape, obtuse; and terminal loose spikes of small yellow flowers; June, July.—Native of Hungary, Germany, and Narbonne, in France.

9. *GENISTA purgans*, Purgant, Dwarf Montpellier Broom.

A small, low shrub, two feet high—the stem and branches armed with terminal thorns, branches round, friate, or channelled; and small, spear-shape, down leaves; yellow flowers.—Native of Montpellier.

10. *GENISTA hispanica*, Spanish, linear-leaved Genista.

A moderate shrub, four or five feet high—the branches armed with thorns, with the thorns double-compound, or doubly-branching; flower-branches thornless; leaves (*small*) linear and hairy; and terminal

minal clusters of yellow flowers; May, June, &c.— Native of Spain and Narbonne.

11. GENISTA *italica*, Italian Genista, or Lucca Broom.

All these shrubby Genistas are eligible, as flowering-shrubs, for adorning shrubbery compartments of the pleasure-ground, and are hardy to grow in most situations, in dry, or almost any common soil; proper to assemble with other shrubs of similar, moderate, and small growth, and will effect an agreeable diversity and ornamental appearance in their flowering season, May, June, July, &c. and all or most of the species may be obtained at the nurseries for planting, especially the first six or seven sorts; and planted in autumn or spring, or any time in mild open weather, from October to March or April; placing them more or less forward, according to their different sizes, and in diversified order.

They are propagated principally by seed, sowed in October or November, or in the spring months, February, March, or beginning of April, on beds of light earth, either in drills or broad-cast, and earthed in an inch deep; and the young seedling-plants, when of one or two summers growth, transplanted into nursery-rows in autumn or spring, to train for the shrubbery, permitting them to grow with branchy heads, one to two or three feet, for final transplanting.

GLEDITSIA, THREE-THORNED ACACIA.

Class and Order.

Polygamia Dioecia,
Many Marriages, Two Habitations;

Or Flowers of different Sexes, as Males, Hermaphrodite, and Females, on two distinct Plants.

THE Family of *Gleditsia* consists of deciduous ornamental trees of the pinnated-leaved tribe, most desirable to introduce in all pleasureable plantations; are of moderately-large growth, with spreading branches, in some armed with strong thorns, and all adorned, in summer, with beautiful doubly-pinnated or winged leaves, composed each of many pair of pinnæ, or distinct lobes, arranged along both sides of the pedicles or main foot-stalks; and long, cylindrical, and loose amentums, of small, greenish, and purple colour, tripetalous, and five-petalled, of three different sexes, as males, hermaphrodite, and females, on two distinct trees, furnished with three and five-parted calyxes, a small corolla, of three to five roundish petals, six stamina in the males and hermaphrodite flowers, and in the latter and the females a broad germen, supporting one stylus; and the germen grows a large, flat, legumepous peri-

carpium, containing round hard seeds; and by which the trees are principally raised, by sowing them in the spring.

Generic Characters.—Male, hermaphrodite, and female flowers, on two separate trees; the males and hermaphrodite on one, and the females on the other; the males and hermaphrodite flowers produced in long, cylindrical, compact amentums, having small three-leaved cups, three roundish-spreading petals, six small stamina, longer than the petals, crowned with oblong compressed anthera; the hermaphrodite flowers being in the end of the same catkin, have also cups, petals, and stamina, like the males, and with a germen and stylus; the female flowers, on a separate tree, in loose catkins, have five-leaved cups, five oblong petals, a broad germen, longer than the petals, having a reflexed style, terminated by a thick stigma; and the germen, in the hermaphrodite and female flowers, grows a large flat pod, of several transverse partitions, each containing one roundish hard seed, surrounded by a soft pulp.

The Species and Varieties of GLEDITSIA are,

1. GLEDITSIA *triacanthos*, Triple or Three-thorned Acacia.

A large deciduous tree, growing thirty or forty feet high—armed with long, strong, triple thorns at the axillas or angles of the stem and branches; the leaves (*long, shining*) pinnated or doubly-pinnated, of many pair of small pinnæ or lobes; greenish flowers, and very long seed-pods.—Native of Virginia and other parts of North America. (*Loamy, or any common soil.*)

Variety.—(*GLEDITSIA triacanthos monosperma*) Mono-sperous or Single-seeded Gleditsia, or Water Acacia.

A middling tree, growing thirty feet high—armed with long triple thorns; the leaves (*smaller*) pinnated, of many pair of small lobes; greenish flowers, and oval pods, having generally but one seed.—Native of Carolina and North America. (*Loamy, or any soil.*)

2. GLEDITSIA *inermis*, Unarmed, or Thornless Eastern Acacia.

A moderate deciduous tree, growing twenty feet high—the stem and branches without thorns; leaves (*long, splendid*) doubly-pinnated, of many pair of small folioles; purple flowers.—Native of the East. (*Any common soil.*)

These beautiful deciduous trees merit admittance in all principal decorative plantations, in pleasure-grounds, parks,

parks, &c. and large shrubby districts, assembled with other ornamental trees and large shrubs of the deciduous tribe, in which they will display a conspicuously fine variety, especially in summer, when clothed with their abundant and most curious bi-pinnated leaves, of some considerable length in their compound order, in numerous lobes; and they are hardy to grow in most situations, delight in a deep, loamy soil, but will also succeed in any tolerably good ground, or almost any common soil, where they may be required for planting.

They may be procured at most of the public nurseries for planting, which may be effected in autumn, at the decay of the leaves, or any time during the winter, in mild weather, or in the spring months, till the middle of April.

The trees are propagated principally by seed, which, in the first and second sorts particularly, is commonly obtained from America, &c. by the seedsmen, in the spring; and in which season, about March or April, they should be sowed in a bed of light earth, half an inch to an inch deep, giving water in dry weather; or some may be sowed in pots, and plunged in a moderate hot-bed to have them come up sooner, and the plants forwarder in growth; in which expose the plants, by degrees, to the full air, giving frequent waterings in dry weather, in summer; and in winter, those in pots may have shelter of a frame, &c. from severe frost; and next spring, in March or April, the whole, both in the beds and pots, should be transplanted into nursery-rows, a foot asunder, by six or eight inches in the rows; and when of one or two years advanced growth, may be transplanted at wider distances, training them with clean single stems, by pruning up lateral shoots by degrees, permitting them to run with full heads, to a proper size for final transplanting.

When the trees raised as above, either in private or public nurseries, are grown three or four, to five or six feet high, they are of eligible sizes for transplanting in the different intended plantations, in pleasure-grounds, shrubberies, &c.

GLYCINE (Liquorice Vetch) KIDNEY-BEAN TREE.

Class and Order.

Diadelphia Decandria,
Two Brotherhoods, Ten Males;

Or the Flowers (Hermaphrodite) having the Stamina, or Males, in two Sets, and in each Flower ten Males, or Stamina.

THIS Genus of *Glycine* furnishes one shrubby, climbing plant, to admit as a climber in shrubby compartments; grows with volubilate or twining-climbing stalks, ascending many feet high; garnished, in summer,

with pinnated or winged leaves, and papilionaceous purple flowers in clusters, having bilabiated cups, a corolla, with hearted standard, ovate wings, and bent carina, ten diadelphous stamina, one stylus; and succeeded by oblong leguminous pods, containing kidney-shape seeds, by which the plants may be raised, also by layers.

One Species, viz.

GLYCINE *frutescens*, Shrubby Climbing Glycine, or Carolina Kidney-Bean Tree.

A volubilate climbing shrub, mounting, by support, fifteen or twenty feet high—the stems twining-climbing, and perennial; leaves (*large, light-green*) compleat-pinnated or winged, of many pair of lobes, terminated by an end one; bunches of purple flowers, and long cylindric pods, somewhat resembling the Scarlet Kidney-Bean.—Native of Carolina. (*Warm situation.*)

This curious climber is proper to admit in shrubberies, and other pleasurable plantations, to increase the variety in its climbing growth, in which it will twine round trees, poles, or any similar support, to a considerable height, and effect a distinguishable diversity and ornamental appearance in its pinnated foliage, papilionaceous flowers, and singular seed-pods: may be obtained at most of the nurseries, for planting in autumn or spring; and is propagated by layers of the branches in the same seasons, which will be rooted for planting off in the following autumn, &c. is likewise propagated by seed from America; sowed in the spring; and in both methods, the young plants transplanted in a nursery for a year or two, or more, then planted where they are to remain.

They should be planted in a warm, dry situation, and have support of poles, or placed to twine round trees, &c.

GUILANDINA, BONDOC, or NICKAR TREE.

Class and Order.

Decandria Monogynia,
Ten Males, One Female;

Or Flowers (Hermaphrodite) having ten Stamina, or Males, and one Pistillum, or Female.

THIS Genus affords but one hardy species, a moderate deciduous tree, for ornamental plantations; garnished, in summer, with beautiful large doubly-winged leaves; flowers having bell-shape cups five-parted at the brim; a corolla of five spear-shape equal petals, inserted into the calyx; ten awl-shape stamina, alternately shorter, crowned by obtuse anthera; an oblong germen, with a slender stylus, terminated by a single stigma; and the germen grows a rhomboid, swelling, compressed pod, including roundish compressed seeds;

M by

by which, obtained from America, the tree is propagated, also by layers of the branches, and cuttings of roots.

The hardy *GUILANDINA* is,

GUILANDINA dioica, Dioicous-flowered Guilandina, or Canada Bonduc.

A middling deciduous tree, growing twenty or thirty feet high—the stem and branches without thorns; leaves (*large, dark-green*) doubly-pinnated or winged, the base and apex singly-pinnated; composed of many ovate alternate folioles.—Native of Canada, in North America. (*Light, dry, or any common soil.*)

This is a desirable ornamental tree to assist in composing principal plantations in pleasure-grounds, and in beautifying shrubberies, in assemblage with other deciduous kinds; and in all of which should occupy a conspicuous situation: is cultivated in most of the nurseries, where it may be procured for planting; and is propagated by layers of the young branches, sometimes suckers from the bottom, and by cuttings of the upper roots; as also by cutting some of the remaining roots through in spring, to promote their sending up shoots, and then may be transplanted from the main roots in autumn; and is also raised by seed, sowed in the spring months, and the plants transplanted in the nursery; and when the young trees are raised in the different methods, three or four, to five or six feet, they are proper for the intended plantations.

HALESIA—(HALESIA.)

Class and Order.

Dodecandria Monogynia,
Twelve Males, One Female;

Or Plants with Hermaphrodite Flowers, having twelve Stamina and one Pistillum.

THE *HALESIA* furnishes two species of large deciduous flowering-shrubs, eligible to assemble in shrubberies, for ornament and variety: are of tall, upright growth, adorned in summer with lanceolate and ovate simple leaves; and campanulate or bell-shape white flowers, in clusters, having each twelve stamina and one pistillum, succeeded by oblong quadrangular and biangular nuts, containing single seeds; and by which the shrubs are propagated, sowed in the spring; likewise by layers.

The Species of *HALESIA* are,

1. *HALESIA tetraptera*, Four-winged or Quadrangular-fruited Halesia, or Silver-Bell Tree.

A large deciduous shrub, growing ten, to twelve or fifteen feet high—the leaves (*largish*) spear-shape-

ovate, with the petioles or foot-stalks glandulous; and white bell-shape flowers, succeeded by thick, quadrangled, or four-winged fruit.—Native of Carolina. (*Any common soil.*)

2. *HALESIA diptera*, Two-winged-fruited Halesia.

A large deciduous shrub, ten or twelve feet high—the leaves (*larger*) ovate, with the foot-stalks smooth, and bell-shape flowers, succeeded by pointed two-winged fruit.—Native of Carolina. (*Any common soil.*)

These two curious flowering-shrubs are cultivated in pleasure-grounds, to adorn shrubberies and other plantations; and for which they may be had at the nurseries, for planting in the proper seasons; and are raised by seeds and layers: the seeds are generally obtained from America, by the seedmen; should be sowed in the spring, in a sheltered bed, or border of light earth; or some sowed in pots, in order for placing in a warm situation till summer, then removed to an east or shady border, and in winter placed under shelter from frost; and the young seedling-plants transplanted in a nursery, in the spring; or may likewise pot some singly, for moving, to a place of shelter from frost, the first winter or two, then planted in the full ground: layers of the young wood, in autumn or spring, will root in one year for planting off from the mother plants.

When the shrubs, raised as above, are from two or three, to four or five feet growth, they are proper for the shrubbery, &c.

HAMAMELIS, WITCH HAZEL.

Class and Order.

Tetrandria Digynia,
Four Males, Two Females;

Or Plants with Hermaphrodite Flowers, having four Stamina, or Males, and one Pistillum, or Female.

THERE is but one species, a small deciduous shrub, cultivated in shrubberies for variety; is of slender, branchy growth, garnished with oval rough leaves, resembling those of the Common Hazel; and small four-petalous flowers, in clusters, which have a three or four-leaved involucre, and to each flower, a double six-leaved cup; the corolla, or flower, four long, horned anthers; an oval germen, supporting two styles, crowned with headed stigmas; and the germen becomes an oval hard nut in the permanent calyx, by which the plant may be raised, and by layers of the young branches.

One Species, viz.

HAMAMELIS virginiana, Virginian Hazel-leaved Hamamelis, or Witch Hazel.

A moderate deciduous shrub, three or four feet high—the leaves (*middling*) ovate-roundish, indented on the edges, and placed alternate; and small clusters of flowers late in autumn.—Native of Virginia. (*Moist, or any soil.*)

This shrub is introduced in shrubberies, for variety; and for which occasion, may be obtained at the nurseries, and planted in autumn, winter, or spring; and is propagated by seeds and layers; the seeds commonly obtained from America, with others, in the spring, when they may be sowed in beds or pots of common earth; they will probably not come up till the second spring, and in the interim, those in pots may have shelter in winter; the plants coming up in the spring aforesaid, may be transplanted in autumn or spring following, in the nursery, and in two or three years, will be of proper growth for the shrubbery: layers of the young branches will be rooted in one year for transplanting.

HEDERA, IVY TREE.

Class and Order.

Pentandria Monogynia,
Five Males, One Female;

Or Plants with Hermaphrodite Flowers, having five Stamina, or Males, and one Pistillum, or Female.

THE HEDERA furnishes two noted species of shrubby, climbing plants; one an ever-green, the other deciduous, remarkable for their lofty, climbing growth, ascending, by their rooting-stems, upon walls; buildings, trees, &c. fifty or sixty feet, or more; garnished their whole length with lobated ovate, and five-lobed leaves, in the different species; and umbellate or corymbus clusters of small greenish flowers, of five petals, having five stamina, an oval germen below, supporting one stylus; and are succeeded by clusters of round berries, containing four or five seeds, ripe in autumn and winter; and by which the plants may be raised, also by cuttings and layer.

Generic Characters.—Flowers in umbellate or corymbus bunches, furnished with a many-parted general involucre, and to the flowers, a five-parted calyx, fitting on the germen; a corolla or flower, five oblong spreading petals, with the points incurved; the stamina five awl-shaped filaments, crowned by prostrate anthera, two-parted at the base; a roundish germen under the flower, having a short style, terminated by a single stigma; and the germen grows a

globular, unilocular berry, containing four or five large gibbous seeds.

The Species of HEDERA are,

1. HEDERA *Helix*—(Helix) or Common Ever-green Ivy.

A most lofty-climbing, shrubby ever-green, mounting, by its rooting-stems, forty or fifty to sixty feet high, or more—the leaves (*middling, dark-green*) ovate and lobated; clusters of greenish flowers in autumn.—Native of England, and most parts of Europe, in woods and hedges. (*Any soil and situation.*)

Varieties.—Common green Ivy.

Silver-striped-leaved Ivy.

Gold-striped-leaved Ivy.

Black-berried Ivy.

Yellow-berried Poet's Ivy.

Dwarf-creeping Ivy.

2. HEDERA *quinquefolia*, Five-leaved deciduous Ivy, or Virginia Creeper.

A most lofty-climbing, deciduous shrubby plant, ascending, by its rooting-stems, thirty to forty or fifty feet high, or more—the leaves (*middling, light-green*) composed of five oval, sawed lobes, expanding in a fingered manner.—Native of Virginia, Canada, and other parts of America. (*Any soil and situation.*)

These two shrubby climbers are most hardy and lofty growers, in their climbing nature, by their rooting stems, emitting cirrhose fibres into walls, bark of trees, &c. attaching themselves close thereto, and mount to the tops; succeed in any soil, and in close and open exposures; and are therefore eligible to plant, as climbers, against walls, buildings, fences, &c. in particular parts, where required to have them covered, or for variety; or likewise to plant against large old trees to ascend upon their stems; or the Ivy to plant, detached, in shrubberies, and trained to stakes, in upright stems and bushy heads; or, in want of support, will run along the ground, root, spread, and cover the surface; and the *Hedera quinquefolia*, or Virginia Creeper, is often planted in courts, yards, areas, and in cities and towns, as frequently practised in London, to ascend upon and cover naked walls, in which the stem will root, and thereby mount to the tops of the highest buildings; and for which occasion it may be planted in close, or open places, as it will thrive any where, in situations where other plants will not prosper.

Plants, of the different sorts for planting, may be had at the nurseries, in young growth, and planted in autumn or spring.

Or both the species, and respective varieties, may be expeditiously raised, by cuttings of the rooting young shoots and branches, in autumn or spring; which being cut off and planted, will most freely grow, either planted where they are designed to remain, or in a nursery, for a year or two, or till wanted for the purposes intended; they will likewise grow freely by layers; and also the Common Ivy, furnishing plenty of ripe seed, may be raised by sowing it in a shady border, and the seedling-plants transplanted as above.

When designed to plant these shrubs as climbers, they may be set close to walls, pales, buildings, &c. or near the stems of large old trees, they will shoot, and affix their rooting fibres therein, ascend in height, and spread on every side, without any future culture, except to cut out casual dead wood; or, in particular compartments, the Common Ivy may be planted detached, and trained with an upright stem and branchy head; or in some places, as in the borders of shady walks, &c. be permitted to run on the ground, and cover the surface, keeping it trimmed within proper bounds.

HIBISCUS (SYRIAN MALLOW) ALTHÆA FRUTEX, (Shrub Althæa.)

Class and Order.

Monadelphia Polyandria,
One Brotherhood, Many Males;

Or Plants with Flowers (Hermaphrodite) having all the Stamina, or Males, united in one Set, and with numerous Stamina in each Flower.

THIS Genus, **HIBISCUS**, furnishes one hardy, shrubby species, a large, upright, deciduous, very ornamental flowering-shrub, growing with a regular, branchy, bushy head; adorned in summer with wedge-shape-lobate leaves, and numerous, large, beautiful flowers, in daily succession; having double, many-parted cups, five heart-shape petals, many joined stamina, and one style, succeeded by capsules, containing kidney-shape seeds; by which, sowed in the spring, the shrub is propagated; also by layers and cuttings of the young shoots.

Principal Characters.—Calyx of the flower double and permanent, composed of an outer series of many narrow leaves, an inner, monophyllous, or one-leaved cup, cut into five acute parts, at the brim; a corolla of five broad heart-shape petals, joined at the base; many stamina joined in a column below, expanding at top, and crowned with kidney-shape anthera; a roundish germen, slender style, terminated by a round stigma; the germen grows a five-valved capsule, of five cells, containing kidney-shape seeds.

One Species, viz.

HIBISCUS *syriaca*, Syrian Shrubby Hibiscus, commonly called *Althæa Frutex*.

A deciduous shrub, of branchy growth, five to six or seven feet high—a tree-like stem; the leaves (*moderate*) wedge-shape-ovate, the upper parts cut-indent, sometimes three-lobed; and many large flowers at the sides of the branches, in July or August, till September.—Native of Syria. (*Light, or any common soil.*)

Varieties.—Purple-flowered *Althæa*, with dark bottoms.
Red and white-flowered, with dark bottoms.
Bright-purple-flowered, with black bottoms.
White-flowered, with purple bottoms.
Yellow-flowered, with dark bottoms.
Variegated-flowered, with dark bottoms.
Silver-striped leaved.
Gold-striped leaved.

This is an admirable fine flowering-shrub, to plant for ornamenting shrubberies, and other parts of pleasure and flower-gardens; in which, when in flower, it makes a singularly fine appearance, for a month or five weeks, and one of the finest ornaments of the season; begins flowering, sometimes the end of July, but principally in August; the flowers numerous, and continue in abundant succession all that month till September; and therefore, this fine shrub deserves a principal situation in shrubberies, and is adapted to place singly on plats, borders, &c.

The different varieties are cultivated, for sale, at all nurseries, where they may be obtained in collection, or any particular variety; and planted in autumn, or any time from October or November to March, or beginning of April, or principally in the spring months.

They are propagated by seeds and layers, or the varieties by grafting upon seedling-stocks, of any of the sorts.

To raise them from seed, sow it in the spring in a bed of light earth, or some sowed in pots, and if plunged in a gentle hot-bed, it will forward the germination of the seed, and the plants will come up much sooner, when they should be exposed by degrees to the full air; however, they will also succeed, sowed in the common ground, or in pots, to move to a sheltered place in winter, to protect the young plants from frost; and in spring, in March or beginning of April, transplant them in nursery-rows in beds, or some planted

planted in pots singly: train the plants with a single stem below, and a branchy head above; and when two, to three or four feet high, are proper for the shrubbery.

Layers of the lower young shoots, in autumn or spring, will root in one year, for planting off in these seasons; and by this method of propagation, any of the varieties are continued permanent in their respective differences.

Likewise, by grafting or budding upon seedling-stocks of any of the sorts, the different varieties, are propagated, and continued the same; and sometimes, for curiosity, different varieties are budded or grafted on branches of the same stock or stem; as the two sorts of striped-leaved kinds, and the purple and white-flowered, &c.

HIPPOPHAE, SEA-BUCKTHORN.

Class and Order.

Dioecia Tetrandria,
Two Habitations, Four Males;

Or Male and Female Flowers, distinct on two separate Plants, and the Male Flowers having four Stamina.

THIS Genus comprises two large, hardy, deciduous shrubs, employed in shrubberies, and any ornamental plantations, for variety; are garnished in summer with small, narrow, spear-shaped, and broader, ovate leaves; and small clusters of male and female flowers, separate on two distinct plants; have no petals, the male flower a one-leaved cup, two-parted, and contain four short stamina, with oblong, angular, anthera; female has a one-leaved calyx, oblong, tubulous, bifid at top, contains a roundish germen, supporting a short style, crowned by an oblong, thick stigma, and the germen becomes a globular, unilocular berry, with one roundish seed; by which the shrubs may be raised, but are more commonly propagated by suckers and layers.

The Species of HIPPOPHAE are,

1. HIPPOPHAE Rhamnoides—(Rhamnoides) or Bastard Rhamnus, or Sea-Buckthorn.

A large, deciduous shrub, branching irregularly, eight or ten feet high, with a brown, silvery bark—the leaves (*narrow*) spear-shape, hairy underneath; and small clusters of male and female flowers, succeeded, in the latter, by ripe berries in autumn.—Native of England, and other parts of Europe, near the sea. (*Sandy, or any soil.*)

2. HIPPOPHAE *canadensis*, Canada Sea-Buckthorn.

A large, deciduous shrub, growing eight or ten feet high—the leaves (*middling*) ovate, hoary, silvery on the under side.—Native of Canada. (*Sandy, or any common soil.*)

These two deciduous shrubs may be admitted in large shrubberies, and other plantations in pleasure grounds, to encrease the variety; they may be procured at the nurseries, for planting, particularly the *Rhamnoides*, or Common Sea-Buckthorn; and both the sorts may be planted in any situation, in autumn or spring: may be propagated plentifully by bottom-suckers, arising from the roots, and transplanted in a nursery for one or two years, or more, till proper for the shrubbery, &c. or may likewise be raised by layers; also by seed sowed in autumn or spring; and when, by either methods of propagation, the plants are three, to four or five feet high, they are of proper size for any intended plantations.

HYDRANGEA—(HYDRANGEA.)

Class and Order.

Decandria Digynia,
Ten Males, Two Females;

Or Plants with Hermaphrodite Flowers, having ten Stamina, or Males, and two Pistillums, or Females.

The *Hydrangea* comprises but one species; a low, deciduous under-shrub, admitted in shrubbery collections for variety; having heart-shape leaves, and terminal bunches of white flowers in cymose umbels; the calyx of the flowers one-leaved, five-dented; corolla, five roundish petals, ten stamina, alternately longer, crowned by roundish anthera; a roundish germen under the flower, supporting two short styles, standing distant, terminated by obtuse stigmas; and the germen becomes a roundish capsule, crowned by the permanent stigmas, and filled with small angular seeds; seldom used for sowing, as this plant propagates plentifully by off-set suckers, and parting the roots.

One Species, viz.

HYDRANGEA *arborescens*, Arborefcens, or Shrubby Hydrangea.

A small, under-shrubby plant, rising with soft ligneous stems, two or three to four feet high—the leaves (*large, light-green*) oblong-heart-shape, placed opposite; and cymose bunches of white flowers at the top of the stems; July and August.—Native of Virginia. (*Any common soil.*)

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This shrub may be introduced in any shrubbery compartments; it will effect a proper variety in its growth, foliage, and flowers: may be planted in autumn or spring; and is propagated by off-set suckers, or dividing the roots and stems together, in autumn, or in any of the spring months; and planted either where they are to remain, or in a nursery, for a year or two, then transplanted into the shrubbery.

HYPERICUM, St. JOHN'S WORT.

Class and Order.

Polyadelphia Polyandria,
Many Brotherhoods, Many Males;

Or Plants with Flowers (*Herm.*) having many Sets of united Stamina, and many Stamina, or Males, in each Flower.

THE *HYPERICUM* Family comprises several species of deciduous flowering-shrubs and under-shrubby plants, for adorning the shrubbery, rising mostly with several stems; others singly, from two or three, to four, five, or six feet high; garnished, in summer, with simple leaves, oblong-shaped, oval, spear, and heart-shape in the different species, mostly in opposite pairs; and the branches terminated by numerous pentapetalous yellow flowers, in clusters; having five-parted persistent cups, five oval petals; many stamina in several sets; and one, three, or five styles, succeeded by roundish capsules, filled with numerous seeds; proper for sowing to propagate the species, which are also raised, plentifully, by suckers, and dividing or slipping the roots.

Generic Characters.—Flowers hermaphrodite; the calyx one-leaved, divided into five oval segments, and permanent; corolla or flower, five oblong-oval petals, spreading open; numerous small stamina, joined below in several bodies, terminated by small anthera; a roundish germen in the centre, supporting one, three, or five styles, as long as the stamina, crowned by single stigmas; and the germen grows a roundish capsule, having one, to three, or five cells, according to the number of styles, containing many oblong seeds.

The Species of *HYPERICUM* are,

1. *HYPERICUM hircium*, Stinking Shrubby St. John's Wort.

A small shrubby plant, rising with several stems, three feet high, branching at each joint—the stems shrubby, two-edged; leaves (*moderate size*) oblong-ovate, by pairs, opposite; and terminal clusters of yellow flowers, with the stamina longer than the corolla; and three styles.—Native of Sicily, Spain, Portugal, and Creta. (*Any common soil.*)

Varieties.—Common Rank-scented Shrubby St. John's Wort.
Inodorous or Scentless.
Variegated-leaved.

2. *HYPERICUM Androsæmum*—(*Androsæmum*) or Common Tutfan or Park Leaves.

A small shrubby plant, rising with a branchy stalk, two feet high—the stems shrubby, two-edged; leaves (*middling*) ovate-heart-shape, by pairs, opposite; and terminal clusters of yellow flowers, having three styles, and the pericarpium, or fruit, berried.—Native of England, France, and Italy, in woods, &c. (*Moist, or any soil.*)

3. *HYPERICUM olympicum*, Olympian, or Eastern, St. John's Wort.

A small under-shrub, one to two or three feet high, with slender ligneous stalks—the stems shrubby; leaves (*small*) spear-shape, by pairs, opposite; and largish bright-yellow flowers, terminating the stalks in small clusters, having acute cups, stamina shorter than the petals, and three styles.—Native of Mount Olympus and the Pyrenees. (*Dry, or any common soil, and warm situation.*)

4. *HYPERICUM canariense*, Canary St. John's Wort.

A middling shrub, rising with upright branchy stem, six or seven feet high—the stem shrubby; leaves (*middling*) oblong, by pairs; and terminal clusters of many yellow flowers, having obtuse cups, stamina longer than the petals, and three styles.—Native of the Canaries. (*Dry, or any common soil.*)

5. *HYPERICUM monogynum*, Monogynous, or One-styled China Hypericum.

A small shrubby plant, two feet high—the stem shrubby, purplish; leaves (*small*) oblong, narrow; small terminal clusters of bright yellow flowers, having a coloured calyx, the stamina longer than the corolla; and the flowers have but one style.—Native of China. (*Warm, dry situation; and some potted, to place under shelter in winter.*)

All these species of St. John's Wort are desirable flowering-shrubs and under-shrubby plants, for ornamenting the shrubbery; they being all very floriferous, producing numerous yellow flowers, terminating the branches in clusters, in May, June, July, or great part of summer, in the different species, and appear very conspicuous; though, in some of the sorts, the flower impart a strong, rank, odour, particularly the *Hypericum hircinum* and Canary St. John's Wort; but as the whole make a good appearance during the season,
of

of their flowering, they deserve admittance in principal and general shrubby compartments.

They are hardy to succeed in any common soil and situation, except the *Hypericum monogynum*, which should have a warm, sheltered situation; and some kept in pots, to move, under protection of a frame or greenhouse, in winter; but all the others may be planted any where in the full ground; or generally allot the Olympian St. John's Wort a place in some dry, warm compartment; or likewise, keep some of that sort in pots.

All the sorts may be obtained at the public nurseries, for planting in autumn or spring; or may be raised, plentifully, by different methods of propagation, as seed, suckers, off-sets of roots, &c.

The propagation, or methods of raising these plants, is effected principally by suckers, from the bottom slips of, and dividing the roots; likewise, occasionally, by cuttings, and seeds; suckers are produced from the roots in most of the sorts, but more abundantly in the first, and Canary Hypericum, and in which, and other sorts, where suckers occur, they may be taken up with roots in autumn and spring, and planted either at once where they are to remain, or in a nursery, for a year or two, ready for the shrubbery; or any of the smaller under-shrubby kinds, and others, not furnishing separate sucker-shoots, may be propagated by parting the roots; likewise by cuttings of the young shoots in the spring; and seed sowed in the autumn or spring months, in a bed of light earth, will grow freely, and the plants, when a year old, transplanted in a nursery, or some of the more tender sorts planted in pots, to place under shelter in winter.

When the plants, raised by any of the above methods, are from one to two or three feet growth, according to their different sizes, they are proper for the shrubbery.

They may be planted in shrubberies, in autumn or spring, disposing them, according to their growth, placing the smaller kinds in the front part, the taller sorts stationed behind, more or less, in proportion to their height, and the whole disposed in a diversified manner, in assemblage with other deciduous flowering-shrubs, and permitted to shoot and branch nearly in their natural order; and they will flower abundantly several months every summer.

JASMINUM, JASMINE TREE.

Class and Order.

Diandria Monogynia,
Two Males, One Female;

Or Plants with Hermaphrodite Flowers, having two Stamina, or Males, and one Pistillum, or Female.

THE JASMINUM affords three species of hardy, deciduous flowering-shrubs, others more tender; all

very ornamental in the pleasure-ground, in their numerous flowers in summer: are mostly of trailing growth, shooting with long, slender, flexible stems and branches; adorned in summer with small pinnated and ternate leaves; and numerous small, long, tubulous, white and yellow fragrant flowers, in bunches, in June, July and August; each flower having a monophyllous cup, a corolla of one long, tubulous, five-parted petal, containing two stamina and one stylus; succeeded by oval berries, furnished with two seeds, which ripen in England, but are seldom used for sowing, as the plants propagate plentifully by layers, cuttings, and sometimes by suckers.

Principal Characters.—The flowers hermaphrodite; the calyx or cup one-leaved, tubulous, five-parted at the brim; corolla, one long, tubulous petal, divided above in five spreading segments; two short stamina, crowned by small anthera; a roundish central germen, having a slender style, terminated by a bifid stigma; and the germen grows an oval berry, containing two oval and oblong seeds, one side flat, the other convex.

The hardy Species of JASMINUMS are,

1. JASMINUM *officinale*—Official, or Common White Jasmine.

A deciduous shrub, growing with long, slender, flexible stems and shoots, extending eight or ten feet in length, or more—the leaves (*small, dark-green*) pinnated, placed opposite, with the lobes acute-pointed; and numerous white flowers, in small bunches, terminating the young shoots; June, July, and August.—Native of Malabar, and other parts of the East-Indies. (*Any soil and situation.*)

Varieties.—Silver-striped-leaved Common Jasmine.
Gold-striped-leaved Common Jasmine.

2. JASMINUM *fruticans*, Shrubby Yellow Jasmine.

A deciduous shrub, with slender, flexible branches, of six or eight feet growth—the branches angular; leaves (*small, dark-green*) ternate or trifoliolate, and simple, placed alternate; yellow flowers, June, July, &c.—Native of the south parts of Europe, and all parts of the East. (*Any soil and situation.*)

3. JASMINUM *humile*, Humble or Dwarf Italian Jasmine.

A smaller deciduous shrub, with weak branches, of three or four, to five or six feet growth—the branches angular; leaves (*small, dark-green*) ternate and pinnated, placed alternately; and larger yellow flowers produced at the ends of the shoots, June, July, &c.

&c. Native of the south of Europe. (*Dry soil, warm situation.*)

fragrant in the Azorian White, and Odorous Yellow Indian Jasmine.

4. *JASMINUM grandiflorum*, Great-flowered Catalonian Jasmine.

A deciduous shrub, with long flexible stems and branches, extending eight or ten feet, or more—the leaves (*larger*) pinnated, placed opposite, composed of three pair of short obtuse lobes, acute-pointed; and large flowers, bluish colour, and white; July, August, to October, &c. (very beautiful.)—Native of India. (*Warm, dry soil, sheltered situation, against a south wall, and some in pots, to place in a green-house.*)

5. *JASMINUM azoricum*, or Azorian White Jasmine.

A deciduous shrub, with long, slender stems and branches, extending ten to fifteen or twenty feet—the leaves (*larger, shining-green*) trifoliate, placed opposite, with large heart lobes; and bunches of bright-white flowers at the ends of the shoots; June, July, &c.—Native of the Azores, in India. (*Dry, warm situation, against a south wall, and in pots, to have shelter in winter.*)

6. *JASMINUM odoratissimum*, Most-odorous Yellow Indian Jasmine.

A deciduous shrub, with an upright stem and firm branches, growing eight or ten feet high—the leaves (*middling, shining-green*) ternate and pinnated, placed alternately, with the lobes oval; and bright-yellow flowers at the ends of the shoots; July, August, and September; impart a most sweet odour.—Native of India. (*A dry, warm, situation, against a south wall; and also in pots, to move under shelter in winter.*)

Of the above five species of *Jasminum*, the first three are hardy shrubs that will mostly prosper in any common soil and situation, particularly the first and second; but the third is adviseable to plant in a warm compartment, or some planted against a south wall; and the fourth, fifth, and sixth sorts, are more tender, generally kept in green-house collections, in pots, and housed in winter; but sometimes they are planted against a south wall, and defended in winter, when severe frost, with mats; likewise, the two striped-leaved varieties of the Common Jasmine should generally have a sheltered situation, but do not require covering in winter.

The Jasmynes merit culture in pleasure-grounds and flower-gardens, as very ornamental flowering-shrubs, producing numerous flowers in June or July, and August, of a delicate pretty appearance, and diffuse an agreeable odour; particularly the Common White, not so much in the second and third yellow sorts, but very

As most of the Jasmynes grow with long, slender, declining stems and branches, requiring support, they are proper to train against walls; and for which the Common White Jasmine is most commonly employed, as it shoots stronger, and considerably more floriferous than the other two hardy kinds, which are also, occasionally, planted and trained against walls: they all produce numerous long green shoots, in summer, and on which the flowers are produced; and as the branches and shoots are of slender, declining growth, require training to some support of walls, palings, buildings, &c. they should be trained thereto accordingly, four or five inches asunder, either erect, or horizontally, as the space of walling admits; or if required to run them in height against high walls, or that of a house, they should be trained in an upright direction, generally training them with several shoots, or stems, from the bottom, cutting out the superfluous and weak; those retained, may be pruned at top, to three, four, five, or six feet, according to their strength, and nailed up regular, either erect, or horizontally, as aforesaid, and kept to regular order, by pruning them annually with a knife, not clipped, but generally kept pruned in winter or spring, cutting out the superabundant shoots of the preceding summer, to continue them to distinct stems, and training in occasional supplies of the strongest shoots below, in vacancies, or to supply the place of any old naked stems, to be cut out accordingly; and by this method, they will always have a neat appearance, and flower in greater perfection.

Though, sometimes, they are only trained up in a proper supply of shoots at first to the wall, and afterwards the numerous, superabundant, and projecting straggling shoots of each year, are clipped with garden shears; but by this method, they, in a year or two, grow into a confused, disorderly thicket, of a disagreeable appearance.

Therefore it is adviseable to keep the branches thin and regular, by knife-pruning, training in plenty of the strongest young shoots in summer, for flowering, cutting out the overabundant; and in winter, to prune out the unnecessary shoots, with dead and any irregular, naked, old wood, and train in young.

Or Jasmynes may likewise be trained in single standards, detached from walls, to plant in shrubberies, borders, &c. trimming them up to a single stem, one, two, or three feet, and branching out at top; prune the straggling shoots short, to form bushy heads.

But in summer-pruning Jasmynes, should not shorten the flowering-shoots, or cut off long stragglers; and train

train in the others intire, as they flower mostly at the extremities.

All the sorts of Jasmynes may be had at the nurseries, for planting, or more generally the first three species, and all which may be propagated plentifully by cuttings, layers, and suckers; and occasionally by grafting, budding, and inarching, particularly the Italian, and some of the three tenderer sorts, as the Catalonian, Azorian, and Yellow Indian Jasmine.

The planting of Jasmynes may be performed in autumn or spring; or the common, and other hardy sorts, may be planted any time in open weather, from the fall of the leaves, till March or April; but the tenderer sorts only in the spring: the Common Jasmine is often planted against buildings, and to train against naked walls and fences, in pleasure-grounds, fore-courts, or where required to have the walls, &c. covered, and the plants to appear ornamental in flowering, training them to the wall regularly with several shoots for stems, as formerly observed, proceeding from or near the bottom; the weak tops shortened, and nailed erect or horizontally, as may seem expedient or convenient, three or four, to five or six inches asunder; the Shrubby Italian, and Dwarf yellow sorts, may also be planted and trained as above; likewise, all the above three sorts may be planted detached in shrubberies, borders, &c. and trained each with a single stem below, supported with a stake in an upright position; and the long, straggling branches pruned in, more or less, to form a bushy head, as before intimated; observing, in giving occasional pruning in summer, both in the Wall Jasmynes and detached plants, not to cut all the shoots close, but leave plenty of the shorter growths for flowering, as the flowers generally rise at the ends of the young shoots of the year.

The propagating, or raising Jasmynes, is by cuttings and layers of the strong, young shoots; and likewise by suckers, especially the shrubby, Yellow Jasmine, and others occasionally; also some sorts are propagated by budding, inarching, and grafting, particularly the Dwarf Italian Jasmine and Catalonian sorts, on stocks of the common white and yellow kinds.

To propagate them by layers and cuttings; the former may be performed in autumn or spring, in the young shoots, and cuttings planted principally in the spring, about March or beginning of April; they will all, both layers and cuttings, be rooted in one summer; and in autumn or spring transplant them, either some where they are to remain, others, or the whole, into a nursery, for one or two years, or more, then transplanted to the places where they are designed.

Suckers from the roots may be taken up in autumn or spring, and planted as above.

When designed to propagate the Dwarf Italian Jasmine, by grafting or budding, or the other tenderer sorts by budding or inarching, it may be performed upon stocks of the common white and yellow; and, by this method of propagation, plants of these sorts are annually brought or sent from Italy to this country in the spring; and, in London, are sold at the Italian warehouses, where they may be purchased for planting, in which it is adviseable to plant the tenderer sorts, as the Catalonian, &c. in pots, and plunged in a bark-bed to strike, and run them off sooner, giving water and fresh air, and exposed thereto, by degrees, in summer.

The Azorian and Yellow Indian Jasmine are also raised from layers and cuttings; likewise by seed sowed in the spring in a hot-bed.

When designed to plant any of the tenderer Jasmynes in the full ground, it should be close to warm, south walls, their branches trained thereto; and, in winter, cover them with mats in all frosty weather; as also to mulch the ground over the roots.

The Common Jasmine, and others trained against walls, will require a regulation of pruning and training every year, in summer and winter; go over them in summer, and with your knife prune the most irregular, long-projecting and straggling shoots of the year, and train in the others to the wall, with some degree of regularity, for flowering the same season; preserving the flowering-shoots mostly at their full length, or shorten very long ramblers; and let all the long-extending productions be kept trained in tolerably close order all summer; and in winter, or rather towards the spring, February or March, give a more general pruning, cutting out the superabundant shoots of last summer, and decayed branches, retaining requisite supplies of the strongest shoots in vacant parts, and prune off the weak tops, or upper part; and then nail the whole to the wall in a regular manner, agreeable to former intimations.

Or, if any are trained in standard shrubs, they should have the long straggling shoots pruned, to keep the head in some regular order.

ILEX, HOLLY TREE.

Class and Order.

Tetrandria Tetragynia,
Four Males, Four Females;

Or Plants with Flowers (Herm.) having four Stamina, or Males, and four Pistillums, or Females.

THE ILEX, or HOLLY, comprise two principal hardy species, of moderate tree and shrub kinds, furnishing many fine varieties; all most beautiful evergreens,

greens, ten or fifteen to twenty or thirty feet, of regular branchy growth, adorned, all the year, with oblong-ovate, and spear-shape, prickly-edged, and smooth leaves; and in summer, short, close clusters of small monopetalous white flowers, having one-leaved, four-parted cups; the corolla cut in four parts, containing four stamina, a roundish germen; and the flowers succeeded by clusters of roundish quadrilocular berries, with four seeds, ripe in autumn and winter; and by which the species are propagated, likewise by budding and grafting, to continue any particular varieties.

Principal Characters.—Flowers hermaphrodite; the calyx, or cup, one-leaved, indented in four parts; corolla, or flower, monopetalous, or of one petal, divided into four segments; four awl-shape short stamina, crowned by small anthera; a roundish germen, mostly without styles, but crowned by four obtuse stigmas; and the germen grows a roundish berry, of four loculi, or cells, containing each a single, oblongish, hard, bony seed.

The hardy Species of ILEX are,

1. ILEX *Aquifolium*—(Aquifolium) or Common Holly Tree.

A middling-large ever-green tree, growing fifteen or twenty, to thirty feet high—the leaves (*middling, shining-green*) oblong-ovate, waved, and indented on the edges, acute spines terminating each denticle; and small clusters of whitish flowers, in May or June; succeeded by red and other coloured berries.—Native of England, south parts of Europe, America, Japan, &c. (*Loamy, or any common soil.*)

Varieties.—Common Green prickly Holly.
Smooth or thornless Green-leaved.
Narrow-leaved Holly.
Box-leaved Holly.
Red-berried Holly. (Common.)
White-berried Holly.
Yellow-berried Holly.
Bloached-leaved Holly.
White-bloached-leaved Holly.
Yellow-bloached-leaved Holly.
White-striped-leaved Holly.
Yellow-striped-leaved Holly.
Cream-coloured-leaved Holly.
Silver-edged-leaved Holly.
Gold-edged-leaved Holly.
Mottle-leaved Holly.
Copper-coloured-leaved Holly.
Variegated-leaved Painted-Lady Holly.
Yellow-leaved Holly.
Long-leaved Holly.

(ILEX *echinata*) or Hedge-hog Holly; the edges of the leaves thorny, and the upper surface closely set with aculi, or prickles.

Common Green-leaved Hedge-Hog Holly.
Gold-bloached-leaved Hedge-Hog Holly.
Gold-edged Hedge-Hog Holly.

Silver-edged Hedge-Hog Holly.

With many other feminal varieties of the

Common Holly, known in the nurseries by different fancy names, as

Milk-Maids Holly.

Glory of the East Holly.

Glory of the West Holly.

Chimney-sweepers Holly; with several others.

2. ILEX *Cassine*—(Cassine) or Cassine Holly of Carolina, commonly called Dahoon Holly.

A moderate ever-green tree, growing fifteen to twenty feet high—the leaves (*middling, light-green*) ovate, spear-shape, fawed; and small white flowers in thick clusters; succeeded by small red berries.—Native of Carolina. (*Loamy, or any common soil; warm situation while young.*)

Varieties.—Broad-leaved Carolina, or Dahoon Holly.

Narrow-leaved Dahoon Holly.

Both the species of Holly, and their respective varieties, are very ornamental ever-green trees, growing with a single upright stem, very branchy quite to the bottom, and in their natural growth, forms a conical head, particularly the Common Holly; all very closely garnished with leaves of a thick, firm consistence: are proper to cultivate both in ornamental and useful plantations; the Common Holly particularly, being also proper to assemble with ever-green forest-trees, in plantations for timber, as when permitted to advance in full growth, it attains some considerable stature and substance in the stem or trunk, and its wood being very white, is valued by the cabinet-makers, and some other trades; the wood is also made into hones, for razors, and of the bark of the tree is made the bird-lime.

The Common Holly, and all its varieties, are very hardy to grow any where in any common soil and situation, to plant both in standards, for ornament in shrubberies, and other plantations in pleasure-grounds; and from its close, branchy growth, admits of training, by clipping, into several formal devices, as globes, pyramids, &c. as was formerly practised in the ancient method of gardening; and is well adapted for forming hedges, both for ornament in pleasure-gardens, and for fences; and for the different purposes, the trees should generally have the final transplanting while moderately

derately young, as, when old, the roots become woody and naked, and do not succeed well when transplanted of a large size.

But the Dahoon Holly is more tender, especially in its young growth, requiring a warm situation, or protection in winter, till it obtains strength, then may be planted in the full ground; is principally cultivated in shrubberies, &c. for ornament and variety.

Both the species of Holly are raised by the seed or berries, sowed in autumn or spring, which will not come up till the second year after; and the different varieties are propagated by grafting and budding them upon the Common Holly; each as hereafter explained.

All the sorts of Hollies are cultivated in the nurseries, for sale, where they may be obtained of proper growth for planting; in which it is generally advisable, to perform it while the trees are of moderately young growth, as before intimated, from two or three, to four or five feet at most; as, when older or larger, they seldom succeed well, and often fail, when removed of a large size, unless where convenient to transplant them with complete balls of earth to the roots.

The season for planting Hollies is either principally in autumn, the middle or end of September, any time in October, or early part of November; not so eligible in winter, unless a very mild season, but may be transplanted successfully in the spring, in February, March, and beginning of April.

For ornamental planting, they should assemble principally in ever-green plantations in shrubberies, and other plantation districts, in pleasure-grounds, parks, &c. or occasionally dotted in some principal deciduous plantations, in which both the common and variegated kinds, will add to the variety, and give a more lively appearance in winter, when the deciduous shrubs and trees are destitute of foliage, and in which the common and variegated sorts will effect a very agreeable diversity; or in any plantations the variegated kinds are beautifully ornamental at all seasons, and when interspersed, these and the green-leaved, in principal clumps of ever-greens, they have a fine effect; and in which plantations, some may either be permitted to advance principally in their natural growth, bushy from the bottom, or occasionally trimmed up below, by degrees, one, two, or several feet, to clean stems, to run up more in height, where required, and permitted to branch out above in full heads.

Hedges of Holly were formerly in great estimation, for their close, beautiful ever-green growth, both for ornament, in interior divisions of pleasure-grounds, and for affording shelter to particular compartments, and to tender plants, and forms a very effectual impe-

netrable fence; and for which purposes, the Common Green Holly, as being the most readily raised in abundance, is principally employed, especially for any considerable extent; and the variegated sorts, in particular parts, for their ornamental appearance, in their diversified colours; and, in all of which, they admit of training in low, middling, and lofty hedges, five or six, to eight or ten feet high, or more.

The Hollies, likewise, in the former designs in ornamenting pleasure-grounds, were in great repute for training by clipping, into various forms, as pyramids, spheres, arches, porticoes, galleries, and other rural devices, and kept in their respective forms by clipping every year, in summer; which, according to the then prevailing taste in gardening, together with yews trained in a similar stile, were considered as great ornaments to gardens; but are now mostly excluded, at least seldom admitted in modern plans.

The propagation, or methods of raising Hollies, is principally by seed, in the two species, the Common Green, and Dahoon Holly; the former of which, Common Holly, produces abundance of berries, ripe in autumn and winter for sowing, but not ripening so freely in the Dahoon kind: they are obtained from America by the seedsmen; but the different variegated sorts, and other curious varieties, are propagated, and continued in their respective differences, by grafting or budding them upon seedling-stocks of the Common Holly, as they will not come the same from seed; and the Dahoon Holly is also occasionally propagated by grafting and budding upon the common sorts.

To raise the Common Holly, it ripening berries in great plenty late in autumn, they should be gathered in November or December, and either sowed at once in beds, an inch deep; or, as the seeds of the berries are of a hard, bony nature, and the outer pulp adhering close, that they remain in the ground a whole year before they begin to germinate or grow, they, previous to sowing, are generally prepared by burying them in an heap in a pit, or deposited in large garden pots; these plunged in some dry ground, and earthed over eight or ten inches deep, to remain thus for a year, preparing for vegetation, then taken up in October or November, and sowed in beds, either broadcast, and covered in an inch or two deep with earth, or sowed in drills that depth, and they will thus come up in the spring following; but those sowed at once from the trees remain dormant till the second spring.

When the young Hollies are come up, keep them clear from weeds, and, if very dry weather, moderate waterings will prove very beneficial; and after the plants are of one or two years growth, they should be transplanted in nursery-beds, in autumn, about October, or in March, in rows, six inches to a foot asunder; and, after having two years growth in these beds,

if any are designed for hedges, they will be of a proper size for that purpose; or those intended to train for standard shrubs and trees, should be transplanted again into nursery-rows, two feet and a half distance, by a foot to fifteen or eighteen inches in the rows, in which, growing two or three years, or till they have attained two or three, to four or five feet growth, are proper for the plantations for which they are intended; as they should generally have their final transplanting in the allotted places where they are to remain, before they grow large; or, when of advanced size, they may be removed, with balls of earth to their roots, both for hedges and other occasions.

The Dahoon Holly is likewise raised from seed, and occasionally by grafting or budding it upon stocks of the common sort: the seed should be managed and sowed as directed for the Common Holly, or sowed in pots, placed under shelter from frost; and if in March they are plunged in a hot-bed, it will bring up the plants soon, and forward them in growth, when harden them to the full air in summer, and sheltered under a frame, in winter, from frost; and when the plants, in either method, are one or two years old, transplant them in a warm situation, in the spring, or some in pots, to have protection, in winter, for two or three years; then may be turned out into the full ground, in a nursery, or where they are to remain; the others planted in the nursery, may also be transplanted finally, when two, to three or four feet growth, into the shrubbery.

To propagate the different varieties of the species of Holly, it is effected, only, by grafting or budding them upon stocks of the common kind, for they will not come the same from seed; but the stocks, on which to graft and bud them, are always raised from seed, by the methods already explained, and the plants set out in nursery-rows, to have one or two years growth, with stems a quarter to half an inch thick; then may be grafted or budded with grafts and buds of the variegated sorts: the grafting is performed in the spring, March, or beginning of April, by whip-grafting for small stocks, and slit or cleft-grafting for larger; and the budding is effected in July or August, in the common method; and in both of which is performed generally low in the stock, within a few inches of the bottom, or occasionally at one or two feet height in taller stocks; and when, after this operation, the grafted and budded plants have remained two or three years, or more, to make proper shoots from the grafts and buds, and form the beginning-heads of the respective kinds, with which they were grafted and budded, they are proper for transplanting into shrubberies, and other ornamental plantations, and for hedges, &c. or, when they are occasionally to be transplanted of larger size, if they could be removed with balls to the roots, it would be of particular advan-

tage, in having them succeed more certainly in a prosperous growth.

The Hollies, planted in shrubberies, &c. or in single, detached standards, in any particular compartments, may either be permitted to branch in their natural order, or the under-branches pruned up moderately by degrees, and the whole encouraged to shoot above in full heads, or of which may only prune to order any casual rambling branches and shoots.

Or, if any are designed for forest-tree plantations, the Common Green Holly, raised from seed, is the only proper sort for this purpose, and may be introduced among others of the ever-green tribe; though, as the Holly trees are of slow growth, they are not much planted for this purpose; but in some parts of this country, where the trees are growing naturally in woods and forests, they are of a considerable size, thirty or forty feet high, and large trunks; so that some trees may be admitted among other ever-green, forest-trees, generally planted out in young growth, and, in their advancing state, prune up the under-branches by degrees; and run them with the leading top-shoot entire, that they may advance with a single, clean stem, of straight growth, and permitted to grow with full heads.

For Holly hedges, the Common Green, raised from seed, is proper for general use, and any of the variegated kinds principally for ornament; though all the sorts, or varieties of the *Ilex Aquifolium*, are admirably adapted for hedges, most beautiful and useful, both for ornament, and for shelter to particular divisions, and to afford protection to tender plants from cold; as also for outward fences, and for which purpose it is singularly effectual, as well as ornamental, at all seasons; and the plants may be as easily raised for hedges as the Hawthorn, and planted and trained nearly as directed for that species, in hedges, under the Genus *Crataegus*; only the Hollies are rather of slow growth in the beginning, but when once well established in the ground, they advance freely in a close, branchy growth, from the bottom upward, and shoot at top proportionally, to admit of training the hedge, five or six, to eight, ten, or fifteen feet high, or more.

Where Holly hedges are intended, they may be formed either by planting young plants from a nursery, of two or three years old, or by seed, prepared as before directed, previous to sowing, then sowed in autumn or spring, in the place where the hedge is intended, in a drill; and, in either of which, where a double thick hedge is required for an outward fence, may plant two rows of sets a foot asunder, the plants six inches to a foot apart in the row; and if seed is intended, it may also be sowed in two drills, the same dif-

distance, having the drills one to two inches deep, the berries, or seed, sowed moderately thick, and earthed over; and when the plants are come up, if too close, some may be drawn out; or, for a moderate hedge, especially in any internal division, a single row of plants, or seed, may be sufficient: keep the whole clean from weeds; or, if any are in outward hedges for fences, &c. they should be defended on the outside, either by a ditch, rails, paling, &c. or a stake and bush-hedge, while the plants are advancing.

In the advancing growth of the hedge, give a requisite training, when they advance in strong side-shoots, by cutting them moderately, to form and thicken the hedge, permitting it to shoot in height, or only cutting any run-away top-shoot; or top the whole but little, or very moderately, till the hedge is arrived to the height intended; then should have a regular clipping annually, in summer, at sides and top, to keep the hedge regular; generally, in hedges intended to run up high, should clip them up taper, or gradually thin, or narrowing to the top, cutting both sides equally.

The hedges raised and trained as above, will require an annual clipping once or twice every summer; (*never cut in winter*) but to preserve the hedge in the most regular, neat order, two clippings in summer would be necessary, the first in June, and the second cutting in August; but, if they have only one clipping, July or August is the proper time to perform the operation: generally keep the hedge of a moderate width, a foot to fifteen or eighteen inches, for low or middling hedges, cut even at sides and top, but lofty hedges kept as thin at top as possible, run up in a tapering manner, as before observed.

I T E A—(I T E A.)

Class and Order.

Pentandria Monogynia,
Five Males, One Female;

Or Flowers (*Hermaphrodite*) having five Stamina, or Males, and one Pistillum, or Female.

THIS Genus furnishes but one species, an ornamental, deciduous, flowering-shrub, for beautifying the shrubbery; is a shrub of middling growth, adorned with spear-shape leaves, and terminal spikes of white flowers, each flower having a monophyllous, five-parted calyx, a corolla of five petals, containing five stamina and a permanent style, succeeded by an oval capsule, terminated by the persistent style, and furnished with oblong seeds, by which the shrub may be propagated; also by layers, cuttings, and suckers.

One Species, viz.

ITEA virginica, Virginian Itea.

A middling, deciduous shrub, growing five or six feet high—the leaves (*middle size*) spear-shape, alternate; and spikes of white flowers terminating the ends of the shoots very ornamentally in summer.—Native of Virginia. (*Moist, or any common soil.*)

Varieties.—Major, or Greater Virginia Itea.
Minor, or Less Virginia Itea.

This beautiful, flowering-shrub claims a place in all principal shrubberies, in which it will make a fine appearance in its numerous, floriferous spikes; may be procured at the nurseries, for planting, which is performed either in autumn or spring, allotting it a conspicuous situation; and is propagated by layers and cuttings of the young shoots, in the above seasons: they will be rooted in one year; also by suckers from the roots; likewise by seed sowed in the spring, in a bed of light earth; or, as the seed sometimes remains in the ground till the second spring, before it grows, it may be sowed in pots, to place in a shady border in summer, and under shelter in winter, or may be forwarded in a hot-bed in the spring.

I V A, FALSE JESUITS BARK TREE.

Class and Order.

Monoecia Pentandria,
One House, Five Males;

Or Flowers, Male and Female, distinct on one or the same Plant, and the Males have five Stamina.

THE I V A, consisting of one species, is a large, deciduous shrub, admitted in shrubberies to increase the variety; is of upright growth, garnished in summer with spear-shape leaves, and clusters of small purple flowers, male and female, separate on the same plant; having a roundish, general calyx, containing many florets, of one funnel-shaped petal in the males, no petals in the females; and in the former, five small stamina; in the latter, two hair-like styles, and succeeded in the female flowers by naked seeds in the calyx; and by which, sowed in the spring, the tree is raised, and likewise freely by layers and cuttings.

One Species, viz.

I V A frutescens, Shrubby, False Jesuits Bark.

A deciduous shrub, of large growth—the stems shrubby; leaves (*long*) spear-shape, sawed; and clus-

ters of purple flowers.—Native of Virginia and Peru. (Any common soil.)

The principal merit of this shrub is to diversify shrubberies, and other plantations in pleasure-grounds, and to encrease the variety in the collection of deciduous shrubs; is raised, for sale, in all the nurseries, and may be planted any time in the general planting season; and is propagated by layers and cuttings of the young wood; also by seed, commonly obtained from America by the seedsmen, in the spring, and may then be sowed in a bed or border of common earth, or in pots placed in an easterly border.

JUGLANS, WALNUT-TREE, and HICORY.

Class and Order.

Monoecia Polyandria,
One House, Many Males;

Or Flowers, Male and Female, separate on the same Tree, with the Males having numerous Stamina.

THE Family of JUGLANS consists of several species and varieties of large, deciduous, fruit, forest, and ornamental trees, to plant in orchards and gardens for their production of nuts, with eatable kernels, and to diversify large plantations in pleasure-grounds, parks, and other districts, being mostly of large growth, with considerable branchy heads, garnished, in summer, with large, compound, winged leaves, composed of from two or three, to five, six, or seven pair of oblong folioles, or distinct lobes, terminated by an odd or end foliole; and male and female flowers, separate; the males collected into small, oblong, cylindric, scaly catkins, each scale forming a cup to one floret, and females growing in close-placed clusters, and have four-parted cups; the corolla, or flower, small, monopetalous, six-parted in the males, in the females four-parted; with many stamina in the males, and in the female flowers an oval germen supporting two styles; and the germen grows a large, oval, roundish, drupaceous, green fruit, two, three, or more, together in a cluster, containing each a roundish, or oval, furrowed, hard-shelled nut, filled with a four-lobed eatable kernel, ripe in autumn, and by which also the trees are commonly raised.

The Species of JUGLANS are,

1. JUGLANS regia, Royal, or Common Walnut Tree.

A large, deciduous tree, growing fifty, to sixty or seventy feet high, with a large, widely-branching head—the leaves (*large, light-green*) winged or pinnated, composed of two or three pair of oval, sawed, smooth, equal folioles, terminated by an odd one; and small greenish flowers, in April and May, succeeded by large nuts, ripe, for eating, in September and October.—Na-

tive of Europe, &c. (*Loamy, chalky, or any common soil.*)

Varieties of the fruit.—Early, Oval Walnut.

Round Walnut.

Large Walnut.

Double Walnut.

Late Walnut.

Tender-shelled Walnut.

Hard-shelled Walnut.

Jagged-leaved Walnut Tree.

2. JUGLANS nigra, Black Virginia Walnut-Tree.

A large, deciduous tree, growing forty or fifty, to sixty feet high—the leaves (*middling, dark-green*) winged or pinnated, composed of seven pair of spear-shape lobes, and an end-one, the exterior folioles smallest; and small hard-shelled fruit.—Native of Virginia and Maryland. (*Loamy, or any common soil.*)

Varieties.—Round-fruited Black Walnut.

Oblong-fruited Black Walnut.

3. JUGLANS alba, White Virginia Walnut, or Hicory Nut.

A middling, deciduous tree, thirty or forty feet high—the leaves (*middling, light-green*) winged or pinnated, composed of three pair of spear-shape, sawed folioles, and an end-one sessile, or sitting close; and small whitish-shelled fruit.—Native of Virginia. (*Any common soil.*)

Varieties.—Smooth-barked White Virginia Walnut, or Hicory-tree.

Rough, or Shag-barked Hicory.

Small-fruited Hicory.

Larger-fruited Hicory.

Oval-fruited.

4. JUGLANS cinerea, Cinereous, or Ash-coloured American Walnut-Tree.

A middling, deciduous tree, growing thirty or forty feet high—the leaves (*middling*) pinnated, of eleven spear-shape lobes, the base shortest.—Native of North America. (*Any common soil.*)

Varieties of different Species.—Pecan, or Illinois Hicory.

Balsam Hicory.

Small White Hicory.

Virgate, or Twiggy Hicory.

Of the different species of *Juglans*, the Common Walnut is the sort commonly cultivated in this country, for its fruit, both to use green, for pickling, in July and August, the green, outer cover, and internal part, together, before the nut begins to shell hard; and more abundantly the ripe nuts, which attain maturity in autumn, in September and October, and the kernels are then good for eating; all the other species produce fruit of a similar nature, but smaller, and mostly with a very hard shell and small kernels, not equal in goodness to the Common Walnut, which, in all its varieties, are the most abundantly produced in this country, much larger and best flavoured; and therefore this sort, (*Juglans regia*) is the principal species to cultivate for its fruit; the others chiefly for variety, or, together also with Common Walnut trees, to assemble in useful and ornamental plantations.

The different species of these trees, being mostly of large and lofty growth, with considerably spreading branchy heads, are proper to introduce in large plantations of hardy, deciduous trees, and to arrange in groves, clumps, both in assemblage, and distinct, as also to dot singly; and the Common Walnut to dispose plentifully in rows, in parks, and other extensive districts; in which, when of advanced growth, they will be very profitable in their annual productions of nuts, which always find a ready sale to those who supply the markets; and Walnut trees are proper to introduce in forest-tree collections, to advance in large standards for timber, the wood being much esteemed, for many occasions, in the cabinet-making branches, for various articles of household furniture, and several other particular purposes.

All these trees delight most in a loamy soil, but will also grow in any moderately-good ground, or where convenient, in common with other hardy trees, or in any common soil and situation, as different premises may afford.

Young trees, of all the sorts, are kept in the nurseries, for public supply, where they may be obtained in collection, or of any particular species, required for planting; for which, generally have them of moderately young growth, of five, six or eight feet height, especially for any considerable planting; or, for particular occasions, the Common Walnut may sometimes be obtained of larger growth, with a good head of branches advanced to a bearing state, to plant for immediate bearers in a small degree in the beginning; though, when planted of younger growth, either for fruit or forest-trees, or for ornament, they always make the most thriving trees in the long run; and for forest-trees particularly, if only three or four, to five or six feet, they will generally prove more successful; or sometimes the nuts are planted in the places where the trees are designed to remain, and, not having any check by removal, they commonly advance in a more free and expeditious growth; and all the sorts are easily propagated, or raised,

by planting, or sowing the nuts in a nursery, and the young plants of a year old transplanted therein, for two, three, or several years, and trained each with a single clean stem, five or six feet, branching above in full heads; and being thus ready for the intended plantations, they may be planted as required, at the proper seasons.

The season for planting the different sorts of Walnut trees, is either in autumn, at the decay of the leaves, or in the spring; or any time in open weather, from October or November, to March or April.

The propagation, or general method of raising the Walnut trees, and Hicories, in all the different species, is principally by planting or sowing the nuts, either in autumn, or preserved sound till the spring, and then sowed, in February or March, in a bed or beds of common earth, which may be performed either in drills, six inches to a foot asunder, and two inches deep, placing the nuts in the drills, and earthed over; or raking the earth off the bed the above depth, sow the nuts on the surface, and, with a spade, press them into the bed, and cover them in with the earth that was raked off the bed for that purpose; they will all come up freely the same year: keep them clean from weeds all summer; and, when the plants are one or two years old, they should be transplanted into nursery-rows, two feet and a half or a yard asunder, by eighteen inches or two feet in the lines; there trained each with a single stem, preserving the leading top-shoot entire, but any strong, lateral shoots, pruned up by degrees, to form a clean stem of five, six, or seven feet, then permitted to branch out above in full heads; and are then proper for final transplanting.

Observe, when intending to raise the Common Walnuts principally for fruit-trees, should be careful to procure nuts of the best varieties for planting or sowing, chusing them large, with thin or tender shells, whereby there will be the greater chance of having the trees raised therefrom produce good fruit in return; observing the same method of sowing, nursery-planting, and training, as directed above; or sometimes the propagation of the approved varieties for fruit-trees, is tried by grafting them upon stocks of any of the Walnut kinds; though the general method for raising the principal supplies, is by the nuts, for general planting.

The trees, raised as above, in all or any of the species, they, when from four or five, to six, eight, or ten feet growth, are of proper size for general transplanting in the places where they are intended, in the proper seasons before-mentioned.

When designed to have the Common Walnut planted for its production of nuts, it may be planted in any open situation, or in orchards, either in continued rows, forty feet distance, or placed principally only towards the outer boundary, and in any out-grounds, hedge-rows, parks,

parks, paddocks, fields, &c. having them trained principally in full standards, with clean stems of five, six, or seven feet, branching out at these heights, to form the head; and planted thirty or forty, to fifty feet, to admit of full scope for their widely-extending branches; and, in their growth, permitted to branch out freely all round, and aspire in height, wholly in their natural order; except occasionally pruning any casual, very irregular branch, or low straggler, and long-extending rambler, either in the early or advanced state of the trees, to preserve some little regularity in the head, if thought expedient; permitting the other general branches to continue in their advancing growth.

Walnut trees seldom begin to produce fruit until of eight or ten years growth, nor do they bear any considerable quantity till they are above double that age; but in their more considerably advanced state, they, in favourable seasons, produce in great abundance: they bear mostly towards the extreme parts of the branches on the young wood of the last year; the flowers appear in April and May, succeeded by the fruit in June, which, in July and August, is fit to gather green for pickling, and acquires maturity in the nuts towards the middle and latter end of September, and in October; when, being fully ripe, the outer green cover begins to open, or will readily separate from the nuts, and should then be gathered for present use, and for keeping for eating in winter.

In the moderate advanced growth of the bearing Walnut trees, the fruit may readily be gathered by hand; but in considerably large trees, with high and widely-extended boughs, the ripe fruit is commonly beat down with long poles; the nuts thereby generally falling from the trees, in their husks, or when fully ripe, many separate therefrom; and being gathered up, those adhering fast in their covers, are laid in heaps, to heat a few days, till the green husks readily part from the nuts, which then, before the husks begin to become black, and rot, should, while clean and dry, be separated, and deposited in a dry room, and covered thickly with straw, to exclude the air and moisture, that they may keep longer in good perfection.

For ornamental planting, and for variety, all the species and varieties of Walnuts and Hickory are proper; and for which, they may assemble with other deciduous kinds, as before intimated, in composing any general tree plantations, in woods, groves, avenues, &c. or planted, distinct, in groves, clumps, &c. in extensive grounds, set thirty or forty, to fifty feet distance.

Or for timber or forest-trees, all the species of *Juglans* are eligible, and may be planted in young growth of three or four, to five, six or eight feet, to form woods, groves, &c. set at fifteen to twenty feet distance; or the Common Walnut planted in some places double that distance; and in their advanced growth,

while growing for timber, they, in the interim, will afford plentiful annual productions of nuts; or this species is sometimes raised for the above purposes, by sowing the nuts at once in the places where it is designed the trees shall continue, the ground being prepared by digging or ploughing, and drills made in which to sow the nuts; and when the plants are advancing, if they are too close, some may be gradually thinned out, and planted in another place, if required, leaving a sufficiency of the most promising, where raised, at eligible distances, to grow for full standards; and in which all the others should be trained, by pruning up lateral shoots of the stem, by degrees, and low, under-branches of the head, and permitted to advance above in full growth.

JUNIPERUS, JUNIPER TREE, comprising also several CEDARS, and the SAVIN.

Class and Order.

Dioecia Monadelphia,
Two Habitations, One Brotherhood;

Or Male and Female Flowers, on two separate Plants, and the Stamina joined in one Set, or Brotherhood.

THIS Family, or Genus, of *Juniperus*, consists of many species of curious ornamental and useful ever-green shrubs and trees of the small-leaved berry-bearing tribe; mostly very branchy from the bottom upward, of pyramidal and conic growth, three or four, to twenty, thirty, or forty feet high; very closely set with small or minute, narrow, awl-shape, and obtuse leaves, placed by threes and fours, and *imbricatim*, or lying over one another like scales of fish; and small male and female flowers, distinct, on two separate trees; the males growing in conical amentums, without petals, having three stamina in one set; and the females, having three-pointed calyxes, and three petals, with a germ supporting three styles, and succeeded by roundish, umbilicated, fleshy berries, containing three oblong-convex and angular seeds, ripe in autumn; but, in this country, most abundantly in the Common Juniper, and by the berries, &c. all the species are principally raised or propagated, and some varieties, occasionally, by layers and cuttings.

The Species of JUNIPERUS are,

I. JUNIPERUS *communis*, Common Juniper Tree.

An ever-green shrub, four or five, to ten or fifteen feet high—the leaves (*small, awl-shape*) placed by threes, spreading, and dagger-pointed, and longer than the berries.—Native of Britain, and cold parts of Europe, on mountains and in woods. (*Dry, or any common soil.*)

Varieties.

Varieties.—Shrubby, Common Juniper.
Tree-like Common Juniper.
(*Juniperus communis suecica*) or Swedish,
Tree-like, Common Juniper—growing ten to fifteen, or eighteen feet high.

2. JUNIPERUS *Oxycedrus*—(Oxycedrus) or Greater Spanish Juniper.

A moderate, ever-green tree; growing twenty feet high, or more—the leaves (*very small, awl-shape*) three and four, spreading, sharp-pointed, and shorter than the berries; the berries largish red.—Native of Spain, &c. (*Dry, or any common soil.*)

3. JUNIPERUS *Virginiana*, Virginia Red Cedar.

A large ever-green tree, growing thirty or forty feet high—the leaves (*small, dark-green*) placed by threes, joining at the base; the young ones imbricated, or placed over one another, and the old ones spreading.—Native of Virginia and Carolina. (*Dry, or any common soil.*)

4. JUNIPERUS *Lycia*, Lycian Cedar.

A middling ever-green tree, twenty to thirty feet high—the leaves (*small*) placed by threes, ovate-obtuse, and every where imbricated.—Native of Spain, Callia, and Siberia. (*Any common soil.*)

5. JUNIPERUS *Phœnicea*, Phœnician Yellow-berried Cedar.

A moderate ever-green tree, growing twenty feet high—the leaves (*small*) obtuse, placed by threes, slightly imbricated.—Native of the southern parts of Europe, and the East. (*Warm, dry situation.*)

6. JUNIPERUS *thurifera*, Thuriferous Spanish Cedar.

A middling ever-green tree, growing thirty feet high—the leaves (*small*) acute, four-ranked, or ranged in four rows; and large black berries.—Native of Spain. (*Dry, or any common soil.*)

7. JUNIPERUS *bermudiana*, Bermudian Cedar.

A moderate ever-green tree, growing twenty feet high—the leaves (*small, by twos and threes*) growing by threes below, and the upper ones by twos; decurrent or running at the base, awl-shape, spreading, and acute.—Native of America. (*Warm, dry situation; and some kept in pots, for shelter in winter.*)

8. JUNIPERUS *Sabina*—(Sabina) or Savin Tree.

A shrubby ever-green, two or three, to six or eight feet high—the leaves (*small, linear*) opposite, erect, and decurrent, or running at the base.—Native of Portugal, Italy, Siberia, and the East. (*Any common soil.*)

Varieties.—Dwarf-spreading Savin, two to three feet high.

Variegated-leaved Dwarf Savin.

Upright Portugal Savin, six to eight, or ten feet high.

All these species of *Juniperus* are of the ever-green tribe, in estimation principally for ornamental planting in shrubberies, and other parts of pleasure-grounds, in which they make a conspicuous variety at all seasons; mostly of a close, branchy growth, from the bottom upward, and, in the greater part, grow in a somewhat conic form; others spreading, as in the Dwarf Savin, &c. the branches very closely set with the minute leaves, in some spreading and pointing outwards, in others imbricated, or lying over one another, and some standing erect, and adorn the trees in constant verdure; but the flowers, in their small amentums and minute florets, make no ornamental appearance: are succeeded, in the females, by the roundish berries, which in some sorts ripen plentifully in this country, as the Common Juniper, Portugal Savin, and sometimes in the Virginia Red Cedar; though of this, and most of the other Cedar kinds, in which the berries are not produced plentifully, they are obtained from abroad by the seed-dealers, for sowing; as all the sorts, both Junipers, Cedars, and Savins, are raised from the seed in the spring, or some, occasionally, by layers and slips of the young branches, as hereafter explained.

These ever-greens, in most of the sorts, are more or less of a resinous nature, and impart an aromatic odour.

They are mostly tolerably hardy to grow in any common, moderately dry soil, and almost in any exposure; except the *Juniperus bermudiana*, which, being tenderer, is generally cultivated as a green-house plant, but sometimes planted in the full ground; should have a warm sheltered situation, and defended from severe frost; all the others may be planted in any situation, in common with other hardy ever-green shrubs and trees, or where they may be required, for ornament and variety in pleasure-grounds.

Most or all the species are desirable ever-greens, in their peculiar growth and foliage, to ornament and diversify shrubberies, and other decorative plantations, and to plant singly on plats, lawns, &c. or some of the larger trees

tree species, as the Virginia Red Cedar, &c. may also assemble in plantations of ever-green forest-trees: they may be procured at the nurseries, of proper growth for planting, one, two, or three, to four or five feet, in proportion to the natural sizes of growth of the different species, and planted in the proper seasons.

The principal season for removing and planting these trees, is either in autumn, the middle or latter end of September, any time in October and November, or all principally in the spring months; or the hardier kinds, Common Juniper, Virginia Cedar, and Savins, might be occasionally planted in winter, in mild, open weather, more especially where convenient to remove any with balls; and by which most of the others may be transplanted, though, for the more tender sorts, early autumn or spring planting is most advisable.

With regard to the order of planting them, as before observed, they having particular merit to plant in principal shrubberies, and other ornamental districts, in assemblage mostly in ever-green plantations, should be disposed in a diversified manner, and placed according to their sizes of full growth, the lower ones stationed, more or less, towards the front, and the taller behind; some also planted singly upon open spaces of grass-ground, of lawns and plats, and in spacious borders, &c. and, in their advancing growth, suffered to grow nearly in their natural manner, branchy from or near the bottom, in full growth upwards; or, occasionally, the larger tree kinds may be pruned up gradually, from lower branches, to advance with a clean stem below; or the whole permitted to grow natural, only pruning up casual, low, straggling, or disorderly branches, and encouraged to grow up full above.

Sometimes the larger, hardy Cedar kinds are assembled in ever-green forest-tree plantations; particularly the Virginia Red Cedar, or the other tree sorts occasionally; and, in their advancing growth, have the low, under branches pruned up moderately by degrees, to form them with clean stems below; but this pruning of these kinds of resinous, ever-green trees, should be performed with much discretion, only gradually as they increase in height, and permitted to branch out upward in full heads.

Formerly, some of these species of Juniperus were planted to form ornamental garden hedges; and sometimes planted detached, and trained in pyramidal figures.

The propagation, or method of raising the different species of Juniperus, is principally by seed; and some also occasionally by layers and slips, or cuttings of the young shoots, particularly the Savins; but the Juniper and Cedar kinds are mostly raised from seed.

The seed is sowed in the spring, in a bed of light earth, each fort separate, and covered in with mold, half an inch to an inch deep; they will come up some the same year, others probably not till the spring following; or some of the foreign, or more tender sorts, might be sowed in pots, and plunged in a hot-bed, to forward them the same year, and should be exposed by degrees to the full air: keep the whole clean from weeds, and give moderate watering in dry, hot weather in summer; and the young plants, of one or two years old, transplanted in the spring, in nursery-beds, in rows six inches to a foot asunder, to advance in growth, for a year or two, and then transplanted in wider rows two feet distance, to acquire proper growth, generally permitting them to branch out from the bottom in their natural way; or may only prune any low, under-straggling shoots, and let all the others, and the top-shoot advance in full growth, to proper sizes, for the intended plantations.

Or, to propagate them by layers, slips, or cuttings, it may be performed in any of the sorts occasionally, in want of seed, or principally the Savins; choosing for layers, the young, under-branches, furnished with young shoots, which, in the spring, lay in the earth, they will be rooted in one year; and slips or cuttings of the young shoots, planted in March or April, will emit roots, and grow; and when the whole, both layers, cuttings, &c. are properly rooted, next spring, transplant them in nursery-beds, &c. to obtain a requisite growth, as advised in the seedling-plants.

KALMIA—(KALMIA) OR DWARF-LAUREL.

Class and Order.

Decandria Monogynia,
Ten Males, One Female;

Or Plants with Hermaphrodite Flowers, having ten Stamina, or Males, and one Pistillum, or Female.

THIS Genus, *Kalmia*, consists of two species of very beautiful ever-green flowering-shrubs, for adorning the shrubbery, flower-borders, &c. are of upright, moderate growth, with branchy, bushy heads, ornamented with ovate and spear-shape leaves; and fine ornamental red flowers, in terminal and lateral, corymbus clusters, most beautiful; having a five-parted permanent calyx to each flower; the corolla, or flower monopetalous tubular, divided above into five segments, and contain ten stamina and one pistillum; succeeded by a roundish, quinquelocular, or five-celled capsule, furnished with small seeds; and by which the plants are raised, likewise by suckers and layers.

The

The Species of *KALMIA* are,

1. *KALMIA latifolia*, Broad-leaved Kalmia.

A moderate ever-green shrub, of branchy growth, four or five feet high—the leaves (*middling*) ovate-obtuse; and corymbus bunches of flowers, terminating the branches; June and July; most beautiful.—Native of Maryland, Virginia, Pennsylvania, &c. (*Moist, light, or any soil.*)

Variety.—Striped broad-leaved Kalmia.

2. *KALMIA angustifolia*, Narrow-leaved Kalmia.

A moderate ever-green shrub, of branchy, bushy growth, three or four feet high—the leaves (*middling*) spear-shape, longish; and corymbus bunches of flowers, laterally, or at the sides of the branches; June, July, &c. very beautiful.—Native of Pennsylvania, and near New York.

These are the most delightful of all shrubs, beautiful as ever-greens, and most delicately-fine flowering-plants; demand admittance in every curious garden, to embellish principal shrubbery clumps: may be obtained at the nurseries, for planting, in autumn or spring; and are propagated by seeds, layers, and suckers, in the same seasons.

Sow the seeds principally in the spring, in a bed of light earth, or in pots; or, if the pots are plunged in a gentle hot-bed, it will forward the germination of the seed, and the plants in growth; they, in either method, will come up the same year: give them shelter in winter, and in spring pick them in a warm situation, or into pots, for moving under protection from frost in winter for a year or two, then may be transplanted with balls into the full ground, either where they are to remain, or in a nursery, till advanced more in growth, for planting in the shrubbery, &c. or some may be continued in pots, and in winter, placed under shelter from frost.

Or by layers and suckers, the former may be performed in autumn or spring, in the lower, young branches, layed down in the earth with the tops a few inches above ground; they will be rooted for planting off in autumn or spring following; and suckers arising from the bottom, may be digged up in the spring with roots, so as each forms at once a rooted young plant, which may be planted either in a nursery, or strong ones in the shrubberies, &c. where they are to continue.

Generally, for planting these curious ever-greens, in a shrubbery, or any where in pleasure-grounds for ornament, they being of proper growth when two to three feet high, the spring, about March and April, is

a good season, otherwise in autumn, about the middle or end of September, or in October or November; and where any can be removed, or transplanted, with balls to their roots, either from the full ground, or pots, it will be an advantage.

They should have a warm situation, in the front of some principal shrubbery clump, or in a border, &c. where they may be conspicuous to sight, as they make a good appearance at all seasons; and very ornamental when in flower, in large, corymbus bunches.

LAVANDULA, LAVENDER, of the

Class and Order

Didynamia Gymnospermia,
Two Powers, Seeds naked;

Or Plants with Flowers (*Herm.*) having four Stamina, two being superior, or longer than the others; and Seeds naked, or without any Vessel or Cover.

THE LAVANDULA comprise two hardy, under-shrubby, aromatic ever-greens, eligible to plant in gardens and shrubberies, for use and ornament; are of upright, bushy growth, two or three feet high, garnished with small, narrow, and linear spear-shape leaves; of a hoary, whitish hue, and long, erect spikes, of small, tubulous, ringent or grinning flowers, blue, purple, &c. having one-leaved cups, a small, monopetalous corolla, tubulous below, and divided and ringent above; four stamina, two superior in length to the other two; a four-parted germen, supporting a single style; and the germen grows four naked seeds, which are seldom used for sowing, as the plants propagate freely by planting slips and cuttings of the young shoots, in spring and summer.

The hardy Species of LAVANDULA are,

1. *LAVANDULA Spica*—(*Spica*) Spike-flowering Lavandula, or Common Lavender.

A small, shrubby, bushy plant, growing two or three feet high—the leaves (*small, narrow, whitish-green*) spear-shape, and intire; and long, erect spikes of flowers, naked, or without leaves; June, July and August.—Native of the southern parts of Europe. (*Any common soil and situation.*)

Varieties.—Narrow-leaved Common Lavender.
Broad-leaved Common Lavender.
Dwarf Lavender.
Blue-spiked Common Lavender.
Purple-spiked Lavender.
White-spiked Lavender.

2. *LAVANDULA Stoechas*—(*Stoechas*) or French Lavender.

A small, shrubby plant, of two feet growth—the leaves (*small, narrower*) spear-shape, linear; and tufted spikes of purple flowers; July and August.—Native of the southern parts of Europe. (*Any common soil and situation.*)

Both these species of *Lavandula* are fine, aromatic under-shrubs, of upright, slender growth; produce numerous spikes of flowers of great fragrance, and for which the Common Lavender is cultivated in kitchen-gardens, and producing its flowers in perfection in July and August; are gathered for domestic occasions, such as to put in small paper bags to lay among cloaths to perfume them with their aromatic odour; also in larger quantities to distil for Lavender water, &c. and both the species are eligible to plant in shrubberies, as flowering-shrubs, disposed towards the front parts, according to their degrees of growth, in assemblage with other small shrubs; likewise to plant in borders; and, in all of which, trained in bushy heads, will make an agreeable variety at all seasons, and flower ornamentally in summer.

They may be procured at the nurseries for planting, in autumn or spring, and are easily raised plentifully by slips and cuttings.

To propagate these plants, take off a quantity of the side young shoots, in March, April, or May, either slipped off by hand, or cuttings with a knife, five, six, eight or ten inches long; trim away the under leaves, and plant them in a shady border, watered in dry weather: they will root freely and soon, the same year, shoot at top, and form little bushy plants, by the end of the summer, for transplanting, where they are to remain in autumn or spring following.

When required for kitchen-garden culture, for the flowers, should cultivate principally the Common Blue-spiked Lavender, and planted either in beds or borders, eighteen inches or two feet distance, to grow in single, bushy plants, or occasionally planted as an edging along the front of a border, either in slips or cuttings, planted at once to remain six inches asunder in the row, or in rooted young plants, raised as above, and kept regular by clipping every summer; or where considerable supplies of flowers are required, they may be planted in continued rows, three feet asunder, to have room to advance in full growth, to produce large crops of flowers accordingly: in some of the extensive kitchen grounds, in the neighbourhood of London, as about Battersea, and places adjacent, they plant vast quantities in single rows, between the large breaks of ground, to furnish large productions of flowers for the supply of the markets.

In the above different methods, the plants should be permitted to grow in full heads, and they will produce plenty of flowers every summer, which attaining perfection in July and early part of August, should be gathered in dry weather, for the particular or different economical purposes for which they are required and adapted; the plants will continue many years, and when they grow naked, stubby, or of a decaying nature, raise fresh supplies in due time to succeed them in proper growth.

For shrubberies, borders, &c. in the pleasure-ground, both the species of Lavender are eligible, as before intimated; and may be planted in any common soil, and suffered to grow up in full heads.

LAVATERA—(*Lavatera*) or TREE MALLOW.

Class and Order.

Monadelphia Polyandria,
One Brotherhood, Many Males;

Or Plants with Flowers (*Herm.*) having all the Stamina joined in one Set, or Brotherhood; and numerous Males, or Stamina, in each Flower.

THIS Genus furnishes several shrubby-stalked, malvaceous plants, growing with an upright, single stem, four or five, to eight or ten feet high, terminated by bushy heads; and garnished with large, roundish, three, five, and seven-lobed, soft, downy leaves, and terminating the top in a tuft; and largish, purple flowers, singly and in clusters, composed of five heart-shaped petals; including many stamina, monadelphous, or united below in one set; an orbicular germen, supporting a short style, and succeeded by many seed-capsules collected into a head, having each one kidney-shape seed, and by which the plants are raised; and some also by cuttings of the stems and shoots.

The hardy, shrubby LAVATERAS are,

1. *LAVATERA arborea*, Tree-like *Lavatera*, or Tree Mallow.

A tall, upright plant, with a single, herbaceous-like stalk, growing eight or ten feet high—the stem tree-like single; leaves (*large, soft*) seven-angled, plaited and downy; and peduncles or flower-stalks at the axillas of the leaves and stem, crowded, having each one purple flower.—Native of Italy. (*Dry, or any common light soil.*)

2. *LAVATERA triloba*, Three-lobed leaved shrubby *Lavatera*.

An upright, shrubby-stalked plant, growing four or five feet high—the stem shrubby; leaves (*large*) somewhat hearted,

hearted, almost three-lobed roundish crenated, and heart-shape stipula; and peduncles or flower-stalks aggregated, producing each one large, pale-purple flower.—Native of Spain. (*Dry, warm, or sandy soil.*)

3. *LAVATERA micans*, glittering Tree Mallow.

An upright, shrubby-stalked plant, growing five, to six or seven feet high—the stem tree-like, shrubby; leaves (*large, soft*) seven-angled, acute, crenated, plaited and hoary; and terminal racems of purple flowers.—Native of Spain and Portugal. (*Dry, or sandy soil.*)

4. *LAVATERA olbia*, Olbian shrubby Lavatera.

An upright, shrubby-stalked plant, growing four or five feet high—the stem shrubby; leaves (*large, soft*) five-lobed, halbert-form; and large purple flowers, singly.—Native of France, &c. (*Mostly dry, warm soil.*)

5. *LAVATERA lusitanica*, Lusitanian, or Portugal, shrubby Lavatera.

An upright, shrubby-stalked plant, four or five feet high—the stem shrubby; leaves (*larger, soft*) seven-angled, plaited, and hoary; and terminal racems of purple flowers.—Native of Portugal. (*Dry, warm soil.*)

Of the above five shrubby species of *Lavatera*, the first is the hardiest and the most commonly cultivated in the full ground, the stem tall and single; is somewhat between a shrubby and herbaceous nature; sometimes decays in a year or two in winter, or if planted in a dry, lean, or rubbishy soil, it will sometimes stand several years: may be planted in any dry situation in the shrubbery, or where required; the other four are more tender, should have a warm, dry situation, or sandy soil; and will continue of several years duration, in root and stem; though it is also proper to have a plant or two of each of those four sorts in pots, to remove to shelter of a green-house in winter, as sometimes those in the open ground are killed, or much cut, by the effects of rigorous frosts in severe seasons.

They being all propagated by seed, and the shrubby kinds also by cuttings, should generally be transplanted, young, where they are to remain; or the seed sowed in the places where they are to continue.

To propagate these plants from seed, sow it in March or April, in a bed of light earth, for transplanting in summer or next autumn, or following spring, into the shrubbery, &c. to remain, especially the first species; or may be sowed in patches, in the places where the plants are to stand, and thinned, while young, to one of the strongest in each patch; and thus continuing,

not having any check by removal, they grow more strong, hardy, and durable; or the four tenderer shrubby sorts, being sowed in beds, may both transplant some young into the shrubbery, or borders, and some singly, in pots, to have protection in winter the first year or two, then turned into the full ground in the spring; others continued in the pots for moving under shelter constantly in winter, in frosty weather.

Or to propagate the four shrubby sorts by cuttings of the shoots, stem, or branches, is performed in the spring, March, or April; when, taking off some cuttings, six or eight, to ten or twelve inches long, plant them either in a border of light earth, or in pots of a similar soil, giving moderate watering when the earth dries, they will root the same year; or in a hot-bed, or covered down with hand-glasses, will root sooner, and shoot at top; and when fully rooted, and formed some top growth, they may be transplanted finally, some into the shrubbery, borders, &c. others into pots, singly.

LAURUS, BAY TREE, of the

Class and Order

Enneandria Monogynia,
Nine Males, One Females;

Or Plants with Flowers (Hermaphrodite) having nine Stamina, or Males, and one Pistillum, or Female.

THIS Genus, LAURUS, furnishes four hardy species of moderate tree kinds, comprising one fine aromatic ever-green, and three deciduous; all principally for ornamental plantations, shrubberies, &c. grow fifteen, to twenty or thirty feet high in the different species; adorned with spear-shape, oblong, and three-lobed leaves, all of moderate size; and small hexapetalous yellowish and whitish flowers, without any calyx, or cups; a corolla, composed of six oval petals, containing nine stamina; an oval germen, supporting one style; and the germen grows an oval, unilocular red berry, having one oval hard seed, or nut; and the berries ripen plentifully in autumn and winter, in the Common Bay particularly, for sowing; the others not so abundant; but generally procured from America, by the seedsmen; and by which the different species are propagated, also by layers and cuttings of the young shoots.

The hardy Species of LAURUS are,

1. *LAURUS nobilis*, Noble, or Common Bay Tree.

A moderate ever-green tree, branchy from the bottom, growing twenty to thirty feet high—the leaves (*middling size, dark-green*) ovate-spear-shape, veined, and perennial, or remaining all the year; and quadrifid yellowish

yellowish flowers, that are dioicous or sometimes male and female, on two different trees.—Native of Italy and Greece. (*Dry, light, or any common soil.*)

Varieties.—Broad-leaved Common Bay.
Narrow-leaved Common Bay.
Waved-leaved Common Bay.
Striped-leaved Common Bay.
Double-flowered Common Bay.

2. *LAURUS astivalis*, Summer-leaved, or Deciduous Bay Tree.

A small, deciduous tree, growing ten or twelve to fifteen feet high—the leaves (*middling*) oblong-ovate, acuminate or pointed, veined, and annual or deciduous; and white flowers. Native of Virginia, near rivers. (*Moist or any soil, and warm situation.*)

3. *LAURUS Benzoin*—(Benzoin) or Benjamin Tree.

A small, deciduous tree, growing twelve or fifteen feet high—the leaves (*middling, light-green*) ovate, enervate, or without veins, both ends pointed, deciduous.—Native of Virginia. (*Warm, dry situation.*)

4. *LAURUS Sassafras*—(Sassafras) or Sassafras Tree.

A small, deciduous tree, twelve or fifteen feet high—the leaves (*middling, light-green*) three-lobed and intire.—Native of Virginia, Carolina, and Florida. (*Warm situation, moist or any common soil.*)

Varieties.—Three-lobed and intire-leaved Sassafras Tree.
Undivided, bay-leaved Sassafras Tree.

All these species of *Laurus* are desirable, ornamental trees, to assemble in principal plantations and shrubberies; the first of which, in the different varieties, as fine ever-greens, trained either in taller standards with a single stem, in which they will grow fifteen to twenty feet high, or more; but as the Bays often rise with several stems, branchy to the bottom, in a shrub-like growth, some may also be cultivated accordingly; and the other three, being deciduous, are proper to introduce in the most conspicuous plantations of deciduous trees and shrubs; and all of which, both of the ever-green and deciduous kinds, may be trained, some in the tree way, with a single stem below, and full heads above, and others to grow shrub-like, in a bushy order; and the Common Bay, in its branchy growth, is likewise proper to train for handsome ever-green hedges, either kept regular by an annual clipping in summer, or permitted to run up rough, nearly in a

natural growth, and the long-projecting and rambling shoots cut in with a knife: this tree also admits of training in standards, for introducing in ever-green tree plantations, having the lower and under boughs pruned up by degrees, and it will shoot up fast above, form a beautiful head, and make a fine appearance at all seasons.

Most of these trees are of an aromatic and odoriferous quality; and for which property, the leaves of the Common Bay are often used in culinary occasions; and this, and some of the others, are also esteemed very salutiferous in a medical way; but, particularly, the Sassafras is much recommended for Sassafras tea, being a strong, aromatic, and efficacious purifier; the wood of which, cut into small slips, is the part used, and of which great quantities is imported in this country, for the druggists; and being prepared into chips, aforesaid, is ready for use, as above, in which it is both palatable and wholesome, well sweetened with sugar, and mollified with plenty of milk, or cream.

These four species of *Laurus* are cultivated, for sale, at most of the public nurseries, where they may be procured of proper growth, two, three, or four, to five or six feet high, for planting; though, if only two or three to four feet, will generally be more successful than if transplanted of larger sizes, especially the Common Bay; and which, where convenient to remove them with balls of earth, will be of greater advantage, particularly for large full plants.

The general season for removing and planting these trees, of all the sorts, is either in October or November, or in the spring months.

The propagation, or method of raising the different species, is by seed, layers, and suckers.

The seed, or berries, for sowing, are obtained of the seedsmen, and at many of the principal nurseries: they may be sowed in autumn or spring; though as those of the deciduous kinds are commonly received from America, they seldom arrive before the spring season: sow all the sorts in beds of light earth, either in drills, or broad-cast, and covered in evenly an inch deep; or some might be sowed in pots, in the spring, especially the American kinds, and plunged in a moderate hot-bed to forward them; and in all of which give gentle waterings, kept clean from weeds all summer, protected from frost in winter; and when the plants are of one or two summers growth, should be transplanted in nursery-beds, where, advancing in strength, one or two years, may be transplanted in wider nursery-rows, or some where they are to remain; or when those continued longer in the nursery are from two or three, to four or five feet, are proper for the plantations in which they are intended.

Or the *Laurus æstivalis*, being tenderer, it, and some of the other American sorts, may also be planted, while of young growth, from the feed-bed into pots, singly, to place under shelter from frost the first year or two, or till they obtain strength, then turned out, with balls, into the full-ground, in a warm situation; especially the former mentioned.

Layers of the lower young shoots, in spring or autumn, will root in one year; generally performing it by slit-laying, gassing or sitting the shoots a little on the under side, that part layed in the earth, three inches deep, keeping the slit open, and the top upright above ground, pegged down, and earthed in the above depth; and when rooted, cut them from the stools, and plant them in the nursery, to acquire proper growth for the shrubbery, &c.

Suckers often arise abundantly from the roots of the Common Bay, which may be dugged up with roots to each, in autumn or spring, and planted either where they are to remain, or in a nursery, for one, two, or three years, to obtain larger growth for the intended purposes.

When the young trees, raised by any of the above methods of propagation, are advanced two or three, to four or five feet in growth as before intimated, they are of proper sizes for final transplanting in shrubberies, and other places, where they are to remain.

In the final planting of these trees, in shrubberies and other plantations, generally dispose the Common Bay with ever-greens of similar growth, either to grow up tall in standards, or to advance in bushy heads, branchy almost from the bottom; and the other three species introduce principally with other deciduous kinds, in somewhat sheltered, warm situations, especially the *Laurus æstivalis*, or planted against a south wall, as this is rather tenderer than most of the other species; or may also plant some in pots, to remove under shelter in winter, as being liable to suffer by rigorous frosts, and is therefore also generally kept among the greenhouse exotics, though, when planted in a sheltered place, as above, in the full ground, will stand our ordinary winters tolerably well, and harden by degrees.

When designed to plant the Common Bay, for a garden hedge, it should generally be planted in young growth, of one or two to three feet, set a foot asunder; or if spreading plants, may be planted eighteen inches distance: permit them to run up at top, and the projecting side-shoots cut regular in summer, never cut in winter; or may occasionally plant some hedge-ways, to cover any naked, unsightly walls, palings, &c. and the branches nailed thereto in a spreading manner.

LEDUM, MARSH CISTUS, or Wild Rosemary.

Class and Order.

Decandria Monogynia,
Ten Males, One Female;

Or Plants with Flowers (Herm.) having ten Stamina and one Pistillum.

THIS Genus is composed of low, under-shrubby ever-greens, of small, bushy growth, ornamented with small, linear, and ovate leaves, and small, corymbus bunches of reddish flowers, consisting of five small petals, ten stamina, and one pistillum; succeeded by roundish capsules, furnished with many seeds, by which, sowed in a moist border, the plants are raised; likewise by off-set root-suckers, layers and slips.

The Species are,

1. *LEDUM palustre*, Marsh Cistus Ledon, or Wild Rosemary.

A small, low, under-shrubby ever-green, two feet growth—the leaves (*small, narrow*) linear, hairy on the under-side, and small flowers in a corymbus.—Native of the northern parts of Europe, in marshy ground. (*Moist, or marshy situation.*)

Varieties.—Larger, Upright, Wild Rosemary.
Smaller, Procumbent, Wild Rosemary.

2. *LEDUM latifolium*, Broad-leaved Marsh Cistus.
3. *LEDUM longifolium*, Long-leaved Marsh Cistus.
4. *LEDUM thymifolium*, Thyme-leaved Marsh Cistus.

These are all small, under-shrubs, mostly inhabitants of marshy and boggy situations: they may be planted in somewhat similar soils, or any moist shrubbery clumps, borders, or where convenient, for variety; and are propagated by parting the roots, or detaching, or slipping the off-set suckers, also by layers of the branches; and by seed, sowed in autumn or spring, in a shady, moist situation; and planted out where they are to remain.

LIGUSTRUM, PRIVET.

Class and Order.

Diandria Monogynia,
Two Males, One Female;

Or Plants with Hermaphrodite Flowers, having two Stamina, or Males, and one Pistillum, or Female.

THE LIGUSTRUM consists of most hardy, large, bushy shrubs, deciduous and ever-green, eligible for
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the shrubbery, and valuable for forming very neat and expeditious hedges; are of upright, full growth, branching thick and erectly from the very bottom; closely garnished with smallish, ovate-oblong leaves, opposite; and many erect, oval spikes, of small, whitish flowers in summer; having one-leaved cups, four-parted above, a small, monopetalous, funnel-shape corolla, quadrifid or four-parted; two short stamina and one pistillum, and the spikes of flowers succeeded by clusters of roundish, black berries, containing four seeds, ripe in autumn and winter; proper for sowing to propagate the plants; which are also raised plentifully by suckers, layers, and cuttings.

The Species and Varieties of *LIGUSTRUM* are,

1. *LIGUSTRUM vulgare*, Common, Deciduous Privet.

A large, upright, bushy, deciduous shrub, growing eight or ten feet high—the leaves (*smallish, dark-green*) ovate-oblong, and opposite; and erect, oval spikes of whitish flowers; June or July.—Native of England, and other parts of Europe. (*Any soil and situation.*)

Varieties.—Gold-striped-leaved Deciduous Privet.
Silver-striped-leaved Deciduous Privet.

2. *LIGUSTRUM semper-virens*, Ever-green Italian Privet.

A large, ever-green shrub, growing eight or ten feet high—the leaves (*smallish, dark-green*) ovate-oblong, opposite, and continue all the year; and erect, oval spikes, of whitish flowers; July and August.—Native of Italy. (*Any soil and situation.*)

3. *LIGUSTRUM latifolium*, Broad-leaved Carolina Privet.

A large, ever-green shrub, eight or ten feet high—the leaves (*larger, dark-green*) ovate-oblong, opposite; and erect spikes of whitish flowers; July.—Native of Carolina. (*Any common soil.*)

These shrubs, being of large, erect, bushy growth, are adapted for shrubberies, and other plantation districts in pleasure-grounds, in assemblage with other hardy shrubs and trees; and are remarkably well adapted for forming neat, close garden hedges, proper both for internal divisions and occasionally for outward fences, as they grow very close and expeditiously; and are likewise proper to plant in a spreading growth against naked or unsightly walls, or palings, &c. where required to have them covered, and for which the ever-green sorts are most eligible, on account of their con-

tinuing leaves in constant verdure at all seasons; but for that occasion, and hedges, any of the sorts are eligible.

They are propagated by seeds, layers, suckers, and cuttings.

Sow the seed in autumn or spring, in a bed of common earth, in drills an inch or two deep, or broad-cast, on the surface, and earthed over that depth; they will come up freely in spring, or beginning of summer; and when the plants are of one summer's growth, transplant them into nursery-rows; and in which they may either be permitted to grow up rough or bushy from the bottom, both for hedges and standard shrubs; or, for the latter, some trained with a single stem, pruning up the lateral shoots and branches below, and encouraged to branch out full above in bushy heads; and when two or three, to four or five feet high, are proper for final transplanting in shrubberies, or where they may be required; or for hedges, they being trained in a bushy, spreading growth, feathered quite to the bottom; and of one, two, to three or four feet, are of eligible sizes to plant for that purpose.

Or to propagate them by layers, cuttings and suckers, it may be performed in the autumn or spring: layers of the plant young branches and shoots will be abundantly well rooted in one summer, for planting off in autumn or spring following; likewise cuttings of the year-old shoots planted, will emit roots, and grow freely; and suckers arising from the bottom of old plants, may be taken off with roots, and planted, forming at once proper rooted plants.

All the Privets, being most hardy shrubs, admit of planting any where in open or close situations, or to plant in close places in towns and cities, where many other shrubs would not grow; and admit of removal for planting any time in open weather, from September or October, till March or April; or, on particular occasions, might be transplanted successfully in May or June, as they have abundant roots, very fibrous, so as they may readily be transplanted with balls, which, particularly in late planting as above, in the latter part of spring, or in summer, would be of greater advantage, by having them continued in growth, without stint, or much check by removal.

They are proper to plant in standard, bushy shrubs, for variety in shrubberies, or any general plantations of shrubs and trees; and in which, as they often run into long, rambling shoots, they should be pruned to some regular order, in summer or winter, as may be required.

For Privet hedges, they may be formed, both by planting young plants of one, two, or three feet, planted a foot asunder in the row; or to form at once a full

full hedge, plants of three to four, or five feet, might be successfully planted; or by seed, sowed in a drill where the hedge is intended, and the plants to remain; and in either methods train them regular in their advancing growth, by clipping the sides once or twice every summer, and may either be kept of a moderate height, of three or four feet, by clipping them at top to the height required, or permitted to run five, six, or seven feet high, cutting them in gradually narrowing or tapering, on each side to the top, which, when of the desired height, may also be clipped even.

nate, sinuated.—Native of North America. (*Light or any common soil.*)

Both these are fine ornamental trees, to assist in composing principal decorative plantations in pleasure-grounds, and in forming curious shrubberies, clumps, &c. in assemblage principally with other deciduous trees, and large shrubs of the more curious, desirable kinds; or in any general or particular districts, as may be required, or thought eligible; and for which occasions, young trees, of proper growth, may be procured at most of the nurseries, and planted in the general seasons of autumn or spring.

LIQUIDAMBAR, STORAX, OR SWEET GUM TREE.

Class and Order.

Monocia Polyandria,
One Habitation, Many Males;

Or Flowers, Male and Female, separate, on one or the same Tree, and the Males having many Stamina.

THE LIQUIDAMBAR comprises two species of elegant, deciduous trees, for ornamental plantations, being of straight, handsome growth, rising twenty to thirty feet high; adorned in summer with largish, palmated-angular, and oblong foliage, imparting a sweet, gummy, fragrant substance, and male and female flowers apart on the same tree; the males in conic amentums, and females globose perianthums; have four-leaved and double involucrum, and with a bell-shape cup to each floret, but no petals; numerous stamina in the males, and in the females two pistillums or styles, succeeded by a globular body of many roundish capsules, filled with oblong seeds; not ripening plentifully in this country, but procured in abundance from America by the seedsmen, and by which, sowed in the spring, the trees are raised; and are also propagated by layers.

Two Species, viz.

1. LIQUIDAMBAR, *Styraciflua*—(*Styraciflua*) or *Styrax*-flowering Liquidambar.

A middling, deciduous tree, growing twenty or thirty feet high—the leaves (*moderately-large, lobated*) palmated-angular.—Native of Virginia and Mexico. (*Light or moist soil.*)

2. LIQUIDAMBAR *asplenifolium*, Spleen-wort-leaved Liquidambar.

A moderate, deciduous tree, growing twenty feet high—the leaves (*smaller, cut-divided*) oblong, alter-

The propagation of these trees is by seed and layers, in the spring and autumn: sow the seed in March or April, in a bed of light earth, or in pots of the same soil; and covered in with earth an inch deep, they will come up the same year: give the plants occasional protection in winter from severe frost, and when of one or two years growth in the seed-bed, transplant them in the spring into nursery-rows; where train each with a single stem, run them, with the top-shoot entire, to aspire in height, pruning off lateral growths below, and permitted to branch out above in regular heads; and when about four or five, to six or eight feet, are proper for the plantations in which they are designed.

Layers of the young wood, in the lower, pliant branches and shoots, in the autumn, or early spring months, will root in one year, and should then be planted off in the above-mentioned seasons into the nursery, and ordered as advised for the seedling-trees.

The trees, raised by either of the methods, as above, when of some advanced growth in the nursery, three, four, or five, to six or seven feet, may have their final transplanting, as required, in the plantations where they are designed to remain, for ornamenting the pleasure-ground: may be performed in autumn, in October or November, or any of the spring months, from February to April.

LIRIODENDRON (Lily Tree) commonly called TULIP TREE.

Class and Order.

Polyandria Polygynia,
Many Males, Many Females;

Or Plants with Flowers (*Hermaphrodite*) having many Stamina, or Male generative Organs, and many Pistillums, or Females.

THIS Genus furnishes but one hardy species; a fine, lofty-growing, deciduous tree, of handsome, straight growth,

growth, and beautiful in its foliage and flowers, for adorning any ornamental plantations; is garnished, in summer, with large, lobated leaves, singularly truncated at the ends, and many campanulate, or bell-shape, liliaceous, or lily-form flowers, somewhat resembling the form of a tulip; composed of six petals in two series, containing numerous stamina, and many germina, which grow a conic body of numerous, angular seeds, placed imbricatim, or lying over one another: ripening in autumn, though not abundantly in England, but procured plentifully from America, and by which the trees are generally propagated.

One hardy Species, viz.

LIRIODENDRON *Tulipifera*—(*Tulipifera Arbor*) or TULIP TREE.

A lofty-growing, deciduous tree, advancing with a straight stem, and branchy head, forty or fifty feet high—the leaves (*large, light-green*) lobated, three-parted, with the middle lobe truncated, as if cut off at the end; and bunches of small tulip-shape flowers.—Native of North America. (*Loamy or any common light soil.*)

Variety.—Carolina Tulip Tree, with the leaves produced, more angled.

This curious, deciduous tree, merits attention to plant for ornament and variety, in principal plantations, in pleasure-grounds, parks, &c. associated with other ornamental trees of the deciduous tribe; in which it will display a distinguishable diversity in its growth, and large, lobated, singular, truncated leaves; and, when advanced to some considerable size, produces flowers conspicuously in summer, towards the ends of the branches: the tree is raised in all the nurseries for public supply, and may be obtained for planting at the usual seasons; and is propagated by seed sowed in the spring.

The seed of this tree, for sowing, is commonly procured from America, by the seedsmen, in the spring; when, in March or April, it should be sowed in a bed of light earth, and covered in an inch deep; and when the plants are of one summer's growth in the seed-bed, transplant them in autumn or spring, in nursery-rows; and trained with single, clean stems, of four, five, or six feet, for standard trees, and to run up with full heads.

When they are advanced about four to five, or six feet high, they are of proper growth for any intended plantations.

LONICERA, HONEY-SUCKLE.

Class and Order.

Pentandria Monogynia,
Five Males, One Female;

Or *Flowers (Herm.) having five Stamina, or Male Parts, and one Pistillum, or Female.*

THE LONICERA, or Honey-suckle, consists of many species and varieties of ornamental, flowering-shrubs, volubilate climbers, and of upright, shrubby growth, of great merit for adorning shrubberies, flower-borders, &c. in their numerous, beautiful, fragrant flowers, in summer and autumn; are mostly deciduous, and some ever-green; some growing with long, slender, twining-climbing shoots, ten to fifteen, or twenty feet extent; others more upright growers, advancing three, four, five, to six or eight feet; decorated with oblong-oval, spear and heart-shape, middling and small leaves; in the different species mostly in pairs, opposite, and some singly, others connected at the base, and perforated by the stalks, or branches; and numerous, long, tubulous, five-parted flowers, red, white, yellow, &c. in bunches and in pairs; having small cups divided into five parts; a corolla monopetalous, or of one petal, tubulous below, cut above into five reflexed segments, and furnished with five stamina, a roundish germen, supporting one style; and the germen grows a roundish, umbilicated, bilocular berry, red, blue, black, some joining two or several together, and some distinct or single; containing roundish and compressed seeds, by which, sowed in the spring or autumn, the plants are occasionally raised, or more generally by cuttings of the shoots and layers thereof.

The Species of LONICERA are, consisting of volubilate Climbers, and upright Plants, viz.

VOLUBILATE KINDS—*or with long, slender, twining-climbing stems and shoots; either twining round any adjacent support of trees, stakes, bushes, &c. or trail on the ground; so should generally have support, or trained to walls, &c.*

1. LONICERA *Peryclimenum*—(*Peryclimenum*) or Common Climbing Honey-suckle.

A twining-climbing, deciduous shrub, extending ten to fifteen or twenty feet length—the leaves (*middling*) oblong-ovate, opposite, all standing distinct; and oval, imbricated, terminal heads of flowers, white, red, &c. June, July, and August.—Native of England, Germany, &c. (*Any soil and situation.*)

Varieties.—

Varieties.—(*Lonicera vulgare*) or Common, Wild, White Honey-suckle, or Woodbine of the Woods and Hedges.

Large, White, Common Honey-suckle.
Late White Common Honey-suckle.
Red-flowered Common Honey-suckle.
Oak-leaved Common Honey-suckle.
Striped-leaved Common Honey-suckle.
Variegated, Oak-leaved Common Honey-suckle.

(*Lonicera germanica*) German, or Large Dutch Red Honey-suckle.

Long-blowing, Dutch Honey-suckle.
Late-blowing German Honey-suckle.
Ever-green German Honey-suckle.

2. *LONICERA Caprifolium*—(*Caprifolium*) or Early Italian Honey-suckle.

A twining-climbing, deciduous shrub, extending ten or fifteen feet—the leaves (*middling*) ovate-oblong, the top ones connate, or joining at the base, and perforated by the branch; and flowers verticillate, or in whirls terminal, and sitting close; May and June.—Native of the southern parts of Europe. (*Any common soil.*)

Varieties.—White-flowered Italian Honey-suckle.
Red-flowered Italian Honey-suckle.
Later Red-flowered.
Yellow-flowered Italian Honey-suckle.
Ever-green, late Red Italian Honey-suckle.

3. *LONICERA semper-virens*, Ever-green, Scarlet, Trumpet Honey-suckle.

A twining-climbing, ever-green shrub, extending eight to ten, or fifteen feet—the leaves (*middling*) oblong-ovate, top ones connated at the base, and perforated by the branch; and naked spikes of flowers, in verticils, or whirls terminal; the flowers long, trumpet-shape, scarlet, (most beautiful).—Native of Virginia and Mexico. (*Any common soil, &c.*)

Varieties.—Greater Trumpet Honey-suckle.
Minor, or Less Trumpet Honey-suckle.

4. *LONICERA americana*, American Ever-green Honey-suckle.

(*Balearica*) Balearican, or Minorca Ever-green Honey-suckle.

MORE UPRIGHT KINDS—Of more moderate growth, with flowers, by pairs, on each peduncle.

5. *LONICERA Xylosteum*—*Xylosteum*—or Fly Honey-suckle.

A more upright, deciduous shrub, of six or seven feet growth—the leaves (*middling*, *whitish-green*) ovate-oblong, obtuse, entire and downy; and peduncles or flower-stalks, having each two flowers, succeeded by red berries, in pairs, distinct.—Native of the cold parts of Europe, in hedges. (*Any soil.*)

6. *LONICERA alpigena*, Alpine, Fly Honey-suckle.

A moderate, deciduous shrub, three to four, or five feet—the leaves (*smallish*) ovate, acute, and entire; peduncles having each two flowers; and red berries, in pairs, joined.—Native of the Alps of Switzerland, Pyrenees, &c. (*Any common soil.*)

7. *LONICERA pyrenaica*, Pyrenean Fly Honey-suckle.

A moderate, deciduous shrub, three to four, or five feet—the branches divaricated asunder; leaves (*smallish*) oblong, smooth; peduncles having each two flowers, funnel-shape, regular; and red berries, in pairs, distinct, or not joined.—Native of the Pyrenean mountains. (*Any common soil.*)

8. *LONICERA nigra*, Black-berried Alpine Honey-suckle.

A moderate, deciduous shrub, four or five feet growth—the leaves (*small*) elliptic, ovate, and entire; peduncles, or flower-stalks, having each two flowers; and black berries, in pairs, distinct.—Native of the Alps, Switzerland, and France. (*Any soil and situation.*)

9. *LONICERA caerulea*, Blue-berried Honey-suckle.

A moderate, deciduous shrub, of four or five feet—the leaves (*smallish*, or *middling*) ovate-oblong and entire, by pairs and threes; peduncles, or flower-stalks, having each two flowers; the styles undivided; and blue berries, in pairs, joined-globose.—Native of Switzerland. (*Any soil, &c.*)

10. *LONICERA tatarica*, Tartarian Red-berried Honey-suckle.

A smallish, deciduous shrub, three or four feet growth—the leaves (*middling*) heart-shape, obtuse, smooth; peduncles having each two flowers, pale-blush-coloured; and red berries, paired, distinct.—Native of Tartary. (*Any soil, &c.*)

UPRIGHT GROWERS—*or with stems erect, and peduncles sustaining many flowers.*

11. *LONICERA Symphoricarpos*—(*Symphoricarpos*) or Shrubby St. Peter's Wort.

An upright, deciduous shrub, three or four, to five or six feet high—the leaves (*middle, or smallish*) roundish-ovate, petiolated, or with foot-stalks; and lateral heads of greenish flowers pedunculated, arising at the sides of the branches.—Native of Virginia and Carolina. (*Any common soil.*)

12. *LONICERA Diervilla*—(*Diervilla*) or Dwarf Yellow Honey-suckle.

A small, upright, deciduous shrub, three or four feet high—the leaves (*smallish*) oblong-hearted, sawed, and racemes of yellow flowers terminating the branches.—Native of Acadia and North America. (*Any common soil.*)

The Honey-suckles are principal, ornamental, flowering-shrubs, in the climbing, trailing, and upright species, for adorning shrubberies, pleasure-grounds, flower-gardens, borders, and other compartments, and to plant in pots; as in all of which they make a beautiful appearance in their numerous, fine, odoriferous flowers, several months in summer, from May or June, till September or October, in the different species and varieties; which, in the trailing, or climbing sorts, particularly, are largest, most elegant and fragrant, and the shrubs thereof are desirable ornaments in every garden, either to plant against walls, palings, buildings, &c. to have support thereof, and on which, to train their long-extending, slender stems, branches, and shoots, or to have support of stakes, or stems of trees and arbours, whereby to train them in their volubilate growth; and in which different methods they are peculiarly adapted, as they all require support, otherwise the stems and shoots would trail on the ground: all the other species have also great merit, as flowering-shrubs, to plant in shrubberies, borders, &c. and will effect a conspicuous diversity in their different modes of flowering, and colours of the flowers, &c. as likewise, in the different sorts, the berries succeeding the flowers make an agreeable variety in autumn.

All the sorts, both climbers and upright kinds, are hardy shrubs, that will grow and prosper in any common soil of a garden, &c. and in most situations; but generally flower strongest, in the greatest perfection and beauty, in open exposures.

They are obtained of proper growth for planting, at most of the nursery-gardens, in collection, or of any particular species or varieties as required; and may

be planted in autumn or spring, or any time in mild weather, from October, to March or April; and are all readily propagated plentifully by cuttings and layers of the young wood, which will be well rooted in one summer, for transplanting in autumn or spring following, and may be trained either with a single stem a foot or two high, or more, then permitted to advance in branchy heads; or the climbing kinds designed for training to walls, &c. may train them with only a short stem below, and to push out above in several branches; and the more firm or upright growers may be trained with a single stem, from one to two or three feet, and full heads above, to plant for standards; or likewise, for the same purpose, the climbing sorts, may occasionally be run with a single stem, supported each with a stake, and permitted to branch full at top, to form bushy heads, pruning the long shoots accordingly.

These shrubs, for planting, are most proper, while they are of moderately-young growth, advanced, in the main stem and principal head, one to two, or three feet, exclusive of the long-extending shoots.

The climbing, or trailing kinds, should generally be planted either to have the support of walls and palings, or to train against the wall of an house, or other building, or to ascend over arbours; and in all or any of which to have the principal shoots trained in regular order; cutting out the weak stragglers, and prune the upper weak parts of the others, and nail them to the wall, either upright, or more or less horizontally, as the allotted space admits, five or six inches asunder; or others planted to twine round stakes, poles, or the stems of trees; and some to run over shrubs, bushes, hedges, &c. in their natural order of growth; and likewise some may be planted detached in shrubberies, and formed into low, bushy, standard shrubs, assisted by the support of a stake to each, as formerly intimated, and trained with a single stem, by cutting away the lateral shoots, and forming a full head above: prune the very long, rambling shoots, to preserve the head within some moderate compass and regularity.

But the more firm, or upright growers, may be planted for detached standards, in shrubberies, borders, &c. trained principally with a single, upright stem, one, two, or three feet; or any as seem to need support, have a stake placed to each, the stem tied thereto; and, in all of which, pruning away the other lateral shoots, and suffered to branch out above to form the head; and of which prune straggling and rambling twigs, to keep the head in some regular order.

Or any of these sorts of Honey-suckles may also be trained against walls, &c. as advised for the common climbing kinds; especially such as produce long, running shoots, or of a trailing nature; or any others, as may

may be required for variety or ornament to particular compartments.

The propagation, or ways of raising Honey-suckles, is principally by cuttings and layers of the young shoots, in spring or autumn; some also by suckers from the root, especially the *Lonicera Dierwilla*, or most of the sorts by seed.

By cuttings and layers, is performed in autumn or spring, chusing, for cuttings, some strong shoots of last summer; cut them into lengths of six or eight, to ten or twelve inches; plant them by dibble, in a shady border, or where convenient, in rows a foot asunder, by six inches in the row, inserted half way into the ground, they will be well rooted by the following autumn; and for layers, the young shoots, as above, are also proper, which shorten to moderate lengths; or prune down the weak tops, lay the stems in the earth, three or four inches deep, the top part several inches above ground, they will be well rooted by the end of summer. for planting off in autumn or spring, into the nursery, or where they are to remain; and, in either method of propagation, train the young plant with a single stem below, shorter or longer, six or eight, to twelve, fifteen, or eighteen inches, or two feet, or more, as required, for particular occasions, agreeable to the foregoing intimations; and permitted to shoot out above into branches for the head, which may have the long stragglers pruned more or less, as may seem necessary, according to their nature of growth, or order of training intended, as before explained.

Suckers arising from the roots of any particular sorts, as the *Dierwilla*, &c. before hinted, may be slipped off with roots, in autumn or spring, and planted in a nursery; or strong ones, where they are to continue as may be thought convenient.

Or also by seed of the berries, sowed in the autumn or spring season, in a bed of common earth, many young plants will come up, which, in autumn or spring following, may be pricked into nursery-beds, in rows a foot asunder, and managed as advised for the cuttings and layer-raised plants.

The plants, raised by either of the above methods, when advanced one, two, or three feet in the principal stem and head, are of proper sizes for planting in the different, or any particular compartment intended.

Those of the principal climbing kinds, designed to plant against walls, one, two, or more plants, as thought expedient, should have them run with several shoots or branches from near the bottom, and trained in mostly at their full length, in summer; or only prune very disorderly stragglers; and in winter, reserving the strongest, cut out the weak, and prune the weakly upper parts of the remaining, and then nailed up re-

gular; and thus forming a proper spread of branches, by degrees, to furnish the allotted space, they will produce plenty of young wood, annually, in summer, for flowering, which manage as above; and when any principal branches fail, have young shoots trained in below to supply the place thereof.

Or where any are planted to twine round stakes, trees, or to run over arbours, bushes, &c. their shoots at first, being conducted to their respective supports, will mostly attach themselves thereto; giving occasional assistance of tying, and extending where necessary; and to prune disorderly, rambling shoots.

And those planted detached in standard shrubs, trained with single stems, more or less, and full heads, will require to have the long, straggling shoots, pruned in, to continue the head somewhat regular, as before observed.

LOTUS, BIRD'S-FOOT TREFOIL.

Class and Order.

Diadelphia Decandria,
Two Brotherhoods, Ten Males;

Or Plants with Flowers (Herm.) having two Sets of Stamina, or Males, and ten Stamina in each Flower.

THE LOTUS furnishes two hardy species of low, under-shrubby flowering-plants, proper to admit in shrubberies; are of upright growth, garnished with trifoliolate, or three-lobed leaves, or composed each of three distinct lobes; and heads of papilionaceous, or butterfly-shape flowers, of four irregular petals; consisting of a roundish, reflexed vexillum, or standard, two broad, roundish wings, a short carina or keel below; with ten stamina in two sets, or nine joined, one separate, and oblong, taper germen, supporting a single style, succeeded by small, cylindric, and ovate, bivalve pods, having many internal partitions, containing each one seed, by which the plants are propagated; likewise by slips, cuttings, and off-sets.

The Species are,

1. LOTUS *hirsutus*, Hirsuted, or Hairy Bird's-Foot Trefoil.

A small, deciduous under-shrub, of low, upright growth—the stem erect, hairy; leaves (*small*) trifoliolate; with hirsuted or shaggy heads of flowers; and short, ovate, or egg-form seed-pods.—Native of France, Italy, and the East. (*Dry, warm situation.*)

2. LOTUS *rectus*, Straight-podded Bird's-Foot Trefoil.

A small, deciduous under-shrub, of low, upright growth—the stem erect; leaves (*small*) trifoliolate; sub-

sub-globose heads of flowers, and straight, smooth seed-pods—Native of France, Sicily, and Calabria. (*Dry, warm situation.*)

These two species are a sort of under-shrubby, herbaceous-like, perennial plants, eligible to introduce in small shrubby compartments, borders, &c. for ornamental flowering and variety: they are propagated by seed, sowed in the spring, in a warm border, and the plants pricked in nursery-beds for a year or two, to gain strength, then transplanted where they are to remain; also by slips or cuttings of the shoots in spring or summer, planted in a shady border; and by off-sets of the roots, parted in the spring or autumn.

LYCIUM, BOX-THORN.

Class and Order.

Pentandria Monogynia,
Five Males, One Female;

Or Flowers (*Hermaphrodite*) having five Stamina, or Males, and one Pistillum, or Female.

THIS Genus, LYCIUM, furnishes several shrubby ever-greens, of upright and trailing growth, admitted in shrubberies for variety, some of which being rather tender, require a warm, sheltered situation, others are of a more hardy nature; mostly armed with thorns, and garnished with small and middling spear-shape and ovate, oblong leaves; and funnel-shape, purple and white flowers; having five-parted, permanent cups; a monopetalous corolla, funnel-shape, tubular below, divided above in five parts; five stamina, and a roundish germen, supporting a single style; and the germen grows a roundish, bilocular berry, containing many kidney-shape seeds; by which the shrubs are sometimes propagated, or more generally by layers and cuttings of the young wood.

The Species and Varieties are,

1. LYCIUM *barbarum*, Barbary Box-Thorn, or Rose-mary-leaved *Lycium*.

A middling shrub, with whitish branches, and of five or six feet growth, armed with thorns—the leaves (*small, whitish*) spear-shape, narrow, and of thickish substance; and the calyx of the flowers bifid or two-parted.—Native of Asia, Africa, and southern parts of Europe. (*Warm, sheltered situation, and dry soil.*)

Varieties.—Upright, Barbary Box-Thorn.
Trailing Barbary Box-Thorn.

2. LYCIUM *sinense*, Chinese, Trailing Box-Thorn; (supposed a variety of the *Lycium barbarum*.)

A trailing, climbing, shrubby plant, extending ten or twelve feet, or more, armed with thorns—the leaves (*middling*) ovate (spear-shape. Native of Asia, &c. (*Any common soil and warm situation.*))

Varieties.—Broad-leaved Chinese Box-Thorn.
Narrow-leaved Chinese Box-Thorn.

These shrubs are proper to assemble in curious shrubberies; but being mostly somewhat tender, more particularly the *Lycium barbarum*, should have a warm, dry situation, or some also kept in pots to remove under shelter of a frame, or green-house, in winter: the Chinese sort is more hardy, to succeed in any common exposures, or may be planted against a warm wall, &c. both for the advantage of training their trailing branches thereto, and to afford them shelter more beneficially from frost; or if planted detached in the shrubbery, should have support of stakes.

They may be procured at most of the principal nurseries, for planting, which should be performed either in autumn, about October or November, or in the spring.

The propagation of all the sorts is principally by cuttings and layers of the young shoots; plant the cuttings principally in the spring, and may perform the laying also in that season, or in the autumn; they will be rooted in one year; or cuttings of small shoots might be planted in pots, and plunged in a hot-bed in the spring months, to forward them in rooting sooner; and, in either method of propagation, forward the plants in a sheltered part of the nursery; or some protected in winter, from frost, till they obtain strength; then may be transplanted into shrubberies, or where they are to remain.

They are also raised from seed, occasionally, where attainable; sowing it in the spring, in a warm situation, or in pots, and placed in a moderate hot-bed, in which the plants will come up sooner, and be forwarded in growth, giving them plenty of air, and occasional waterings, and have the full air all summer; and, in either method, the young plants should be pricked in small pots, singly, to place under shelter a year or two, or till they acquire some tolerable strength, and gradually hardened, then transplanted into the full ground; or some continued in pots, of proper sizes, according to the advanced growth of the plants.

MAGNOLIA—(MAGNOLIA) or LAUREL-LEAVED
TULIP TREE, of the

Class and Order

Polyandria Polygynia,
Many Males, Many Females;

Or Plants with Hermaphrodite Flowers, having many Stamina, or Male Fructifications, and many Pistillums, or Females.

THE MAGNOLIA comprises superbly-beautiful ever-green trees, and deciduous kinds, all flowering very ornamentally, growing fifteen to twenty or thirty feet high, or more, in the different species, decorated with most elegantly large, and middling, oblong-spear-shape, and ovate-simple leaves; and large, ornamental, ennepetalous, or nine-petalled, white flowers, imparting an agreeable fragrance; having three-leaved cups, a corolla of nine large, oblong, concave petals, numerous stamina, and many germens and styles; succeeded by large, conic heads, of roundish-clustered capsules, furnished with roundish, baccated, or berried seeds, which, being discharged from the capsules, are suspended by slender threads; seldom ripening in perfection in England, but are obtained plentifully from North America, the place of their native growth, by the seedsmen; and by which the trees are propagated; also by layers and cuttings of the young shoots; all principally in the spring.

The Species of MAGNOLIA are,

1. MAGNOLIA grandiflora, Grand-flowered Ever-green Magnolia, or Laurel-leaved Tulip Tree.

A superb, ever-green tree, with an upright stem, and large, branchy head, growing twenty to thirty, or forty feet high, or more—the leaves (*most large, light-green, shining*) oblong, spear-shape, perennial, or ever-green; and large, white flowers, terminating the ends of the branches: June and July.—Native of Florida, Carolina, and other parts of America, (*Loamy, or any tolerable soil, and warm, dry situation.*)

Varieties.—Broad-leaved Ever-green Magnolia.
Narrow-leaved Ever-green Magnolia.
Ferruginous, Ever-green Magnolia;
with leaves irony, coloured underneath.

2. MAGNOLIA acuminata, Acuminated-leaved, Deciduous Magnolia.

A middling, deciduous tree, growing twenty feet high, or more—the leaves (*moderately large, light-*

green) ovate-oblong, acuminated, or sharp-pointed, and deciduous; and large, blueish, or white flowers.—Native of Pennsylvania, in North America. (*Light, loamy, or any tolerable soil, and sheltered situation.*)

3. MAGNOLIA tripetala, Tri-dependent petalled Magnolia, or Umbrella Tree.

A middling, deciduous tree, growing twenty feet high, or more—the leaves (*most large, light-green*) spear-shape, disposed in rays, expanding like an umbrella; and large white flowers, having the three exterior petals dependent.—Native of Carolina, and some parts of Virginia. (*Any tolerable soil and sheltered situation.*)

4. MAGNOLIA glauca, Glauous-leaved, smaller Deciduous Magnolia.

A small, deciduous tree, growing ten or twelve feet high—the leaves (*middling*) ovate-oblong, glauous, or sea-green, whitish on the under side.—Native of Virginia and Pennsylvania. (*Any common soil and warm situation.*)

Variety.—Double-flowered, Glauous Magnolia.

All these species of *Magnolia* are most desirable, ornamental trees, for adorning the pleasure-ground; and have particular merit to assemble in curious collections of trees and shrubs, in principal shrubberies, in the most conspicuous situations; the *Magnolia grandiflora*, in particular, being a magnificent, ever-green tree of singular grandeur, and one of the most beautiful of the ever-green tribe; claims universal attention, to plant for ornament, appearing delightful in its very large, shining foliage, in constant verdure the year round: the other three species being deciduous, are in foliage only in summer; but effect a conspicuous variety in that season; and in all the sorts, when advanced of some considerable growth, they produce their beautiful, large flowers, at the ends of the branches; so that, in the whole, these trees are of great estimation for ornamental planting, in the most conspicuous shrubby clumps, &c. or the Ever-green Magnolia, to plant singly on plats, lawns, and principal borders; generally disposing all the sorts in some warm, defended compartments; and the ever-green kind, in particular, should be defended from frost with mats.

They are all raised from seed, layers, and cuttings, as hereafter explained; and when the plants are two or three feet high, are of proper size for transplanting into shrubberies, or other parts of the pleasure-ground, &c.

But the Ever-green Magnolias, particularly, being rather tender, and liable to suffer by the effects of severe frost, should generally, in their minor growth, be kept in pots, one plant in each, ready for moving under shelter of a frame, or green-house, in winter, to protect them in rigorous weather, in that season, till they have acquired some tolerable degree of strength; then transplanted, with the balls of earth to the roots, into the full ground, in a warm part of the pleasure-ground, or shrubbery; and in which, to have also occasional shelter in severe winters, by an awning of mats, supported upon a framing of poles and rods, arched over each plant; or some planted against or near a south wall, &c. for the greater advantage of protection.

Or likewise, in the deciduous kinds, although of a hardier nature, it is proper to have some in pots, as above, while young, for placing under shelter from severe frost, the first two or three winters, till increased in some tolerable size and strength, then turned out into the full ground; or others may be cultivated wholly in the open air, in a warm situation.

The different species of *Magnolias* are cultivated for sale at all the principal nurseries, where they may be obtained of proper sizes for planting, about two, to three or four feet high; either occasionally, some growing in pots, convenient to transplant with balls, or such as admit of removing therewith from the full ground, or with as full roots as possible.

The season for planting them is either in autumn, about the middle or latter end of September, or any time in October and early part of November, for the Ever-green Magnolia; the others in October or November aforesaid; or all the sorts in the spring months, when mild weather, in February, March, or April; and where convenient to remove, or transplant any with a ball of earth, either from pots, or the full ground, especially the *Magnolia grandiflora*, or any of the others, it will be of greater advantage in their present growth; though they will also succeed without balls, where not convenient to remove them therewith, if taken up with a full spread of roots.

In planting them in shrubberies, and other parts of the pleasure-ground, generally allot them a sheltered situation in some principal compartments; and if in a shrubbery, in assemblage with other ornamental trees and shrubs, place them somewhat forward, where they may be conspicuous to sight; or the ever-green kind, in order to have it appear more distinguishable in its singular beauty, is sometimes stationed singly upon grass-plats, &c. in some defended, warm part, either forming a small clump of ground therein, for each plant, or the grass continued close up round the stem, to effect a more rural appearance: and, in any of the methods or orders of planting the different sorts, they should be trained with a single stem below, pruning

away the lateral shoots, &c. by degrees, and permitted to branch out above in full heads; and in winter, it is advisable, in the Ever-green Magnolia particularly, as before observed, to give protection from severe frost, by erecting some thin, pliant poles, rods, or hoops, arch-ways over each plant, at the appearance of severe weather, and when the frost is rigorous, cover with large Russia garden mats.

The propagation, or methods of raising the different sorts of *Magnolias*, is by seed, and layers and cuttings of the young shoots; each according to the following intimations.

The seed is commonly obtained in principal supplies from America, by the seedsmen, in the spring; and in which season, in March or April, they are generally sowed, either in a bed of light, good earth, in a warm situation, or in middling pots, filled with similar soil, and covered in with fine mold half an inch to an inch deep; and those sowed in pots may either be plunged in a moderate hot-bed, to forward them a little, or placed in a frame defended occasionally with glasses, or set under some warm fence; but generally removed to a shady situation in the heat of summer, and watered, and placed under shelter of a frame, &c. in winter; and in the spring, when the plants are a year old, should be transplanted, some singly, in small or moderate pots, others in a nursery-bed, in a warm compartment; and if those in pots are plunged in a gentle hot-bed, or bark-bed, for three or four weeks, or more, having plenty of air admitted, and watered occasionally, it will promote their fresh rooting sooner, and run them off more effectually in a free growth; though, they will also succeed without that assistance; and in either method, give water in summer, and protection from frost in winter; training each with a single stem below, and branches above; and when increased in strength, the whole may be planted in the full ground; or having attained two or three feet growth, are of eligible size for the shrubbery, &c.

Or by layers and cuttings, the young shoots are the proper parts; choosing, for layers, the pliant, lower branches, in autumn or spring, bowing them down, and lay the young shoots into earth, in the usual method; and for cuttings, take off some young shoots, six or eight, to ten or twelve inches long, and planted in a bed or border; they will root the same year, both layers and cuttings; or cuttings planted in pots, in March or April, and plunged in a bark-bed, will promote their rooting sooner; and the plants raised by these different methods, may be managed as advised for the seedling-raised plants, till of proper growth for final transplanting.

Continue the whole in a sheltered situation during their young growth, in the nursery, &c. to have some protection from severe frost; or such as are contained

in pots, may be moved under shelter of a frame, or awning in winter, and, when the weather is severe, defended with glasses, mats, &c.

MENISPERMUM, MOON-SEED, of the

Class and Order

Dioecia Dodecandria,
Two Habitations, Twelve Males;

Or Male and Female Flowers, separate, on two distinct Plants; and the Males having twelve Stamina.

THE MENISPERMUM furnishes two hardy, shrubby, deciduous climbers, of volubilate, or twining growth, proper to introduce in shrubberies, &c. for variety; grow with long, slender, twining stems, ascending upon trees, poles, &c. many feet high; garnished with large, shield-shape, hearted, and lobated leaves, and loose bunches of greenish flowers, male and female, on two separate plants, composed each of twelve oval petals; containing, in the males, twelve stamina, and in the females, two germens and styles; succeeded by roundish, kidney-form berries, furnished with kidney-shape seeds, by which the plants may be raised, but are more generally propagated by layers, or slips of the off-set shoots, or bottom-suckers, and by parting the roots.

The Species are,

1. MENISPERMUM *canadense*, Canada round-leaved Moon-Seed.

A volubilate-climbing, shrubby plant, with long, slender stalks, ascending twelve or fifteen feet high—the leaves (*large*) peltate, or shield-shape, hearted, roundish-angular; and nodding racems of flowers.—Native of Virginia and Canada. (*Light or any common soil.*)

2. MENISPERMUM *virginicum*, Virginia lobated-leaved Moon-Seed.

A volubilate-climbing, shrubby plant, ascending ten or twelve feet high—the leaves (*large*) peltate, or shield-shape, hearted, lobated; and loose racems of flowers.—Native of Virginia and Carolina, near the sea. (*Light or any common soil.*)

These two shrubby climbers may be admitted for variety in shrubberies, and other plantations in pleasure-grounds, to twine round the stems of large trees, or tall poles; and planted to run over arbours, rural seats, or where they may be required, to advance in a climbing growth, they will twine round any support;

or may be trained against walls, or other fences; and for which occasions, plants of both the species may be had at the nurseries, for planting in autumn or spring; and may be propagated by layers of the shoots, and off-set bottom-suckers, and by slips of or parting the roots; all performed in the spring or autumn; also by seed sowed in a bed of light earth; and when the plants, raised by any of these methods, have attained one, two, or three years growth, they may be transplanted in the places where intended.

Generally, in planting these climbers, either allot them a place where they may have support of trees, arbours, &c. to ascend upon, or to have tall stakes or poles placed whereon, to climb in their volubilate manner; in which they may be permitted to run nearly in their natural order, except pruning casual, straggling, or very disorderly shoots, and to cut out decayed parts; or if any are planted against walls, or other fences, the stems may be nailed thereto, as practised for honey-suckles, &c. and to prune out the superabundant shoots, produced annually.

MESPILUS, (MEDLAR) or MEDLAR TREE.

Class and Order.

Icosandria, Pentandria,
Twenty, or more Males, Five Females;

Or Plants with Flowers (*Hermaphrodite*) having twenty or more Stamina, or Male Parts, and five Pistils, or Females.

THE MESPILUS, or Medlar, comprise fruit-trees, several species of deciduous, flowering-shrubs, and one curious, shrubby ever-green; the fruit-tree kinds valuable to cultivate for their fruit, of singular property; and likewise, together with the other different species, are in estimation to introduce in shrubberies, and other decorative plantations, for ornament and variety: are of different degrees of growth, fifteen or twenty feet in the tree kinds, the shrubs three or four, to five, six, or eight feet or more; garnished with middling, large and small, spear-shape, oblong and oval leaves; and pentapetalous, roseaceous, large and small flowers, singly, and in clusters, at the sides and ends of the branches; having monophyllous, or one-leaved cups, divided into five parts; five roundish petals; twenty or more stamina, round germen with five styles; and the germen grows a globular, hard, umbilicated, baccated, or berried fruit, large, middling, and small in the different species; and which, in some, acquires the size of middling, or small apples and pears, as in the Common Medlar, (the principal eatable sort) others much smaller, and some like small berries; but eatable principally only in the Common Medlar, aforesaid; and in all of which, contain five hard, gibbous seeds, by which the trees, &c. may be raised, also by layers, grafting, and inoculation.

The Species of *MESPILUS*, consisting of one Fruit-tree kind, and several shrubs, are

(Fruit-tree kinds, with large, eatable fruit)

1. *MESPILUS germanica*, German, or Dutch Medlar
—(Eatable fruited.)

A moderate, deciduous tree, growing fifteen or twenty feet, branching irregularly—the leaves (*middling-large*) ovate-spear-shape, hoary on the under-side, and large flowers singly, and sitting close; succeeded by largish, rough, brown, eatable fruit, ripe in autumn and winter.—Native of Germany and the southern parts of Europe. (Any common soil and situation.)

Varieties.—Common Apple-shaped, Greater Dutch Medlar.
Smaller Apple-shaped, or Nottingham Medlar.
Pear-shape Italian Medlar.

These being the common, eatable Medlars, the two former varieties are the principal sorts: they acquire full growth in October, having a large, umbilicated opening, or cavity, at top; are very hard and austere, when first gathered, requiring to lie some time in the fruitery, &c. to mellow; and when become soft and tender, are then eatable, and prove an agreeable dessert, winter fruit.

(Shrub kinds, for variety and ornament, producing small, berry-like, red, and purple fruit.)

2. *MESPILUS arbutifolia*, Arbutus-leaved Medlar.

A middling, deciduous shrub, growing six or eight feet high—the leaves (*middling*) ovate-spear-shape, crenated, or notched, hoary underneath.—Native of Virginia. (Any common soil and situation.)

3. *MESPILUS Amelanchier*—(Amelanchier) or Alpine Medlar.

A middling, deciduous shrub, growing five or six, to eight feet high—the stem hairy; leaves (*smallish*) oval, and fawed, villose-hoary underneath, and blackish fruit.—Native of Switzerland, Austria, France, &c. (Any soil, &c.)

4. *MESPILUS canadense*, Canada Snowy Mespilus.

A largish, deciduous shrub, growing seven or eight, to ten feet high—the leaves (*smallish*) ovate-oblong,

smooth, fawed on the edges.—Native of Canada and Virginia. (Any common soil, &c.)

5. *MESPILUS Chama-Mespilus*—(Chama-Mespilus) Dwarf Alpine Medlar, or Dwarf Quince.

A moderate, deciduous shrub, growing three to four, or five feet high—the leaves (*small*) oval, and fawed, stipula deciduous; and flowers growing in corymbus heads.—Native of the Alps of Austria, &c. (Any common soil, &c.)

6. *MESPILUS Cotoneaster*—(Cotoneaster) or Bastard Quince.

A moderate, deciduous shrub, three to four, or five feet high—the leaves (*small*) ovate-roundish, entire.—Native of the cold parts of Europe, on hills, the Pyrenees, and Mount Ararat. (Any common soil, &c.)

7. *MESPILUS Pyracantha*—(Pyracantha) or Ever-green Thorn, commonly called Pyracantha.

A largish, ever-green shrub, of flexuose growth, with long, flexible branches, rising, by support, ten or twelve feet high, armed with thorns—the leaves (*small*) spear-shape, ovate, crenated or notched; and numerous clusters of small, white flowers in summer, succeeded by bunches of red berries, very ornamental in autumn and winter.—Native of France and Italy, in hedges. (Any soil and situation.)

All these species of *Mespilus* are eligible for garden plantations, some for use, and the greater part for ornament and variety; the Common Medlar both as a fruit-tree, and also, together with all the other species, is proper to assist in composing shrubberies, and other plantation districts in pleasure-grounds; wherein they will increase the variety very distinguishably, and effect an agreeable diversity in their different growths, foliage, flowers, &c. the *Pyracantha* has likewise particular merit for training conspicuously against walls, the fronts of buildings, &c. appearing always green, and its numerous bunches of red berries, continuing in autumn and winter, are singularly curious and ornamental in these seasons; or this, and all the sorts planted in shrubberies, &c. flower abundantly in summer; and the flowers succeeded by plenteous fruits, in autumn; some large, of the apple and pear form, others smaller, as before observed, and some like hawberries; but those of the first species only, the *Mespilus germanica*, are considered of the eatable kind, acquiring full growth in October, but not proper for eating till after being gathered, and laid in some dry apartment, to soften; or may be forwarded, a few at a time, in moist bran, till soft and mellow.

The season for planting all the sorts, is any time in open weather, from October or November; to March or April.

They are all very hardy, and may be planted in any common soil and situation, and do not require any particular exposure.

With regard to their respective uses in gardening, the Common Medlar, as a fruit-tree, demands culture in gardens and orchards, a few trees trained principally in full and half standards, or some in espaliers; all the other species have merit principally to join or assemble in any general shrubbery, and ornamental plantations, in pleasure-grounds, parks, and other premises; disposed in a diversified order, with other hardy shrubs and ornamental trees; and in which may also introduce the different varieties of the Common Medlar; all generally trained with a single stem below, and to branch out above in full heads; and which, permitted to advance in their natural order, or only to give occasional pruning, to reduce any disorderly shoots and branches, that may casually occur in the advancing growth of the different species.

In respect to the propagation, or methods of raising the different sorts, it is effected by seed and layers; also by grafting and inoculation, in any particular species, or to continue the varieties of the Common Medlar in their respective properties, and likewise to have the trees sooner attain a fruitful state.

The seed for sowing is obtained from the ripe fruit and berries, and which may be sowed in autumn, about October or November, or in the spring, all in a bed or beds of light earth, each sort separate, either in drills, or broad-cast, and earthed in an inch, or an inch and half deep; they will come up some the first spring, others probably not till the second: keep the beds clear from weeds all summer, both before and after the plants are come up; and when they are of one year's growth in the seed-beds, transplant them in the autumn or spring into nursery-beds, in rows a foot asunder, and having increased in growth, should be transplanted in wider nursery-lines; and in which generally train each with a single stem, pruning off lateral shoots below, and let them advance in full growth above; and when, according to their different sizes, they are three or four, to five or six feet high, are proper for final transplanting in the intended plantations.

By layers of the young wood, they are also occasionally propagated; chusing the young shoots, either those rising naturally near the bottom, or branches furnished therewith, bowed down to the ground; and, previous to laying, may slit or gash the shoots with a knife, a little on the under side, in an upward cut, to promote their emitting roots sooner; lay them with the cut-part into earth three inches deep, keeping the tops

uprightish above ground: they will mostly be rooted in one year, then should be cut from the stools, and planted in a nursery, &c.

And by grafting or budding, any of the species may likewise be propagated; and by either of which it is eligible to raise the Common Medlar, when designed to have them principally as fruit-trees for their production of fruit for eating; performing the grafting in the spring, by inserting grafts of the intended kinds into seedling Medlar stocks, and the budding or inoculation, in summer, in July, or beginning of August, by inoculating buds into the sides of the same kind of stocks; one graft or bud inserted in each, at three, four, to five, or six feet height, for half and full standards, or low in the stock for trees intended for lower growth; the grafts will shoot the same year, and the buds not till the spring following; and when they have shot, and formed heads of one, two, or several years growth, they are proper for transplanting where they are designed to remain.

The Common Medlars, when designed for fruit-trees, being generally raised by grafting or budding the approved kinds into seedling-stocks of any of the varieties, principally trained for half and full standards, with stems, three, or four, to five or six feet; they, when advanced with heads, two or three, to several years growth, with some tolerable spread of branches, are proper for planting in gardens and orchards, twenty or thirty feet distance, their heads permitted to branch out full in their natural growth.

Or some grafted or budded low in the stock, within six or eight inches of the ground, to plant in espaliers, at fifteen feet asunder, and the branches arranged to the trellis horizontally, five or six inches distance, and extended mostly at their full length, as far as their allotted space admits, as directed for apples and pears, trained in espaliers; as, like these sorts, they bear principally upon small spurs, along the sides, and at the ends of branches, and the same branches continuing many years fruitful, do not admit of shortening; and in this mode of planting, will require an annual pruning and training, according to the directions given for espalier apples and pears aforesaid; for which, see the Genus *Pyrus*.

The Medlar fruit, acquiring full growth in October, should be gathered in dry weather, and deposited in the fruitery, &c. upon shelves, till they become soft and mellow; or to promote which, more effectually and sooner, some may be laid in moist bran every week; they will thus acquire maturity, in successive order, in their peculiar manner, soft, tender, and buttery, in which they will be in perfection, for eating, all winter, delicious, and agreeably flavoured.

MORUS, (MULBERRY) or MULBERRY TREE.

Class and Order.

Monoecia	Tetrandria,
One Habitation,	Four Males;

Or Flowers, Male and Female, separate on one or the same Tree, and the Male Flowers having four Stamina.

THE Family of MORUS furnishes four species of hardy, deciduous trees, of the bacciferous, or berry-bearing kind; one generally cultivated as a desirable fruit-tree, the others principally for variety and ornament, as some also occasionally for their fruit; are of middling, or large growth, mostly with full branching, regular-spreading heads; adorned, in summer, with largish, cordate, or hearted, and palmated, rough, and smooth leaves; and small, greenish, male and female flowers, apart, and distinct on the same tree; the males collected into long, loose amentums, and females in round heads, with small, four-parted, succulent calyxes, no petals; four short stamina in the males; in the females two styles; and each head of female calyxes grows a largish, oval, succulent, tubercled, eatable berry, ripe in autumn, continuing small seeds in each tubercle; by which the trees are sometimes raised, or principally by layers and cuttings of the young shoots.

The hardy Species of MORUS are,

1. MORUS nigra, Black-fruited, or Common Mulberry Tree.

A middling, or largish, deciduous tree, with a widely-branching head, growing twenty to thirty feet high—the leaves (*moderately large, dark-green*) cordate or hearted, roundish, and rough; and large, oval, black berries, ripe for eating in August and September; being the principal sort ripening in perfection and abundance in this country.—Native of Italy, near the sea. (*Light, loamy, rich, or any tolerably good soil.*)

Variety.—Jagged-leaved Black Mulberry Tree.

2. MORUS alba, White Mulberry.

A middling, deciduous tree, growing twenty or thirty feet high—the leaves (*larger, light-green*) oblique heart-shape, polished or smooth; and white berries; not ripening in great perfection and abundance in this country.—Native of China. (*Any light, tolerably good soil.*)

3. MORUS rubra, Red Mulberry.

A middling, deciduous tree, twenty feet high, or more—the leaves (*large, dark-green*) cordate, or hearted, villose-hairy on the under side; long, cylindrical amentums of flowers, and red berries.—Native of Virginia. (*Any lightish, good soil.*)

4. MORUS papyrifera, Papyriferos, or Paper-barked Mulberry Tree of Japan.

A moderate, deciduous tree, growing twenty-feet high—the leaves (*large, light-green*) palmated or hand-form; and hispid-fruit.—Native of Japan, where is made paper of its bark. (*Any lightish, common soil.*)

Of the above four species of *Morus*, the Black, or Common Mulberry, is the principal sort to cultivate as a fruit-tree, for its production of fruit, which is produced the most abundant, largest, and ripens in the greatest perfection, very juicy, and refreshing to eat, as desert fruit, and to use occasionally for pies and tarts; or some of the white and red kinds may also be introduced in the fruit-tree collection, for the variety of their fruit; though is neither produced so plentiful, nor in equal goodness, as the Black: but these two sorts, and the *Morus papyrifera*, are cultivated principally for observation and curiosity, in pleasurable plantations, and in which the Common Black Mulberry may also assemble; and all of which will effect a desirable variety and conspicuous appearance in their growth, foliage, and fruiting; however, where required to have Mulberry trees, principally for the sake of the fruit, chuse chiefly the Black-berried sort, for the general supply; and of which a few trees may be sufficient for the service of a private family, especially as, after being advanced to some considerable growth, they bear great quantities of berries; I have known a single tree produce a sufficiency for the supply of a large family, every day, during the season of their maturity.

The leaves of the Mulberry tree are of singular value, as the principal food for silk-worms; that in the counties where these curious insects are bred in great quantities for their production of silk, which they spin from their bowels, large plantations of the trees are cultivated for the leaves, with which to supply them daily, in their feeding season.

The different sorts of Mulberry trees are cultivated in the nurseries for public supply, and where they may be had in collection for planting, or any particular species, especially the Common Black Mulberry, to plant as a fruit-tree; and which may be obtained of some advanced growth, furnished with a tolerable head of branches, and that will soon commence bearers, or sometimes, trees that are arrived to a bearing state, which

which will be of particular advantage; as Mulberry trees are slow growers, long before they acquire a proper size for bearing in any considerable quantity.

These trees, being generally propagated by layers, cuttings, sometimes by grafting, and occasionally by seed, are mostly trained in standards, with a single, clean stem, of four, five, or six feet, branching at top into full heads; and sometimes the Black and White Mulberry are trained in dwarf-trees for walls and espaliers, with short stems of six or eight inches, branching out low near the ground, and the branches trained in a spreading order, to the wall and espalier, horizontally, whereby they produce fruit a little earlier, and larger, than on standards; though, for the general part, they are principally raised in standard trees, on which the Black produces abundantly, ripening in good perfection and flavour.

The season for planting Mulberries, is either in autumn, about October or November, or in the spring, February, March, or April; or may be planted in any of the winter months, in open, mild weather.

To plant Mulberries as fruit-trees, generally allot them a warm, dry situation, and sunny exposure, to have all possible benefit of the sun, that they may ripen the berries in the utmost perfection; having for standards, such as are trained each with a single, clean stem, five or six feet, and formed some tolerable head of branches, more or less; and may be planted either in a kitchen garden, orchard, or pleasure-ground, as may be convenient, or thought eligible, at thirty or forty feet distance, or more; or it is also proper to plant one or more standard trees, upon open grass plats, or lawns, or a circular plat of grass, formed under the tree to the full extent of the branches, or wider, both for the greater convenience of gathering the fruit, and that, when the berries, fully ripe, fall from the trees, they may admit of being gathered up off the grass clean and sound, for use, if occasionally required.

The trees, planted as above, in standards, permit to branch out freely every way, in a regular, spreading head; and in regard to pruning, very little will be required, only just to reform any casual, low, straggling branch, or shoot; or to reduce any disorderly rambler, and to cut out cross-placed, or thin, very crowding branches; and, except in these cases, let the general head advance in full growth.

A few trees may also be trained for walls and espaliers, as before observed, for variety, and to have them produce larger and earlier fruit; they being trained, for this purpose, with short stems, of six or eight inches, to branch out low, should be planted against a south wall, fifteen or eighteen feet asunder, and the

branches nailed to the wall horizontally, four to five, or six inches distance; if any are designed for espaliers, allot them a south exposure to the full sun, planted the distances as above, and the branches trained in the same manner; and in both of which orders of planting them, the trees requiring to have a regular training, will need an annual pruning in summer and winter.

Give the summer-pruning in June or July, to regulate the shoots of the year, selecting plenty of the best-placed side and terminal shoots to nail in; cut out the superabundant, with fore-right and other ill-placed shoots, and then train in all the others close to the wall and espalier, mostly at their whole length, without shortening, where there is room to extend them entire; continuing them close to the wall and espalier all summer, in the same order.

A winter-pruning is necessary, both in the young and older branches, more or less; retaining a supply of the best young shoots in all vacant parts, and a leader, or terminal shoot, to every main branch; cut out the superfluous and ill-placed, and part of the most unserviceable, or very irregular, and unfruitful old branches, not properly furnished with eligible, young wood for bearing, as they generally bear towards the extreme part of the year-old shoots; so that the improper old wood may either be pruned down to the origin, or to any convenient, lateral young shoot, or branch, eligible to retain, to supply the place of the old, cutting out also casual, decayed wood; the general branches and shoots retained for training, continue principally entire, as far as room admits of extending them at full length; nail or train the whole regular to the wall or espalier, in the order above mentioned.

Thus, in regard to training the Mulberry, in wall and espalier trees, as above, they will generally produce fruit in the finest perfection in size, and sooner ripe than on standards, as formerly observed.

Though these methods are not generally practised, being principally trained in half or full standards, but chiefly the latter.

The Mulberry trees being generally of slow growth in the beginning, it is many years before they acquire a tolerable size in the head of branches to bear in any considerable abundance; but when arrived to some advanced growth, they shoot more freely, extend into large, full heads, and produce abundant, annual crops of berries; they generally bear on the young wood, either towards the extreme part of the last year's shoots, and upon small side-spurs, of one or two years growth; and the trees being late, or the weather settled in warm, before they foliate and flower, mostly produce plentiful crops: they seldom begin to bud, or expand their leaves, till after the middle or towards
the

the latter part of May, and flower nearly about the same time, or soon after, succeeded by the fruit in June, increasing in growth till August, then ripens; continuing advancing to maturity in daily succession till September, which, in the *Morus nigra*, or Common Black Mulberry, becomes of a deep, black-red colour, when in full perfection, and should be gathered accordingly.

The propagation, or way of raising the Mulberry trees, is principally by layers and cuttings of the young shoots, and occasionally by grafting, and sometimes by seed.

But by layers and cuttings, is the most general methods; the laying may be performed in autumn or spring, either from young trees that have been headed down to the bottom, to form stools to furnish lower shoots near the ground, convenient for laying down in the earth, or the lower branches of grown-up trees, having pots of earth placed upon stands, elevated near enough to admit of laying the branches therein; and, in either method, laying the young shoots in the earth, they will be rooted in one summer, for planting off in autumn following: cuttings of the young shoots, planted in the spring, in a shady border, will grow, or may be planted several together in pots, and plunged in a hot-bed, it will forward their rooting sooner; also strong shoots of the year, planted in summer, in a north border, will emit roots the same season; and when the layers and cuttings are properly rooted, transplant them into nursery-rows, and trained up each with a clean, single stem, three or four, to five or six feet, for standards; or any of the Common Mulberry, designed for walls and espaliers, train them with short stems, and low-branching heads accordingly, as directed for peaches, &c.

Or by grafting, &c. may propagate particular species, upon stocks of the Common Black Mulberry.

Or likewise, to raise Mulberry trees from seed, it should be saved from the ripe fruit in autumn, and preserved dry till the spring, then sowed in March or April, in a bed of light earth, half an inch deep; and when the seedlings are a year old, prick them into nursery-beds, in the spring, in rows a foot asunder, and after having advanced to two years growth, transplant them in wider nursery-rows, and trained to proper sizes for final transplanting.

When the young Mulberry trees, raised by the above methods, are advanced four or five, to six or eight feet growth, they are proper for transplanting, either the common sorts as fruit-trees, or this, and the others, in pleasurable plantations, for variety, each agreeable to the foregoing intimations.

MELIA, BEAD TREE, of the

Class and Order

Decandria Monogynia,
Ten Males, One Female;

Or Plants with Hermaphrodite Flowers, having ten Stamina, or Male Genitals, and one Pistillum, or Female.

IN the Family of MELIA is one tolerably-hardy, deciduous, curious, ornamental tree, of moderate stature, with a spreading, branchy head, adorned with large, doubly-pinnated, winged leaves, elegantly beautiful, and long bunches of quinquepetalous, blue flowers; having small, five-pointed cups; a corolla of five long, spear-shape, spreading petals, and a monopetalous nectarium, as long as the corolla; ten stamina, a conical germen, supporting a cylindric style; and the germen grows a globular, drupaceous, soft fruit, including a roundish, five-furrowed nut, of five cells, furnished with five seeds, by which the tree is commonly propagated.

One Species, viz.

MELIA *Azedarach*—(*Azedarach*) or Bi-pinnated-leaved Bead Tree.

A small, or moderate, deciduous tree, growing twelve or fifteen feet high—the leaves (*large, dark-green*) bi-pinnated, or doubly-winged; and long bunches of blue flowers.—Native of Syria. (*Warm, dry situation.*)

Varieties.—Common, Deciduous, Bi-pinnated Bead Tree.

Ever-green, Ever-flowering Bead Tree, of Ceylon. (*Tender, requiring constant protection in winter.*)

This curious, ornamental tree, highly merits a place in principal shrubberies, but must have a sheltered, warm, dry situation, or planted against a south wall; and some kept in pots, to move under shelter of a frame, or green-house, in winter; and is also retained in the green-house collections, to have constant shelter in winter, along with other exotics in that conservatory; but admits of planting in the full ground, in a sheltered compartment, as before observed; in which it will make a fine, ornamental appearance in summer; the ever-green variety requires the constant protection of a green-house, or stove, in winter.

They flower ornamentally in summer, but do not always produce ripe fruit, or seed, in this country.

For

For planting, young plants may be obtained at most of the principal nurseries; the proper season for which is March and April; and being generally in pots, they may readily be turned out, the ball of earth entire, to plant in the full ground, if required; or continued in pots, to move under shelter in winter; or any planted in the natural ground, being allotted a warm situation, may also have occasional covering of mats in severe, frosty weather.

The trees are propagated by seeds, or occasionally by layers and cuttings; sow the seed in the spring, in pots of light, rich earth, and plunged in a bark or dung hot-bed; and layers and cuttings of the young shoots in pots, may be assisted by the same means, especially the cuttings; and in either method of propagation, the raised plants should be set singly in pots, and shelter in winter, till they obtain some degree of strength, then some may be transplanted into the full ground, in situations before-mentioned.

MEDICAGO (Medic) MOON TREFOIL.

Class and Order.

Diadelphia Decandria,
Two Brotherhoods, Ten Males;

Or Flowers (Hermaphrodite) having two Sets of united Stamina, or Males, and ten Stamina in each Flower.

THE MEDICAGO affords one beautiful, shrubby ever-green, very commonly retained as a green-house plant, as being a native of the warm parts of Europe, is rather tenderish; but is also cultivated in curious shrubberies, in a sheltered, warm situation; is of moderate or middling growth, upright and bushy, closely garnished with fine, trifoliate leaves, and papilionaceous, yellow flowers, in long clusters; having to each flower a bell-shape calyx five-lobed; a corolla papilionaceous, of four unequal petals, consisting of an oval-reflexed standard, two oblong wings, and a bifid, reflexed carina, or keel; ten stamina, diadelphous, or united below, in two sets or brotherhoods, an oblong, incurved, compressed germen, and short style, succeeded by a long, compressed, inflexed, or bowed, moonated pod, with kidney-shape seeds, by which the plant is propagated, and by layers and cuttings.

One Species, viz.

MEDICAGO *arborescens*, Tree Medicago, or Shrubby Neapolitan Moon Trefoil.

A moderate, ever-green shrub, of upright, branchy growth, six or seven feet high, with hoary, young branches—the stem tree-like; leaves (*small, hoary*) trifoliate, whitish, yellow flowers; and seed-pods lu-

nated or mooned, with the margin entire.—Native of Naples and Rhodes. (*Warm, dry situation.*)

This beautiful ever-green, flowering-shrub, merits particular attention, and may be planted in a warm, sheltered part of the shrubbery, in which it will effect a fine variety, and ornamental appearance, in its perpetual verdure, and in its flowers in summer; it is also proper to have some in pots, to place in shelter from frost; and is likewise cultivated among the green-house exotics, to have protection of that apartment all winter, as being of a tender nature; though will succeed in the full ground all the year, when stationed in warm compartments, and occasionally defended with mats, in severe weather.

It is propagated by seeds, layers, and cuttings.

Sow the seed in the spring, either in a bed or border of light earth, or in pots, plunged in a hot-bed, to facilitate and expedite their vegetation; give occasional watering; and the plants, when of one summer's growth, planted singly in small pots, and sheltered in winter till they acquire some tolerable strength; and when two or three feet high, some may be planted in the shrubbery, &c. others continued in pots, to move under protection in winter.

By layers and cuttings of the young shoots; perform the laying in autumn or spring, and the cuttings generally planted in the spring months, or beginning of summer; they will be rooted in one year, managing them as directed for the seedlings.

MYRICA, CANDLE-BERRY MYRTLE, GALE, &c.

Class and Order.

Diœcia Tetrândria,
Two Habitations, Four Males;

Or Flowers, Male and Female, separate on two distinct Trees, and the Males have four Stamina.

THE MYRICA furnishes two hardy species of curious, deciduous, ornamental shrubs, of aromatic fragrance, for adorning principal shrubberies; plants of moderate, upright-shrubby, and under-shrubby growth, garnished with longish, narrow, spear-shape leaves, and small male and female flowers distinct, on two separate plants, in oblong and oval scaly amentums; the scales forming cups to small florets, without petals; having, in the males, four stamina, and in the females an oval germen, supporting two styles, succeeded, in the female flowers, by bunches of small, unilocular, single-seeded berries, of a waxy nature, of which, in one species particularly, candles are made in America, the place of its native growth; and by the seed of the berries

berries the plants are raised; and likewise by suckers, layers, and cuttings.

The hardy Species of MYRICA are,

1. MYRICA *cerifera*, Wax-bearing Myrica, or Common Candle-Berry Myrtle.

A moderate, deciduous shrub, growing four or five feet high—the stem tree-like, upright; leaves (*longish, narrow*) spear-shape, slightly sawed; and clusters of waxy berries.—Native of Virginia, Pennsylvania, Carolina, &c. (*Any common soil, somewhat sheltered.*)

Varieties.—Narrow-leaved Candle-berry Myrtle.
Broad-leaved Carolina Candle-berry Myrtle.
Ever-green, Carolina Candle-berry Myrtle.

2. MYRICA *Gale*—(Gale) Sweet Gale, or Dutch Myrtle, or Sweet Willow.

A moderate, deciduous under-shrub, three or four feet growth—the stem under-shrubby; leaves (*smaller, shorter*) spear-shape, slightly sawed, and dry berries.—Native of Europe and North America, in marshy places. (*Moist soil.*)

These two species of Myrica deserve admittance in principal shrubberies, as delicate, curious shrubs, and the leaves imparting an agreeable fragrance, more particularly the *Gale*; allot them a front situation: the *Myrica cerifera*, or Common Candle-berry Myrtle, should generally have a somewhat sheltered compartment, and the *Gale*, or Dutch Myrtle, delights in a moist soil; both the species, and the different varieties, may be had at the nurseries for planting, which perform in autumn or spring, and may be placed, in assemblage with other shrubs of similar growth, in shrubbery-clumps, in situations as above.

They are propagated by suckers from the root, by layers, cuttings, and seed.

To propagate them by the three former methods, the suckers may be taken up in autumn or spring, with roots, and planted either in a nursery, or at once where they are to remain; and layers and cuttings of the young shoots, in the same season, will be rooted by autumn following; and being planted in the nursery, train them a short stem below, and branchy above; and when of a foot and a half, to two or three feet growth, are proper for the shrubbery.

And by seed, sow it in the spring in a bed or pots of light moist earth, covered in with earth, half an inch

to an inch deep; the plants will come up the same year; give occasional watering, and next spring, transplant them into nursery-beds; or some of the Candle-berry Myrtles may be planted in small pots, singly, to place under shelter from severe frost, till they have obtained some tolerable strength; and when the plants of both the species are advanced in growth, as before observed, half a yard to two or three feet, they are proper for the shrubbery plantations.

NYSSA, TUPELO TREE.

Class and Order.

Polygamia Dioecia,
Many Marriages, Two Habitations;

Or Flowers of several different Sexes, as Males, Hermaphrodites, and Females, separate, on two distinct Plants, or Habitations.

THIS Genus, NYSSA, furnishes but one species; a curious, deciduous, aquatic tree, comprising two or three varieties, and of utility principally for ornamental planting in shrubberies and other pleasurable plantations; is a tree of moderate or middling growth, adorned in summer with oblong, broad leaves, on long foot-stalks; and flowers of different sexes, as males, hermaphrodite, &c. on two separate trees, without petals, growing in clusters, and singly, in the different varieties, succeeded by oval, drupaceous fruit, containing an ovate, pointed nut, by which the trees are propagated, also by layers, cuttings, and suckers.

One Species, and some Varieties, viz.

NYSSA *aquatica*, Aquatic, or Water Tupelo Tree.

A moderate, deciduous tree, of upright growth, twenty to thirty feet high—the leaves (*middling, light-green*) oblong, broad, acuminate, or sharp-pointed, indented, and intire, in the different varieties; and peduncles many-flowered, and one-flowered.—Native of North America, in watery, and upland situations. (*Moist soils.*)

Varieties.—Indented-leaved, Water Tupelo Tree.
Intire-leaved, Upland Tupelo Tree.
Round-leaved Tupelo Tree.
Multiflorous Tupelo Tree; the peduncles sustaining many flowers.
Uniflorous, or One-flowered Tupelo Tree; the peduncles having but one flower on each.

This curious tree demands admittance in ornamental plantations of shrubberies, and other districts, in assemblage principally with other trees and shrubs of the

the deciduous tribe; and delights in moist situations, or will grow in any common soil: is raised in most of the nurseries, for sale, where it may be obtained in the different varieties, for planting in autumn or spring, or any time in open weather, from October or November, till March or beginning of April.

The trees are propagated by seed, layers, cuttings, and suckers.

The seed, for sowing, is commonly obtained from America, by the seedsmen, in the spring, and in which season it may be sowed in a shady, or east border; and when the plants are a year old, transplant them in a nursery; train each with a single stem, pruning up the lateral shoots by degrees, the top permitted to advance in full growth, and when grown three or four, to five, six, or eight feet high, are of proper size for final transplanting in the respective districts in which they may be required, for ornament and variety.

By layers and cuttings of the young wood, or shoots, of one year's growth, layed and planted in the autumn or spring, will be rooted by the following autumn; and then managed as advised for the seedling-plants.

Or suckers sometimes rise from the roots of the trees that are of advanced growth, and may be dug up in autumn or spring, and planted.

OLEA OLIVE TREE, of the

Class and Order

Diandria Monogynia,
Two Males, One Female;

Or Plants with Hermaphrodite Flowers, having two Stamina, or Males, and one Pistillum, or Female.

THE OLEA, or Olive, comprise curious ever-greens, of moderate tree or shrub-like growth, for adorning the pleasure-ground, but being natives of warm countries, require a sheltered situation; are upright growers, ten to fifteen, or twenty feet; very branchy, almost to the bottom, with full heads, decorated with small, or moderate spear-shape, and oval stiff leaves, opposite, in pairs, continuing in verdure at all seasons; and small, funnel-shape, white flowers, at the axillas, in clusters; having small, monophyllous, or one-leaved, tubulous, quadridented cups, a monopetalous, funnel-shape corolla, four-parted, and spreading above; two stamina in each flower, a roundish germen with a single style, and the germen's become oval, green, eatable fruit, called Olives; good for pickling, though seldom produced in plenty and perfection in this country for use, nor furnish ripe seed thereof for sowing; but the trees propagate freely by layers.

One Species, furnishing several Varieties, viz.

OLEA *europæa*, European Common Olive Tree.

A small, or moderate, ever-green tree, of shrub-like growth, ten to fifteen, or twenty feet high—the leaves (*small*) spear-shape, stiff, opposite; and clusters of small, white flowers, succeeded by oval fruit.—Native of the southern parts of Europe. (*Warm, dry situation, and some kept in pots, to place under shelter in winter.*)

Varieties.—Round-branched, Common Olive Tree.

Tetragonated, or four-angled branched,
Common Olive Tree.

Narrow-leaved, Common Olive Tree.

Broad-leaved, Spanish, Common Olive
Tree, with larger oval fruit.

Short, hard-leaved, Wild, Common
Olive Tree.

Box-leaved, Common Olive Tree.

Shining-leaved, African, Common
Olive Tree.

This species, and different varieties, of Olive Tree, being exotics from the southern, warm parts of Europe, &c. require a defended, warm situation, in this country, where they may have some protection in winter from severe frost, and some kept in pots, to place under shelter of a frame, or green-house, in the winter season; though, on account of their tender nature, liable to suffer in rigorous weather, they are likewise generally introduced in the green-house collection, to have protection of that conservatory all winter; however, they will also succeed tolerably well in the full ground, planted against a south wall, a plant or two of each, for variety; and when rigorous frosts, cover them with large garden mats, and litter the ground with straw, over the roots.

They are propagated principally by layers of the young branches, in the spring or autumn; will be rooted in one summer; then cut from the parent tree, and plant some under a warm wall, others singly in pots, to place under shelter in winter, till they gain strength; and some may then be transplanted, with balls, into the full ground, in a warm situation, as above intimated.

ONONIS, REST-HARROW, of the

Class and Order

Diadelphia Decandria,
Two Brotherhoods, Ten Males;

Or Plants with Flowers (*Herm.*) having two Sets of united Stamina, or Males, and with ten Stamina in each Flower.

THE ONONIS furnishes two or three species of small, very ornamental flowering-shrubs, of low, under-

der-shrubby growth, garnished, in summer, with trifoliate leaves, formed of spear-shape, and linear and roundish lobes; and large, papilionaceous, or butterfly-shape, red and purple flowers, in paniced clusters, at the sides and ends of the branches, in May and June; having, in each flower, a five-lobed, arched cup; a corolla papilionaceous, of four irregular petals, consisting of a heart-shape vexillum or standard, two oval wings, and a pointed carina below; ten diadelphous stamina, an oblong germen, with one style, succeeded by a turgid, rhomboide, bivalve pod, furnished with kidney-shape seeds, by which the plants are generally propagated.

Three Species, two of them hardy, the other somewhat tender.

1. *ONONIS fruticosa*, Shrubby, Alpine Rest Harrow.

A low, deciduous, under-shrub, growing two or three feet high—the leaves (*middling*) ternate, or trifoliate, spear-shape, fawed; with sheathed stipula; and lagre, red flowers, in panicle bunches, each peduncle mostly three-flowered; May or June, &c.—Native of the Alps. (*Any common soil and situation.*)

Variety.—White-flowered, Shrubby Rest Harrow.

2. *ONONIS tridentata*, Tridented Fleshy-leaved Rest Harrow.

A low, deciduous, under-shrub, of two or three feet growth—the leaves (*small, narrow*) ternate, or trifoliate, sub-linear, fleshy, tridented; and terminal clusters of small, purple flowers, the peduncles mostly two-flowered.—Native of Spain. (*Warm, dry situation, or some kept in pots, to have shelter from frost.*)

3. *ONONIS rotundifolia*, Round-leaved, Alpine Rest Harrow.

A low, shrubby plant—the leaves (*middling*) trifoliate, roundish; peduncles mostly three-flowered, with the calyx having three bracteal leaves.—Native of the Alps of Switzerland. (*Any common soil.*)

Of the above three species, the first and third sorts are hardy to grow in any common soil and situation; the other, somewhat tender, should have a warm situation, or some also kept in pots, to have shelter from frost; but of which three sorts, the *Ononis fruticosa* is that which is the most generally known and cultivated in shrubberies, as a hardy, ornamental, flowering-shrub; and may be obtained at most of the nurseries, for planting, in autumn or spring: allot them principal compartments, in assemblage with other shrubby kinds,

generally placed somewhat forward, conspicuous to view, and they will make a very pleasing variety in summer.

They are propagated by seed, sowed in the spring, in a warm border, or bed of light earth; they will come up the same year; and in spring following may be transplanted into the nursery, and some in pots, singly; and when advanced about twelve, to fifteen or eighteen inches, or two feet growth, are proper for the shrubbery.

PASSIFLORA, PASSION-FLOWER, of the
Class and Order

Gynandria Pentandria,
Females and Males joined, Five Males, or Stamens.

Or Plants with Hermaphrodite Flowers, having both the Male and Female Parts growing upon a Column, or Style, together; and have five Stamens, or Males.

THE PASSIFLORA comprehends most curious, ornamental, flowering-climbers; one of which is a hardy, climbing-shrub, renowned for the beauty and curiosity of its elegant flowers, of singular structure; is of trailing-climbing growth, with long-extending shoots, advancing several feet in length in one summer; adorned with large, palmate-fingered leaves; and large, spreading, many-parted, radiated flowers, blue and white, in the same, of admirable form and singularity; produced on long foot-stalks, singly; having each a three-lobed involucre, five-leaved calyx, five oblong, plane, spreading petals, containing a fringed, triply-radiated, many-parted nectarium, formed of thready, circular, spreading rays, and a triple coronet around a central, gynandrious pistil, or column, supporting the male and female parts of generation, consisting of five spreading stamina, and crowned by a roundish germen, elevating three styles; and the germen grows a large, oval, fleshy, baccated fruit, with many oval seeds; the fruit not eatable, nor the seeds often used for sowing; the plants propagating freely by layers and cuttings.

One hardy Species, viz.

PASSIFLORA *cærulea*, Blue-radiated, or Common Passion-Flower.

A deciduous, shrubby climber, with long, slender, trailing-climbing stalks, ascending, by support, twenty or thirty feet high, or more—the leaves (*large, dark-green*) palmated-fingered, of five long, spear-shape, intire lobes, attended by twining cirrhi or claspers; and large, spreading flowers, with a blue and purple, radiate nectarium; July and August.—Native of the Brasils. (*Dry soil and warm situation.*)

This

This desirable, shrubby plant, deserves a place in every garden, as an elegant climber, and for the beauty of its singularly curious flowers, produced on the young shoots of the same year, in daily succession; each flower being only of one day's duration, expanding about ten, eleven, or twelve o'clock, according to the power of the sun; often bursts open elastically, all at once, continuing fully expanded till the same time next day, then gradually shuts and decays; but succeeded by a constant supply of fresh flowers every day for six weeks, especially in plants arrived to some tolerable extent of growth, and make a fine ornamental appearance in July, August, and September.

Proper plants, for planting, may be purchased at the nurseries, and planted in autumn or spring; and may be propagated plentifully by layers and cuttings of the young shoots, in the same seasons.

As this plant grows with very long, feeble stems and shoots, requiring support to elevate them from the ground, it should generally be planted against a wall, building, &c. in a warm situation, in the full sun, both that it may have greater protection from rigorous frost, which sometimes damage the young shoots; and that, by being in a warm, sunny exposure, it flowers in the best perfection and abundance; and some may also be planted detached in warm shrubberies and borders, and to have support of stakes; or some planted in pots, for moving therein, to adorn any particular compartment occasionally in summer, while in flower; though, in the general part, it commonly flowers in the greatest perfection against a warm wall.

A plant or two, planted against a wall, or other fence, will soon spread over a large space, and run up many feet high, if required; and to which the stems and branches should be trained in regular order, four to five, or six inches asunder, either upright, or more or less horizontally, as the allotted space admits.

In its advancing growth against walls, &c. it should generally be continued in some tolerable regularity, by occasional pruning, and nailing annually; that as it constantly produces many, or numerous shoots, every summer, extending to considerable length, and on which the flowers are principally produced the same year, it is proper to train in a plentiful supply of these annually, for flowering, continued mostly at their full length during the summers growth; or only prune the superabundant, or such as are very disorderly, or extend out of bounds, either side-ways, or above; and in winter, about November, &c. or towards the spring; cut out the weak and superabundant shoots of the last summer, and any decayed, or improper old wood, retaining a supply of the strongest young shoots, cutting away a proportionable part of the old, and the young shortened to a yard or more in length, ac-

ording to their strength and situation on the plant; and nailed up to the wall regularly, the distances before mentioned.

Or likewise, as before intimated, some might be planted in a warm, sunny part of a principal shrubbery, or border, and the stems trained up to stakes; and also planted to run over arbours, or some planted in pots, having support of stakes aforesaid; and in all of which, being in warm situations, they will flower in tolerable perfection.

The propagation, or methods of raising this species of *Passiflora*, is effected plentifully by layers and cuttings, which freely emit roots and grow; the laying may be performed in autumn or spring, chusing some of the strongest young shoots, and lay them down in the earth, pruning off the weak, top part; and for cuttings, take off, with a knife, some strong shoots in the spring, cut into lengths of ten or twelve inches, and planted in a shady border; they will be rooted by next October, both layers and cuttings, to transplant either in a nursery, for a year or two, to gain strength, or some of the strongest, to plant at once where they are designed to remain.

It is also sometimes raised from seed, sowed in a bed or pots of light earth, in March; the plants will come up the same year; shelter them in winter from frost, and in March following transplant them in a warm situation.

But the propagation, by layers and cuttings, is the more general and effectual method, whereby to obtain strong plants, the most expeditiously for flowering.

PERIPLUCA, VIRGIN SILK, OR CLIMBING DOG'S BANE.

Class and Order.

Pentandria Digynia,
Five Males, Two Females;

Or Flowers (Herm.) having five Stamina, or Males,
and two Pistillums, or Female Parts.

OF the Genus PERIPLUCA, is one hardy, under-shrubby, volubilate climber, to admit as such in shrubberies, and as a flowering-plant; is of extensive growth in its long, slender, twining stalks, running, by support, many feet high; garnished with oblong leaves, and monopetalous, rotated, purple flowers, in clusters; having to each flower a five-parted cup; a corolla rotated, or wheel-shape plane, divided into five segments; contains five stamina, and two styles; succeeded by two oblong, ventricose or bellied, folliculate pods, furnished with many pappous, or downy seeds, seldom used for sowing, as the plant is easily propagated by layers and cuttings.

One hardy Species, viz.

PERIPLOCA græca, Greek Periploca, or Virgin Silk, &c.

A volubilate-climbing, under-shrubby plant, extending with slender, twining stalks, twenty to thirty, or forty feet high, upon support—the leaves (*middling, bright-green*) lanceolate-ovate, opposite; and purple flowers, hairy internally.—Native of Syria. (*Any ighth soil.*)

This volubilate climber, is admitted for variety in pleasure-grounds, shrubberies, and other ornamental plantations, to climb upon poles, or round the stems of trees, and to run over arbours, bushes, and hedges, in all of which it will ascend naturally, in its twining-climbing growth, and flower annually in summer; or may likewise be trained against high walls, nailing the stems thereto; and is propagated by layers and cuttings of the shoots, in autumn or spring, which will root freely in one year for transplanting.

PHILADELPHUS, SYRINGA, or Mock-Orange.

Class and Order.

Icosandria Monogynia,
Twenty or more Males, One Female;

Or Plants with Flowers (*Herm.*) having twenty or more Stamina, and one Pistillum, or Female.

THIS Genus, *Philadelphus*, comprises two or three species, and some varieties, of upright, bushy, deciduous, ornamental flowering-shrubs, of four or five, to eight or ten feet growth, or more, with very full heads, garnished with ovate spear-shape, indented, and intire leaves; and numerous, small bunches of tetrapetalous, or four-leaved, white flowers, odoriferous, and scentless in different species, very conspicuous and ornamental in May and June; having each a permanent cup divided into four parts; a corolla of four large, roundish petals; twenty or more stamina, and a four-parted style; succeeded by oval, quadrivalve, capsular nuts, containing many small, oblong seeds; which are seldom used for sowing, the different species being propagated principally by layers, cuttings, and suckers.

The Species of PHILADELPHUS are,

1. PHILADELPHUS *coronarius*, Coronous-flowered, or Common White Fragrant Syringa.

A largish, deciduous shrub, of bushy growth, four or five, to six or eight feet high—the leaves (*moderately-large*) oval-spear-shape, slightly indented; and many white fragrant flowers in May and June.—Native of Verona. (*Any common soil and situation.*)

Varieties.—Large, Common White Syringa.
Dwarf Common Syringa.
Double-flowered Common Syringa.
Striped-leaved Common Syringa.

2. PHILADELPHUS *inodorus*, Scentless Carolina Syringa.

A large, deciduous shrub, growing six to eight or ten feet high—the leaves (*middling*) oval, intire; and large, white, inodorous, or scentless flowers; May and June.—Native of Carolina. (*Any common soil and situation.*)

These two species of *Philadelphus* are principal ornamental flowering-shrubs, to assist in furnishing shrubberies, or any decorative plantations, and to plant in spacious borders, &c. in the pleasure-ground; they growing with full, bushy heads, make a fine appearance when in flower, producing the flowers in bunches, in great profusion, for three or four weeks, in May and June; very odorous in the first species, somewhat resembling the smell of Orange flowers; and which, in both these species, being also somewhat similar in appearance, are hence sometimes called Mock-Orange.

They are very hardy shrubs, will grow any where, and are eligible for all parts of shrubberies: may be had at all the nurseries, for planting, which may be done any time in open weather, from October or November, to March or April.

Sometimes the Common Odorous Syringa, planted in pots, are placed in a forcing-stove, or hot-house, in January or February, to forward them to early flowering.

They are propagated by suckers from the bottom, and by layers and cuttings; the suckers may be dug up with roots in autumn, and planted in a nursery, to acquire a proper growth for the shrubbery, or strong ones may be planted therein, at once to remain; layers and cuttings of the young shoots in autumn or spring, will root in one year; and in all of which methods train them up in the nursery, &c. mostly with a single stem below, and to branch out above in full heads; and when two or three feet high, are of proper sizes for the shrubbery districts, &c.

PHIL-

PHILLYREA—(PHILLYREA) or MOCK PRIVET. 3. PHILLYREA *angustifolia*, Narrow-leaved Phillyrea.

Class and Order.

Diandria Monogynia,
Two Males, One Female;

Or Plants with Hermaphrodite Flowers, having two Stamina, or Males, and one Pistillum, or Female.

THE PHILLYREAS are very noted, ornamental, ever-green shrubs, for beautifying shrubberies and other decorative plantations, and for variety, &c. consisting of three species, and several curious varieties; all of largish, upright, very branchy, bushy growth; adorned with small, ovate-lanceolate, linear-narrow, and broad cordate-ovate leaves, mostly all in pairs opposite; and small, greenish flowers, of but little appearance, growing in clusters; each flower is formed of a funnel-shaped petal, cut into five parts; contains two stamina, a roundish germen, with one style, and the germens grow a globular berry, having each one round seed, ripe in autumn, and by which, sowed in that season or spring, the shrubs are propagated; likewise by layers of the young branches or shoots.

The Species and Varieties of PHILLYREA are,

1. PHILLYREA *media*, Middle, or Oval-leaved Phillyrea.

A large, ever-green shrub, of upright, bushy growth, six or eight, to ten or twelve feet high—the leaves (*smallest, dark-green, shining*) ovate-lanceolate, mostly intire, and opposite, by pairs.—Native of the southern parts of Europe. (*Any common soil and situation.*)

Varieties.—Common Oval-leaved Middle Phillyrea.
Privet-leaved Phillyrea.
Olive-leaved Phillyrea.

2. PHILLYREA *latifolia*, Broad-leaved Phillyrea.

A large, ever-green shrub, of upright, bushy growth, eight or ten feet high—the leaves (*larger, broad, dark-green, shining*) cordate, or hearted-ovate, sawed, and in pairs, opposite.—Native of the southern parts of Europe. (*Any common soil and situation.*)

Varieties.—Common Serrated, Broad-leaved Phillyrea.
Unserrated, Broad-leaved Phillyrea.
Prickly, Hex-leaved Phillyrea.

A middling, ever-green shrub, growing six or eight feet high—leaves (*narrow, dark-green*) linear, spear-shape, very intire, and by pairs, opposite.—Native of Italy and Spain. (*Any common soil and situation.*)

Varieties.—Rosemary-leaved Phillyrea.
Lavender-leaved Phillyrea.
Variegated, Narrow-leaved Phillyrea.

All these species and varieties of *Phillyrea* are very hardy, will grow in almost any situation and common soil; are fine, showy ever-greens, branching numerously from the bottom upwards, in a bushy growth, closely garnished with leaves, continuing all the year in constant verdure; and are desirable, principal, ever-green shrubs, to plant in shrubberies, and other compartments of pleasure-grounds, for ornament and variety; trained generally in bushy standards, and introduced principally in assemblage with others of the ever-green tribe, and occasionally to diversify deciduous clumps, or to dot singly in borders, plats, lawns, &c. they likewise admit of training for ornamental garden-hedges, and are particularly well adapted to train in a fanned, spreading manner, against walls or palings, in fore-courts, or any place where required to have naked or unsightly walls, &c. covered; as they branch out quite from the bottom, and admit of training to the wall in a spreading expansion, to cover it completely, and appear always green.

The *Phillyreas* and *Alaternus*, are very similar in their growth and leaves, only the former having the leaves placed opposite, by pairs, and the latter are alternate, or one above another, singly.

The different species and varieties of *Phillyrea* are cultivated in all the general nurseries, where any sorts required may be had, of proper growth for planting; and for which, all or any of the species are eligible; but where room to admit the different species and varieties, they will make a conspicuous diversity.

The general season for planting these ever-greens is either in autumn, commencing towards the middle or latter end of September, or any time in October or early part of November, or principally in the spring months; or, in mild open seasons, might be performed occasionally any time in winter, especially where the shrubs can be removed with balls of earth to the roots; otherwise, autumn or spring is most advisable for any general planting of these and other ever-greens.

They are propagated by seeds and layers, in the autumn or spring.

Sow

Sow the seed in autumn or spring, in a bed of light earth, and covered in half an inch to an inch deep; they will come up, some probably the first year, but will sometimes mostly remain dormant till the second spring: keep the beds clean from weeds; and when the seedling-plants are a year old, transplant them into nursery-beds, in March or April, in which remaining one or two years more, to acquire a little strength; then transplanted in wider nursery-rows, to advance in full growth, either bushy from the bottom, or some pruned up below to a single stem, of a foot length, and to branch out full above; and having advanced in bushy heads, half a yard to two or three feet high, are proper for the shrubbery.

By layers, chuse some pliant branches, well furnished with young wood; peg them down into the ground, then lay all the young shoots thereof; they will mostly be rooted in one year, and should then be transplanted into a nursery, to obtain proper growth.

When the plants, raised by either of the above methods, are grown with branchy heads, half a yard to three feet high, or more, they are proper for planting in shrubberies, and other ornamental plantations; in which dispose them in the different compartments, and generally permitted to advance in full growth; or may occasionally prune disorderly, rambling branches, or low stragglers, to continue the heads somewhat regular and distinct; and in giving any requisite pruning, perform it principally with a knife, either in spring, summer, or autumn.

Or where designed to plant any of these ever-greens to cover walls, &c. as before intimated, the oval and broad-leaved kinds are the most proper; or, for variety, may have some of each sort, such as are branchy to the bottom; plant them close to the wall, two or three feet asunder; prune or cut away the fore-right, projecting branches, if any; nail the others to the wall in a spreading manner, three or four inches asunder, at their full length, and permitted to run in full growth, continued trained to the wall, to cover it effectually, in a regular expansion; and as many projecting shoots will advance annually, they should be cut in, close and regular, in summer, either with a knife or garden-shears, to form the front even, like an hedge.

PHLOMIS, JERUSALEM SAGE.

Class and Order.

Didynamia Gymnospermia,
Two Powers, Seeds naked;

Or Plants with Flowers (*Herm.*) having two of four Stamina superior in length to the others; and Seeds uncovered, or lodging naked in the Calyx.

THIS Genus furnishes two hardy species, and some varieties, of curious, upright, hoary, ever-green, flow-

ering-shrubs, for adorning the shrubbery; plants of moderate growth, with hoary branches, garnished with roundish-oblong, and hearted downy-whitish leaves, and large, verticillate bunches of tubulous, gaping, yellow, and purple flowers, disposed in whirls around the branches; having five and ten-angled, persistent cups; a monopetalous corolla, of one oblong, tubular petal, ringent, or grinning above; four stamina, two of them superior in length to the other two; a quadrid, or four-parted germen, supporting a single style; and the germen becomes four oblong, naked seeds, resting in the permanent calyx; the seeds seldom used for sowing, as the plants propagate freely by layers, cuttings, and slips.

The hardy Species of PHLOMIS are,

1. PHLOMIS *fruticosa*, Shrubby, or Tree-like Phlomis, or Common Jerusalem Sage.

A moderate, hoary, ever-green shrub, of strong, upright, bushy growth, four to five, or six feet high—the stem shrubby; leaves (*middling*) roundish-oblong, crenated, hoary-white; and whirled bunches of yellow flowers, having spear-shape involucrems.—Native of Sicily and Spain. (*Dry, light, or any common soil.*)

Varieties.—Broad-leaved Shrubby Phlomis.
Narrow-leaved Shrubby Phlomis.
Dwarf, Cretan Shrubby Phlomis.

2. PHLOMIS *purpurea*, Purple, Under-Shrubby Phlomis.

A smaller, under-shrubby, hoary plant, of slender, bushy growth, three or four feet—the stem under-shrubby; leaves (*middling*) hearted-oblong, hoary-white; and with purple flowers, having linear involucrems, shorter than the calyx.—Native of Portugal and Spain. (*Dry or any common soil.*)

These plants merit culture in all principal shrubberies, both as curious, hoary ever-greens, and ornamental flowering-shrubs; will effect a distinguishable and singular variety at all seasons of the year, in the hoary aspect of their branches and leaves; and flower very conspicuously in summer and autumn, produced in whirls around the upper parts of the branches and shoots; they are tolerably hardy, but are generally the most prosperous and durable in a dry, light soil, and somewhat sheltered compartment; though they will also succeed in any common, moderately-dry ground, and may be planted in assemblage with other hardy shrubs.

Both

Both these species, &c. may be procured at the nurseries, of proper growth for planting, which perform principally in autumn or spring; or are easily raised to an eligible size, by the following methods of propagation.

They are propagated by layers, and cuttings or slips of the young shoots: layers of the young branches, in autumn or spring, will be well rooted by the autumn following, when, or in spring, cut them from the parent plant, and planted in nursery-rows, to acquire proper growth for the shrubbery; and cuttings or slips of the young shoots, in the spring and summer, planted in a shady border, and watered in dry weather, they will root freely the same year, and shoot at top: the plants raised by the different methods, may either be pruned up below, forming a short, single stem, to grow branchy above, or permitted to advance wholly in a bushy growth; and when half a yard, to two or three feet high, or more, they are of proper size for the shrubbery plantations.

PINUS, PINE TREE, and FIR, CEDAR TREE, and LARCH, &c.

Class and Order.

Monoecia Monadelphia,
Two Habitations, One Brotherhood;

Or Flowers Male and Female, separate on one or the same Tree; and the Stamina of the Males united in one Set, or Brotherhood.

THE PINUS comprises many species and varieties of considerable ever-green trees, and one deciduous kind; all of remarkable value for timber and ornamental plantations, being trees of the first order, swift and stupendous growers, advancing with a straight, single, erect stem, thirty or forty, to sixty, eighty, or an hundred feet high, branching, in circular rays, regularly from the bottom, upward; the branches, diminishing gradually to the top, form beautiful, conical, or pyramidal heads; closely garnished with very narrow, setose or bristle, and awl-shape leaves, some by two, three, and five together, others singly, and some in bundles, or many together from one point, pencil form; and small male and female flowers, separate on the same tree; the males in scaly racems, or spikes, and females collected in oval cones, of many rigid, scaly calyxes; no petals; many united stamina in the male crests, in the females, a small germen, and single style; and becomes a hard, scaly, imbricated, conical seed-vessel, or cone, from one inch, to three, four, five, to ten or twelve inches long, involving many small, nut-like, winged seeds, one generally under each scale; ripening in winter and spring, and

by which, sowed in the last-mentioned season, the trees are propagated.

Many Species of the PINUS.

Comprising the Pine Trees, Firs, Cedars, and Larch; the former is distinguished by the leaves growing two, three, and five together, in the different species; the Firs have all the leaves placed singly; and the Cedar kinds, consisting of the Cedar of Lebanon, and Larch Trees, have the leaves in bunches, or many produced from the same point, spreading out above; and in all the sorts, the leaves small, narrow, bristle, and awl-shape, two or three, to five or six inches long, in the different species and varieties.

1. Pine Kinds (PINEA.)

Distinguished by having the leaves placed by pairs, threes, and fives, together from the same sheath, mostly of a dark and greyish-green hue; and the trees produce seed-cones, from one or two, to eight or ten inches long, or more.

With leaves in pairs, or two together.

1. PINUS *sylvestris*, Wild Pine, Pinaster, or Scotch Pine, commonly called Scotch Fir.

A large, ever-green tree, growing fifty to sixty feet high, or more—the leaves (*small, dark-greyish green*) growing by pairs; the primordial or first leaves, singly and smooth; and acute cones, one or two, to several inches long, in different varieties.—Native of the northern parts of Europe, &c. (*Dry or any common soil.*)

Varieties.—(*Pinaster latifolius*) Broad-leaved Pinaster—the leaves broader, longer; and long, acute cones.

(*Pinaster tenuifolius*) Slender-leaved Pinaster—the leaves smaller and shorter; purple flower racems, and small cones.

(*Pinaster maritima altera*) Tallest Sea Pinaster—leaves broader, longer; and longish cones.

(*Pinaster pumila*) Dwarf Pinaster—the leaves shorter, smaller.

(*Pinus virginiana*) Virginia, Two-leaved Prickly-coned Pine, growing sixty or seventy feet high—the leaves small, lighter-green; and small cones.—Native of Virginia, &c. (*Moist or any common soil.*)

(*Pinus*

(*Pinus halepensis*) Aleppo-Pine, growing thirty or forty feet high—the leaves longer, narrow, darker-green; and very small cones.—Native of Asia. (*Dry soil.*)

(*Pinus tatarica*) Tartarian Pine, growing fifty feet high—the leaves short, broader, lighter-green; and small cones.—Native of Tartary. (*Dry or any common soil.*)

(*Pinus rubra*) Red or Common Scotch Pine, growing sixty feet high, or more—the leaves shorter, greyish-green; and smallish cones.—Native of Scotland, &c. (*Dry or any common soil, and rocky, gravelly, or any dry, barren grounds.*)

2. **PINUS Pineæ**—(*Pinea fativa*) Cultivated, or Italian Stone Pine.

A middling, ever-green tree, growing thirty or forty feet high—the leaves (*long, bright-green*) placed by pairs; the primordial, or first leaves, singly, and ciliated on the edges; and large, turbinate or top-shape, close, hard cones, containing large, eatable seeds.—Native of Italy, Spain, and south of France. (*Any common soil.*)

With leaves by threes.

3. **PINUS Tæda**—(*Tæda*) Torch, or Frankincense Pine of America.

A large, ever-green tree, growing sixty or seventy feet high—the leaves (*long, narrow, light-green*) placed by three together from the same sheath; and large, loose cones.—Native of Virginia and Canada, in swampy places. (*Moist or any common soil.*)

Varieties.—(*Pinus rigida*) Rigid-coned Virginia Pine growing sixty or seventy feet high—the leaves long, slender, placed by threes; and stiff, hard cones.—Native of Virginia, &c. (*Moist or any common soil.*)

(*Pinus echinata*) Echinated, or Prickly-coned American Pine, growing forty or fifty feet high—the leaves long, slender, placed by twos and threes together; and prickly feed-cones.—Native of North America. (*Any common soil, &c.*)

(*Pinus palustris*) Marsh, or Swamp American Pine, growing fifty feet high—

the leaves long, deeper-green, placed by threes.—Native of North America. (*Moist situation, or any common soil.*)

With leaves by fives.

4. **PINUS Strobis**—(*Strobis*) New England, or Weymouth Pine.

A most lofty, ever-green tree, growing seventy or eighty, to an hundred feet high—the stem having a smooth bark; leaves (*longest, slender, light-green*) placed by fives from the same point or sheath, the margins rough; and long, slender, loose, pendulous cones.—Native of Virginia and Canada; first cultivated in England, by Lord Weymouth, hence commonly called the Weymouth Pine, a most beautiful tree. (*Any common soil and situation.*)

5. **PINUS Cembra**—(*Cembra*) or Mountain Siberian Stone Pine.

A large, ever-green tree, growing thirty, to forty or fifty feet high—the leaves (*small, setose or bristly, deeper-green*) placed by fives, very smooth; and with largish, erect cones, the seeds or nuts thereof eatable and salutary.—Native of the mountains of Siberia, Switzerland, Valcchia, Baldi, &c. (*Dry, or any common soil, &c.*)

2. **Fir Kinds (ABIES.)**

Distinguishable from the Pine Trees, by the leaves growing singly, and thickly placed, but all distinct at the base; and with feed-cones, from an inch or two, to six or eight inches long.

Leaves placed singly.

6. **PINUS Abies**—(*Abies*) Common Spruce or Norway Fir.

A large, ever-green tree, growing sixty or seventy feet high, or more—the leaves (*small, dark-green*) awl-shape, pointed, ranged two ways, smooth, and placed singly; and long, pendulous cones.—Native of Norway, other northern parts of Europe, and of Asia. (*Any common soil.*)

Varieties.—Red Norway Fir.
White Norway Fir.
Long-coned Cornish Fir.

The last species, *Pinus Abies*, and the first two varieties thereof, are the common Pitch Trees, from which the pitch is obtained.

7. *PINUS canadensis*, Canada Spruce Fir.

A large, ever-green tree, growing sixty feet high, or more—the leaves (*small, short, dark-green*) linear, somewhat obtuse sub-membranous, and placed singly; and small, loose cones.—Native of North America. (*Any common soil, &c.*)

Variety.—White Canada Spruce Fir.
Red Canada Spruce Fir.
Black Canada Spruce Fir.
American Hemlock Spruce Fir.

8. *PINUS Picca*—(*Picea*, Turpentine Tree) or Silver Fir.

A straight, lofty-growing, ever-green tree, seventy or eighty feet high—the leaves (*short, flat, dark-green*) emarginated or end-notched, silvery underneath, and placed singly; and very long, erect cones.—Native of the Mountains of Switzerland, Swedland, Bavaria, and the Highlands of Scotland. (*Any common soil.*)

9. *PINUS Balsamea*—(*Balsamea*) or Balm of Gilead Fir.

A middling, ever-green tree, very branchy to the bottom, growing thirty or forty feet high—the leaves (*small, shortish, light-green*) obtuse, a little emarginated, or end-nicked, doubly lineated, or with two white lines on the under-side, punctured, and placed singly; disposed in a pectinated order, like the teeth of a comb; and short, round cones.—Native of Virginia, Canada, &c. (*Any common soil.*)

3. Cedar and Larch Kinds (LARIX.)

Distinguished from the Common Pine and Fir Trees, by the leaves being bundled, or growing many together, from one point, in pencil-form bunches, spreading out each way; and large, oblong-roundish, and small, acute cones.

Leaves, in bunches.

10. *PINUS Cedrus*—(*Cedrus libani*) or Cedar of Lebanon.

A large, ever-green tree, of beautiful, spreading growth, thirty, to forty or fifty feet high, or more—the leaves (*small, stiff, dark-green*) acute-pointed, fasciculate, or in bunches; and large, oblong-roundish, close, hard cones.—Native of Syria, on Mount Libanus, Taurus, &c. (*Dry or any common soil, &c.*)

11. *PINUS Larix*—(*Larix*) Larch Tree, or Deciduous Cedar.

A large, deciduous tree, growing forty or fifty feet high—the leaves (*small, brittle, light-green*) obtuse, fasciculate, or in bundles; many growing from the same point, deciduous; and small, acute cones.—Native of the Alps of Switzerland, Stiria, Corinthia, Siberia, &c. (*Any common soil.*)

Varieties.—Red Larch Tree.
White Larch Tree.
Black American Larch Tree.
Horizontal-spreading Larch Tree.
Dwarf Siberian Larch Tree.

All, or most of the foregoing species and varieties of *Pinus*, are of the first-rate tree kinds, aspiring each with a single, erect stem, to the different heights mentioned in the descriptions of the respective species, generally in a tapering growth, and branch out all around, in circular rays, as already intimated, mostly in regular, pyramidal heads, of beautiful grandeur: all of the ever-green tribe, except the *Pinus Larix*, which is deciduous; and in all the sorts the leaves are small, slender, awl-shape, and brittle-like; the flowers are also small, in male racems, and female, conic heads; appearing in spring and autumn; succeeded by the cones: ripening in autumn, winter, and spring following; and which, in most of the species, furnish plenty of seed for sowing, whereby to propagate the different sorts, as they are raised only by that method.

These trees are of considerable value for useful and ornamental planting, beautiful in their growth, and their timber is of great worth for all kinds of building; and being mostly of a resinous nature, more or less, but more particularly the Pine and Fir kinds, which abounding in a strong, resinous substance, the useful articles, pitch, turpentine, rosin, &c. is obtained, being extracted from the trees, in the places where they grow, in considerable woods, both in several parts of Europe and North America, in which there are natural forests of vast extent, of the sorts peculiar to the different countries.

The different species of *Pinus* form a grand collection of fine trees of great merit, to arrange in all pleasurable and profitable plantations, for beautifying pleasure-grounds, parks, and other premises, and for the great improvement and embellishment of estates: they being all beautiful in their general growth, swift and straight growers, arriving to a vast height and magnitude; and their timber is of the utmost value, as the principal wood employed in all kinds of building, and of superior excellence in ship-building, especially for furnishing the finest masts in the world; more particularly

ticularly the Pine and Fir kinds, such as the Pinafter, Scotch, and Weymouth Pines, being all most lofty growing trees; but the latter generally surpasses all the others in attaining the greatest altitude, though most of the other species acquire a considerable height and bulk for the above useful purposes; and are all exceedingly deserving of principal culture in considerable plantations, or, according to the extent of grounds and estates, to plant for ornament and profit; or to introduce in smaller portions, either in the whole, or any principal parts, to adorn shrubberies and other decorative plantations, both in assemblage with other trees, and to form groves, walks, clumps, &c. wholly of the *Pinus* kind.

All the species are very hardy, will grow freely in almost any common soil and situation, and in any exposure, in gardens, pleasure-grounds, parks, fields, or any out premises, low or high grounds, plains, sides, tops of hills, &c. but the Pinafter and Scotch Pines particularly, are so hardy that they will grow and prosper almost any where, both in rich and poor land, dry and moist situations, in swamps and dry, barren wastes; and on mountains and rocks, where there is hardly any soil, will penetrate their roots into the crevices, to a considerable depth and distance, in quest of nourishment; so that in any waste, barren, or uncultivated lands, these trees might be cultivated to profitable advantage.

They may be obtained, for planting, at the nurseries, either in full collection, or of any approved or desirable species, &c. of proper growth, two or three, to five or six feet high, or more; or may be raised plentifully from seed, in a home nursery, to proper sizes, as above, in three or four years, for the plantation intended; though it is generally advisable to plant them finally, while in young growth, of one, two, to three or four feet, while the roots are of but moderate extent, and fibrous; as when more considerably advanced, the roots of most of the sorts become woody and naked of fibres, especially the Pine kinds, do not transplant successfully, so as to proceed in a prosperous growth.

Or where any considerable supplies of the trees are required for large plantations, they may be raised plentifully from seed, in beds of common earth, and at a year old, planted in nursery-rows, to grow to a proper size of two, to three or four feet, for final transplanting in the places where intended, at the proper seasons.

The principal seasons for planting these trees, is autumn or spring; or might be effected, occasionally, any time from October or November, to March or April, in open, mild weather; but, for fear

of being attacked with severe frost, it would be advisable to plant principally, or as much as possible, either in autumn aforesaid, where convenient, or in the spring months, February, March, and beginning of April; though in tolerably mild winters, the planting may also be forwarded in that season, especially in the more hardy kinds, as the Scotch Pine, Pinafter, Spruce Firs, &c. or most of the other sorts occasionally; or the whole principally in autumn or spring, or mostly in the latter, which is generally a successful season for planting these kinds of ever-greens.

Any general planting or transplanting of these trees, is advisable to be performed while they are young, as before intimated, when two, three, or four, to five or six feet high at most, especially as they will take root more kindly and sooner than large, or older plants, and advance in a more free growth; or for timber plantations particularly, it is of importance to plant them finally, when of but half a yard, to two, three, or four feet, that they may root freely, and proceed in a free, clean growth from the beginning, and thereby run up straight and swiftly, to a tall or lofty stature, in which consists the principal merit of these trees, both in appearance and utility.

For ornamental planting in pleasure-grounds, parks, &c. all the sorts of *Pinus* are proper; or any principal or desirable species, for particular districts, as the Weymouth Pine, Italian Pine, and the *Pinus Cembra*, Silver, and Balm of Gilead Firs, Cedar of Lebanon, and Larch Trees; though all the sorts make a good appearance; and may be disposed both in contiguous plantations, in groves, thickets, &c. wholly of the *Pinus* kind, of different species intermixed, to display the greater diversity; or, in some places, different species in distinct compartments; and likewise are proper to assemble in general plantations, shrubberies, clumps, &c. in concert with other trees and large shrubs, principally of the ever-green kind, except the *Pinus Larix*, which being deciduous, may also be associated with trees of that tribe; or likewise any of the other sorts may be dotted thinly in deciduous plantations, for variety; though they should principally arrange with ever-greens, in the general planting, and in plantations wholly of the *Pinus* tribe, as above observed; and are proper trees to plant in single or double rows, to form grand walks and avenues, as also to dispose in clumps, and singly in detached standards; observing generally, for single planting or dotting on lawns, and other capacious spaces of grass ground, allot principally some of the handsomest-growing trees of the sorts before specified, or of different species and varieties, in which should never omit that celebrated tree of solemn note, the Cedar of Lebanon, which, when of some considerable advanced growth, will spread its branches in admirable grandeur;

deur; likewise, the *Larix* or Larch, being a tree of a swift and beautiful growth, makes a fine appearance in ornamental planting.

In planting the different sorts of *Pinus* for the above ornamental occasions, that were intended for continued plantations, some may be planted in open groves, in rows fifteen to twenty feet asunder, to give room for them to branch and spread freely around in full heads; others may be planted in close groves, thickets, clumps, walks, &c. six or eight, to ten feet distance, and will draw one another up more expeditiously in a tall, straight growth.

To plant these trees for timber plantations, all the sorts may be admitted, or principally, only the hardiest and largest-growing kinds, such as the Pinaster and Scotch Pine, abundantly, for its singular hardiness to grow any where, in a quick growth, and for the great usefulness of its wood; likewise plenty of the Weymouth Pine, as a most lofty-growing tree; also the Italian Stone Pine, Swamp Pine, Spruce Firs, Silver Fir, and the Cedar of Lebanon and Larches; all of which may be planted in soils and situations before mentioned; and which, for forest or timber-trees, deserve culture in considerable plantations, in all places where they afford proper extent of spare ground to allot for that purpose, which not only give an air of importance and ornament, but greatly improve the value of estates; and in forming which plantations, they may, in some places, be planted in close rows at first, five or six feet asunder, to draw one another up straight, and more expeditiously in height; and when of advanced growth, in eight, ten, or twelve years, some might be thinned out for poles, &c. and may repeat thinning out the underling trees, by degrees, leaving the best standing at fifteen to twenty feet distance, or more, to acquire full growth for timber; or some may be planted at once at the above distance of fifteen or twenty feet, to remain wholly to grow to large standards, before any are cut down.

For the above plantations, the ground is sometimes prepared by ploughing, &c. where the situation admits, especially for close planting; otherwise, or sometimes in general, no other preparation is given, than only to dig holes in which to plant the trees.

Or sometimes plantations of the Scotch Pine, &c. are formed by sowing the seeds in drills in the places where the trees are always to remain, having the drills five or six feet asunder; the ground being previously ploughed, either wholly, or otherwise ploughed or digged along the places for the drills, for sowing the seed therein; and when the plants are come up in the first and second year, thin them to eligible distances, by drawing them out in autumn or spring, leaving the most thriving plants standing two or three

feet asunder; and when of more advanced growth, in two or three years, thin them more effectually, by removing the weakest, and leaving the strongest five or six feet asunder, to remain till advanced to some considerable size, then some may be cut down in a thinning order, gradually, as intimated above.

With regard to the propagation, or method of raising the different species of *Pinus*, it is effected wholly by seed sowed in the spring season, in beds of light earth.

The seed for sowing is obtained from the cones, which ripen in autumn and winter; and the seed is cleared therefrom either by exposing them in the sun, or towards a gentle fire, to make them open to dislodge the seed, which are closely involved in the scales; or some of the large, close, hard cones, as in the Italian Stone Pine, Cedar of Lebanon, &c. must be split open, by boring a hole through the middle, longitudinally, and driving a peg or spike therein to divide them asunder, whereby to come at the seeds, which, in all the sorts, clear out from the scales, keeping those of each sort separate, for sowing distinct accordingly; they should be sowed principally in the spring, any time in open weather, in February, March, or beginning of April; and for which, prepare beds of light earth, three or four feet wide; rake some earth off the top evenly, an inch deep, into the alleys; sow the seed tolerably thick, broad-cast on the surface, each sort separate, and covered with the earth which was raked off the beds; or may sow any particular sorts in large pots, such as the Cedar of Lebanon, &c. in order for moving the pots of seedlings to a shady place in summer, and to a sheltered, warm, situation in winter; more secure from rigorous frost the first year or two, in their tender growth.

All the sorts will come up the same year, in six or eight weeks; give moderate watering in their first rising, in dry weather: the plants rise very slender the first year, generally only with a few leaves, and a small bud of the advancing shoot in the centre; or some will probably make a short shoot by autumn: keep them clear from weeds all summer, and in winter, if severe frost, occasional shelter to the Cedar of Lebanon in particular, would be of advantage; the others will not require any protection.

In the spring following, they should be planted out from the seed-beds; draw them up with good roots, and plant them in other beds, in rows six or eight inches asunder; and having advanced two years growth in the planted-out beds, transplant them in nursery-rows two feet and a half distance, and in which to remain to acquire proper size for final transplanting, permitting them to run with the top or leading shoot intire, to aspire in height with a straight stem, as fast

as possible; and do not prune any of the lateral branches, except occasional, low stragglers, or only, however, the under growths, near the ground; for these resinous ever-greens do not admit of any considerable application of the knife; besides, these trees having their branches proceeding from near the bottoms, in their peculiar, natural order, adds exceedingly both to their beauty and prosperity of growth.

The young trees having advanced in their nursery growth, as above, from about one, two, or three, to four, five, or six feet in height, as has been already hinted, may be transplanted finally, as required, in the places where they are to remain, either wholly, to form, or to assist in forming, the different or particular plantations in which they are designed; for generally in most of these kind of trees, when having their final transplantation while in young growth, they sooner, and more effectually take good root and grow profusely.

In removing or transplanting these trees, have them dug up with their full roots, as intire as possible, preserving their extreme fibres as much as can be, and still continue the top-shoot intire, as also the general branches; or may only prune off very low, under stragglers, and plant them at the proper distances in the intended plantations; which, where for ornament, may be from ten, to fifteen or twenty feet, or more; and where designed for forest or timber-trees, they are planted five or six, to ten or fifteen feet asunder, agreeable to the foregoing intimations.

As to future culture, after planting, those planted young, in places where weeds or grass shoot up in rank growth, in summer, should have these kept under till the trees are grown several feet in height, out of the reach of being over-topped therewith; they will afterwards, in their spreading branches, keep down and prevent all injury from weeds, &c. or where they are planted in the shrubbery order, or in any continued or extending plantation, either distinct, or assembled with other trees and shrubs, in compartments, in which the ground between them is annually dug, in winter or spring; it is proper, where their spreading branches do not cover the surface, to hoe down the weeds in summer; and in the different plantations, &c. the trees in general, of these sorts, should, in their advancing growth, be permitted to run up in their top-shoot, and to branch out fully in their natural manner; or only, as they increase in height, may prune up low, under branches, by degrees.

In these, in timber plantations, where close planted at first, they, when advanced twenty feet high, or

more, of five or six inches to a foot thick in the stem, may have some cut or felled in a gradual, thinning order, for poles and other occasions, leaving a regular supply of the finest trees, at moderate distances, to acquire large growth for timber.

As the Cedar of Lebanon, while young, is apt to grow bending at top, it should be trained to a straight stake, in an upright growth.

PISTACIA, PISTACHIA-NUT, or TURPENTINE TREE.

Class and Order.

Dioecia Pentandria,
Two Habitations, Five Males;

Or Flowers Male and Female, distinct on two separate Trees; and the Males having five Stamina.

THE *Pistacia* furnishes three or four hardy species of deciduous and ever-green ornamental trees, of moderate growth, garnished, in summer, with pinnated and trifoliate leaves; and small, apetalous, greenish flowers, in amentums and clusters, male and female, distinct on two separate trees; the males collected into loose, scaly amentums, without petals, having five stamina, crowned by large, four-cornered anthera; and females also without petals, growing in clusters, and furnished with trifid cups; an oval germen, supporting three styles; and the germen grows an oval, berry-like, drupaceous fruit, in clusters, containing a smooth, oval nut, with an eatable kernel; and by the nuts, sowed in the spring, the trees are propagated, likewise by layers of the young wood.

The hardy PISTACIAS are,

1. PISTACIA vera, True Pistachia Tree.

A small or moderate deciduous tree, growing eighteen or twenty feet high—the leaves (large) complete pinnated, with sub-ovate, recurved folioles, in two, three, or four pairs, terminated by an odd or end lobe.—Native of Persia, Arabia, Syria, and India. (*Dry, warm situation.*)

2. PISTACIA Terebinthus—(Terebinthus vulgaris) or Common Turpentine Tree.

A moderate deciduous tree, growing twenty feet high or more—the leaves (large, dark-green) complete pinnated, with ovate spear-shape folioles, in three or four pairs, terminated by an end lobe.—Native of the southern parts of Europe, northern parts of Africa, and of India. (*Warm, dry situation.*)

3. PISTACIA trifolia, Trifoliate or Three-leaved Pistachia Tree.

A moderate deciduous tree, growing eighteen or twenty feet high—the leaves (middling, dark-green) mostly

mostly ternate or three-lobed, and some pinnated; the lobes ovate-roundish.—Native of Sicily. (*Dry, warm situation.*)

4. *PISTACIA narbonense*, Narbonne Turpentine Tree.

A moderate deciduous tree, twenty feet high or more—the leaves (*large, light-green*) pinnated and trifoliate, of three and five lobes, sub-orbicular roundish; and large, round fruit.—Native of Montpellier, Persia, Mesopotamia, and Armenia. (*Warm, dry situation.*)

5. *PISTACIA Lentiscus*—(*Lentiscus vulgaris*) Common Lentiscus, or Mastick Tree.

A middling ever-green tree, growing twenty feet high or more—the leaves (*large*) abrupt pinnated; the lobes spear-shape, in three or four pairs, not terminated by an end foliole.—Native of Spain, Portugal, Italy, and Palæstine. (*Dry, warm situation.*)

All these species of *Pistacia* are admitted in collections of curious trees and shrubs, for variety and ornament; but being natives of warm climates, are mostly of a tender nature, and are generally retained as green-house plants, in this country; though they are also sometimes planted in the full ground, in principal shrubberies, in warm, dry soil, and sheltered situations, full to the sun in winter, and defended from cutting blasts in that season; or planted against a south wall, and have occasional covering of mats in severe weather: the different species may be had at most of the principal nurseries, generally in pots, to transplant with balls of earth, which should be performed in spring, when settled, warm, weather, in March or April, in situations as above; or may be raised by seed and layers, to a proper size for planting.

These trees are mostly deciduous when planted in the full ground; but when defended in a green-house, they often retain their leaves in winter; they flower in summer, but are seldom succeeded by ripe nuts in this country; these, however, are obtained plentifully from abroad, proper for sowing, &c.

They are propagated by the seed or nuts, sowed in the spring, and by layers of the young shoots.

The seed or nuts for sowing, may be procured at most of the principal seed shops and nurseries, in the spring: sow them in March or April, some in pots, an inch deep, and placed in a hot-bed to forward the germination of the seed, and the young plants in growth; and some may be sowed in a bed of natural earth, in a warm situation; and the young plants in autumn, transplanted singly in small pots: keep the

whole in pots for two or three years, in order for placing under shelter of a frame, &c. in winter, when frosty weather; or if some are continued in the full ground, give occasional protection as above; and when increased in strength, of two or three feet height, they may be transplanted into the full ground, in the spring, turning them out of the pots with balls of earth to the roots, or removed from the full ground in the same manner, and planted in warm, dry situations, before-mentioned.

But it is also proper, generally to keep some constantly in pots, to move under shelter in winter, in preservation, in case these in the full ground are killed by rigorous frosts.

PLATANUS, PLANE TREE.

Class and Order.

Monoecia, Polyandria,
One Habitation, Many Males;

Or Flowers Male and Female, distinct, or separate on one or the same Tree; and the Male Flowers having many Stamina.

THE PLATANUS comprise noble, deciduous trees of straight and lofty stature, for ornamental and forest-tree plantations, rising with an upright stem, to a considerable height and substance, and large, branchy, spreading heads; adorned, in summer, with most ample, palmated, lobated foliage, divided into three and five lobes, expanding six or eight, to twelve inches broad, or more, measured from the extremity of the side lobes; and small male and female flowers, separate on the same tree; the males collected into globular amentums, of many small florets, with scarcely visible petals, containing numerous small stamina; and female flowers of many small petals, collected into large, roundish balls, suspended in long, pendulous strings or pedicules, and furnished with several germs and styles, succeeded by numerous pappous seeds, growing in round, hard, rough balls, ripening in autumn; and by which, sowed in autumn or spring, the trees are propagated, also by layers and cuttings of the young wood in the same seasons.

The Species of PLATANUS are,

1. *PLATANUS orientalis*, Oriental or Eastern Plane Tree.

A lofty-growing deciduous tree, attaining sixty or seventy feet high—the leaves (*most large, dark-green*) palmated, divided into five principal lobes.—Native of Asia, Taurus, Macedonia, Creta, &c. (*Loamy, moist, or any common soil.*)

Variety.

Variety.—Maple-leaved Oriental Plane—the leaves more slightly palmated or divided.

2. *PLATANUS occidentalis*, Occidental or Western American Plane Tree.

A large deciduous tree, growing fifty or sixty feet high—the leaves (*large, light-green*) lobated, or mostly cut into three principal lobes.—Native of North America. (*Moist, loamy, or any common soil.*)

3. *PLATANUS hispanica*, Spanish or Middle Plane Tree, (supposed a Variety of the *Occidentalis*.)

A large deciduous tree, growing forty or fifty feet high—the leaves (*very large*) lobated, of three or five principal lobes.—Native of Spain and America. (*Moist, itamy, or any common soil.*)

These are admirable fine trees, of beautiful, stately growth, for ornamental planting, and to introduce in forest-tree plantations; they growing with straight, lofty stems, and noble spreading, branchy heads, which, clothed in summer with their luxuriant, elegant leaves, of large expansion, make a delightful appearance, and form an agreeable shade; and the flowers produced in suspended balls, on long, pendulous pedicules, effect a curious singularity; ripening plenty of seeds in autumn, in most seasons.

They are desirable trees to plant, both in assemblage in all principal ornamental tree plantations, for adorning pleasure-grounds, parks, &c. and to form groves wholly of their own kind; and have considerable merit to arrange with other large trees, in avenues, groves, groups, and clumps; and also to plant distinct, in clumps and in single standards, disposed in parks, fields, and other capacious districts, and in rows towards outward boundaries, &c. likewise, to drop singly, and in clumps, on spacious grass lawns; and are peculiarly adapted to plant in particular compartments, to form shade in summer, where it may be required, which, in their spreading growth, and beautiful, luxuriant foliage, they will effect most agreeably, as well as appear singularly ornamental; and in all of which orders of planting these trees, they assume a peculiar grandeur in their general appearance, conspicuously distinguishable.

These trees are also proper to assemble in forest-tree plantations, as they grow with straight, lofty stems, acquiring some considerable bulk; and may be associated both with other deciduous timber trees, as Maples, Beech, Chestnut, &c. in forming woods for timber, and coppices for under-wood; and likewise planted in groves and thickets, wholly as the *Platanus*

kind, for the same occasions; or the whole principally to grow for large standards.

The trees of the different sorts are raised plentifully in all the principal nurseries, for public supply, and where they may be obtained in proper growth, of five or six, to eight or ten feet high, or more, for planting, in autumn or spring; or any time in mild, open weather, from October or November, to March, or April.

They are propagated by seed, and occasionally by layers and cuttings.

To raise them from seed, it is sowed in autumn or spring, or principally in the last-mentioned season: perform the sowing in a bed of light, mellow earth, sowed moderately thick, either at once on the rough surface, and raked in evenly, or the ground previously raked smooth; and then draw some earth off the top of the bed, an inch deep, into the alley, sow the seed on the bed, smooth it down into the earth with the back of a spade, and cover it over with the earth out of the alley, regularly, about half an inch to an inch in depth; or may be sowed in small drills, six inches to a foot asunder; the plants will come up in April or May, or early part of summer: keep them clear from weeds all that season; and when they are of one summer's growth, transplant them in autumn or spring, in nursery-beds, in rows, a foot, to fifteen or eighteen inches asunder; and having increased in size and strength, for one or two years, or more, should be transplanted at wider distances, or in which might be planted at once from the seed-bed, in nursery-rows, two feet and a half asunder, in which, train them with single, clean stems, prune off lateral shoots, according as the trees advance in height, preserving the tops entire; and when three, four, or five, to six, eight, or ten feet, may be finally transplanted, as occasionally required, for the intended plantations.

By layers and cuttings of the young shoots, they may also be propagated, performed in the autumn or spring; for layers, eluse the young shoots produced from stools, near the ground; gash or cut a small upward slit on the under side, lay them with that part in the earth, they will more freely root, and form proper plants by the following autumn; and cuttings of the strong, clean, young shoots, principally in the spring, planted on a shady border, will also emit roots and grow; and in both of which methods of propagation, train the plants as intimated for the seedling trees.

In the advancing nursery growth of the young trees raised by the above different methods, continue the whole trained with single stems, pruning away lateral shoots therefrom, and permit the top leader, and branches of the head, to aspire in height.

When

When the young trees, raised by either or all of the different methods, are advanced in growth, about four or five, to six, eight, or ten feet high, they are then of proper sizes for any plantations in which they may be required.

The season for transplanting or planting these trees, is principally either in autumn, at the decay of the leaves, or in the spring, February or March; or in mild seasons, may be performed any time in open weather, from October or November, to March aforesaid, or beginning of April as formerly intimated: have them taken up with full roots, and planted as soon after as possible; and if any are of tall growth, in exposed situations, they should have support of stakes to preserve them upright.

In their future growth, after the final transplanting of the trees, may prune up lateral shoots and under branches, by degrees, to run them with a clean, straight stem, and permit them to run up freely above in full heads.

POPULUS, POPLAR TREE.

Class and Order.

Dioecia Ostandia,
Two Habitations, Eight Males;

Or Flowers Male and Female, separate on two different Trees; and the Males having eight Stamina.

THE *Poplars* are large and lofty-growing deciduous trees, mostly of the aquatic tribe, delighting to grow in moist situations, valuable as forest-trees, as also for variety and ornament; are generally swift growers, with spreading and upright heads in the different species; garnished, in summer, with largish and middling, roundish, cordate, and deltoid-hearted leaves; and small, greenish male and female flowers, distinct or apart on two separate trees, disposed in oblong, scaly amentums, each scale forming a cup to one floret, without petals; containing eight small stamina in the males, and in the females, a short style, crowned by a quadrifid stigma, and succeeded in the females by oval capsules, furnished with many downy, ovate seeds, by which the trees may be raised; but are more generally propagated by cuttings and layers, or particular varieties, by grafting.

The Species of *POPULUS* are,

1. *POPULUS alba*, White Poplar or Abele Tree.

A large deciduous tree, growing sixty feet high or more—the leaves (*large and middling, light-green, whitish*) roundish, dentated-angular, three, four, or

five-lobed, the under side hoary, white.—Native of the temperate parts of Europe. (*Moist, watery, or any common soil.*)

Varieties.—Large-leaved White Poplar.
Small-leaved White Poplar.
Variegated-leaved White Poplar.

2. *POPULUS nigra*, Black Poplar Tree.

A large deciduous tree, growing fifty or sixty feet high—the leaves (*middling, dark-green*) deltoid-ovate-hearted, pointed and ferrated, or fawed.—Native of the temperate parts of Europe. (*Moist or any situation.*)

3. *POPULUS tremula*, Tremulous or Trembling-leaved Poplar, or Aspen Tree.

A large deciduous tree, growing fifty or sixty feet high—the leaves (*smaller or middling, light-green*) roundish, dentated-angular, smooth on both sides, having generally a continual tremulous or wavering motion, by the least wind.—Native of the cold parts of Europe. (*Moist or any common soil and situation.*)

4. *POPULUS heterophylla*, Various-leaved American Poplar Tree.

A most large deciduous tree, growing fifty or sixty feet high, or more—the leaves (*large, light-green*) cordate or hearted, and roundish, the early ones downy.—Native of Virginia, &c. (*Moist or any soil.*)

Variety.—(*Populus græca*) Grecian or Athenian variable-leaved Poplar, growing sixty feet high—the leaves (*large, light-green*) heart-form, &c.—Native of Greece. (*Any common soil.*)

5. *POPULUS balsamifera*, Balsamatic Carolina Poplar.

A large deciduous tree, growing sixty feet high—the leaves (*large*) somewhat heart-form, denticulated or fine-notched; the buds abounding in a balsamatic, odoriferous, gummy substance.—Native of North America. (*Moist or any situation.*)

Variety.—(*Populus Tacamahacca*) (*Tacamahacca*) commonly called Tacamahac, or Balsam Tree.

A middling deciduous tree, growing twenty-five or thirty feet high—the leaves (*middling, light-green*) oblong-ovate, and some hearted, hoary on the under side; the buds and leaves full of a balsamous substance, most excellent for fresh cuts or green wounds.—Native of America. (*Any common soil.*)

6. *POPULUS*

6. *POPULUS italica*, Italian or Lombardy Poplar.

A lofty, most swift-growing deciduous tree, branching uprightly in a pyramidal growth, fifty or sixty feet high—the leaves (*middling-large, light-green, spinning*) roundish-heart-form, acute-pointed, smooth.—Native of Italy, near the River Po. (*Any soil or situation.*)

All the species and varieties of *Populus* are principally of an aquatic nature, or that affect to grow in humid soils, or near waters, or moist situations; but they also succeed in almost any soil and exposure, only are generally the most prosperous in moisture, in which they shoot up in a very swift growth; and therefore, may be cultivated in all situations, and particularly, to considerable advantage in any low, watery, or boggy soils, where many other trees, &c. would not prosper, and in which may be cultivated, both in standard plantations, for the timber, which is valued for its peculiar whiteness, and light property, useful for many purposes; and as under-wood, in coppices and hedges, and along the sides of rivers and brooks, or in moist places, to cut often in small growth, for poles and spars, for various occasions; though they may also be planted in any soils and situations where they may be required for useful and ornamental planting, or for variety, in large plantations.

For useful planting in woods, groves, coppices, for timber and under-wood, any or all the sorts may be introduced, both in assemblage with other deciduous kinds, and in plantations wholly of the *Populus* kind; or also, associated with other aquatic trees, as willows, birches, &c. in moist situations.

Or for ornamental planting and for variety, or to diversify large tree plantations, and for shade, shelter, &c. the principal sorts are the Lombardy Poplar, White Poplar or Abele Tree, Balsamic or Carolina Poplar, and the Tacamahac, or any of the others occasionally; but, of the above kinds, the most prevailing is the Lombardy Poplar, now in great repute for its remarkably swift and handsome, erect growth, to plant both for ornament, to form shelter, shade, and blind, to particular districts; though all the sorts are well adapted to join in any outward plantations, on the boundaries of parks, fields, spacious lawns, and in any out grounds, as well as to assemble in clumps, groves, &c. in parks and other extensive spaces; also to form decorative plantations in any low, marshy, or humid grounds, either distinct, or in concert with other aquatic trees, to effect the greater variety.

But the Lombardy Poplar particularly, being a tree of singularly swift growth, surpassing that of all other trees, growing with an erect, closely-branching, pyramidal head, arriving to a lofty stature, and large

size, in a few years, is peculiarly calculated for forming the most expeditious plantation, either for shelter, shade, or blind, as before hinted, to run up both in branchy, full standards, in single rows, groves, and thickets, and to plant close, hedge-ways: is also particularly well adapted for planting in rows along any outward boundary, or next road sides, both for shade and blind, aforesaid, and to break off the dust in summer, as it soon runs up incredibly swift, to a considerable growth, for these occasions; and likewise, from its close, branchy growth, admits of training in regular hedges; and the trees admit of transplanting, both in small, middling, and larger growth, from three, four, five, or six, to eight, ten, or twelve feet high.

However, the Poplars in general, are eligible to introduce in any of the fore-mentioned orders of planting, and in all of which will advance in expeditious growth; and that where any plantations are required to run up in some considerable growth, as soon as possible, the Poplars are commendable in any situation, where thought necessary, or assembled with other swift growing trees, or in any general plantation, of various sorts of trees, in a diversified manner; and are always eligible in moist situations particularly.

Trees for planting may be procured at all the public nurseries, of proper growth, four, five, or six, to eight or ten feet-high, or more; and are all easily propagated by layers, cuttings, and suckers, that will soon advance to the above sizes, for final planting, as occasionally required.

As to the season for planting Poplars, they being all very hardy, may be removed and planted any time in open weather, from the decay or fall of the leaves, in October or November, till March or April.

The propagation of all the sorts of Poplars, is principally by layers, cuttings, and suckers, or some by seeds.

The layers may be of any lower, young shoots, produced from stools, near the ground, which may be layed in the autumn or spring, laying the stems of the shoots into the earth, three or four inches deep; will root freely, for planting off in the autumn following, into nursery-rows, where train each with a clean, single stem, and run the leading and other top-shoots intire, to aspire in height and full growth.

Cuttings of the young shoots and branches will also emit roots freely, and grow, either the year old shoots, or larger growths, in poles and truncheons, of two or three years old, of a yard or two long, occasionally planted in moist situations, or along the sides of watery ditches, brooks, rivers, &c. to remain; but generally, when intended to raise a supply of handsome plants, in a nursery, for future plantations, should have cuttings of the strong, clean, young shoots, of
a sum-

a summer's growth, cut into lengths of ten or twelve, to fifteen or eighteen inches; prune off the weak or bending tops, and planted in a moist part of the nursery, in rows, a foot to half a yard asunder, they will root abundantly well in one year; train them as observed for the layers, pruning off lateral shoots from the stems, by degrees, as they encrease in height, running the leader and other top-shoots intire; and when they are of some advanced growth, should be transplanted at wider distances, in nursery-rows, two feet and a half, to three feet asunder; or, when of three, to four or five feet high, may be planted where they are to continue; or, as before intimated, cuttings of large growth, in poles or truncheons, of one or two inches thick, and a yard or two in depth, may be planted, for particular occasions, in moist situations, above-mentioned, principally to remain where planted, admitting them a foot, to half a yard into the ground, they will put forth roots, and advance in strong top-shoots.

Suckers sometimes arising from the bottom of trees of advanced growth, may be dug up, with roots to each, in the autumn, winter, or spring, forming, at once, rooted plants, and planted in wide nursery-lines, to grow to a proper size for final transplanting, training them for that purpose, as advised for the layers and cuttings.

The young trees raised as above, in the different methods, when grown three or four, to six or eight feet high, may be finally transplanted in the places where they are intended for any of the different occasions before-mentioned; and which may be performed in autumn or spring, or any time during the winter months, in open weather; and in their advancing growth in the respective orders of planting, keep them trimmed up below, to continue them with clean stems, six, to eight or ten feet, or more, according as they advance to some considerable height; and let the whole branch out freely above, in full heads.

When intended to plant the Poplars as forest trees, for timber standards, and for under-wood; they may be planted at five or six, to eight, ten, or fifteen feet distance; and in which, those planted in close rows, five or six feet asunder, when of several years advanced growth, some may be cut down in a thinning manner, for poles, &c. leaving the finest growths to run for standards; the others will shoot up, again from the remaining stools, in several stems from each, to fell for under-wood, in six, eight, or ten years; but those growing in standards, for timber, should stand many years, till they acquire a large size, of ten or twelve, to fifteen or eighteen inches thick-ness, or more, in the stem, before any are cut down.

POTENTILLA, (CINQUEFOIL)—CINQUEFOIL SHRUB:

Class and Order.

Icofandria Polygynia,
Twenty, or more, Males, Many Females;

Or Plants with Flowers (Herm.) having twenty, or more, Stamina, and many Styles.

ONE low, deciduous, flowering-shrub, of upright, bushy growth, with pinnated, or winged leaves; and large, yellow, quinquepetalous flowers, in clusters, having a permanent cup; a corolla, formed of five roundish petals, containing twenty, or more, stamina, and many pistillums; succeeded by a clustered head of seeds resting in the calyx, by which the plant may of propagated; but is generally raised by suckers, layers, and cuttings.

One Species, viz.

POTENTILLA *fruticosa*, Shrubby Potentilla, or Cinquefoil Shrub.

A low, bushy, deciduous shrub, three or four feet high—the stem shrubby; the leaves (*small*) pinnated, of five folioles, and clusters of yellow flowers; in July.—Native of England, &c. (*Moist or any common soil.*)

This is a hardy, shrubby plant, may be admitted in any shrubbery compartments; and is readily propagated by suckers, or by layers and cuttings.

PRINOS WINTER-BERRY.

Class and Order.

Hexandria Monogynia,
Six Males, One Female;

Or Plants with Hermaphrodite Flowers, having six Stamina, or Males, and one Pistillum, or Female.

THIS Genus furnishes two species of large, ornamental shrubs, one deciduous, the other ever-green, both for the shrubby, growing six or eight feet high, garnished with largish and middling, oblong and spear-shape, simple leaves, and rotated, or wheel-shape flowers, one, two, or three together; each flower having a six-parted cup, and a rotated, spreading, monopetalous corolla, divided into six parts, containing six stamina, and one style, succeeded by roundish berries, remaining on the shrubs all the winter; furnished with six obtuse seeds; and by which, sowed in the spring, the plants are propagated, likewise by layers and cuttings.

T

Two

Two Species, viz.

1. *PRINOS verticillatus*, Verticillated, or Whirled Winter-Berry.

A deciduous shrub, growing seven or eight feet high—the leaves (*large, dark-green*) oblong-spear-shape, longitudinally sawed.—Native of Virginia. (*Miscit, or any common soil.*)

2. *PRINOS glaber*, Smooth, or Ever-green Winter-Berry, Yapon, or South-Sea Tea Shrub.

An ever-green shrub, growing six or seven feet high—the leaves (*middling size*) spear-shape, alternate, sawed at top, and ever-green.—Native of Canada, in North America. (*Dry, light, or any common soil.*)

These two curious shrubs deserve admittance in all principal collections in shrubberies, &c. to encrease the variety, as well as for ornament and observation; allotting them a conspicuous situation: they may be had at the nurseries, for planting, in autumn, or spring.

They are propagated by seed and layers, and sometimes by cuttings: sow the seed in the spring, in a bed or border of mellow earth, or in pots, plunged in a hot-bed, just to forward its germination, and to bring up the plants the same year; which transplant in autumn, or spring, in a sheltered compartment, or in pots, singly; give shelter the first winter or two, from severe frost; and when advanced two or three feet in growth, may be planted in the shrubbery.

Or may try layers and cuttings of the young shoots; or cuttings, planted in pots, may be placed in a hot-bed, in the spring.

PRUNUS, PLUM TREE, comprising also the **CHERRY** and **APRICOT**, **LAUREL**, &c.

Class and Order.

Icosandria Monogynia,
Twenty, or more, Males, One Female;

Or Plants with Flowers (*Herm.*) having twenty, or more, Stamina, or Male Fruifications, and one Pistillum, or Female.

THE **PRUNUS** comprises several species, and numerous varieties, of valuable fruit-trees, and others; comprehending, agreeable to the botanic system, the Plum Tree, Cherry, Apricot, and Laurel Tree, all species of the same Genus, or family, which also comprise several other species; all of the hardy tree and shrub kinds, mostly deciduous, and some ever-green;

furnishing, together, a large and valuable collection, both for the fruit garden, orchard, shrubbery, and ornamental and forest-tree plantations, consisting of many species, all of upright growth, from eight or ten, to twenty or thirty feet high; garnished with spear-shape, oblong, and ovate leaves, in the different species, and hermaphrodite, pentapetalous flowers; in April and May, &c. some singly, and in pairs, others in clusters, at the sides and ends of the branches; having in each flower a monophyllous, or one-leaved calyx, five parted; a roseaceous corolla, of five roundish petals, inclosing twenty, or more, stamina; a roundish germen, supporting a single style; and the germen grows a roundish and ovate soft fruit, of the drupe kind, various in size and colour, in the different species and varieties, inclosing a roundish, compressed nut; and by which latter any of the trees are raised; or several principal sorts are generally propagated by grafting, inoculation, and by layers.

The Species of **PRUNUS** are,

Consisting of the Plum Kinds, Cherry, Bird-Cherry, Apricot, and Laurels.

Plum Kinds.

1. *PRUNUS domestica*, Domestic, or Common Plum Tree.

A moderate, deciduous tree, growing fifteen to twenty feet high, or more—the leaves (*middling*) spear-shape, ovate, convolute; and peduncles, or flower-stalks, sub-feltary, or mostly single; succeeded by roundish and oblong fruit, of many different sizes and colours in the different varieties; ripening from July till October.—Native of the southern parts of Europe. (*Any common soil.*)

Varieties of the Trees.—Striped-leaved Plum Tree.
Gold-bloached-leaved Plum Tree.
Double blossomed Plum Tree.
Damson Tree.
Double-blossom Damson Tree.

Of the Fruit, consisting of many Varieties, the principal esteemed Sorts of which are—

Primordian, or early White Hative Plum
—a small, oblongish-oval, whitish-yellow fruit; ripe the middle or end of July.
Azure Hative—a small, round, blueish Plum; the end of July.
Morocco, or Early Black Damask Plum
—a middling-size, round, black fruit, furrowed along the middle; the middle or end of July.

Little

- Little Black Damask—a small, roundish, blackish-blue Plum, very sweet; *the end of July and beginning of August.*
- Orleans Plum—a middling or largish, round fruit, of a dark-red colour, covered with a farinuous bloom; the tree a great bearer; *the middle of July.*
- White Orleans Plum—a middling-size, round, whitish-yellow fruit; *the middle of August.*
- Great Damask Violet Plum of Tours—a fine, largish, oblong-oval Plum, of a darkish-blue, covered with a violet-bloom; *the end of July and in August.*
- Small Early Tours—small, roundish, dark-blue; *the middle or end of July.*
- Fotheringham Plum—a middling-large, oblong, dark-red; excellent fruit, deeply furrowed; the flesh firm and rich; *the beginning and middle of August.*
- Little Queen Claude Plum—a small, round, yellowish-pearl-coloured fruit, rich and sugary; *the end of July or beginning of August.*
- Green Gage Plum—a smallish, round, green fruit, sweet juice; *ripe the beginning or middle of September.*
- Great Queen Claude, or large Green Gage Plum—a fine middle-size, round fruit, of a yellowish-green, often tinged with purple; moist, rich, and delicious; being the true or superior sort of Green Gage; *the beginning and middle of September.*
- Blue Perdrigon Plum—a fine middle-size, oval fruit, of a blackish-blue colour, covered with a farinuous violet bloom, most rich and excellently fine flavoured; *the middle of August.*
- Violet Perdrigon Plum—a largish, fine, roundish-oval fruit, of a blueish or violet-red colour, exquisitely rich flavoured; *the middle and end of August.*
- White Perdrigon Plum—a middling-size, ovate-oblong fruit, whitish-yellow, rich and delicate; *the end of August.*
- Maitre Claude Plum—a middle-size, roundish fruit, of a mixed red and yellow colour, rich and fine; *the end of August and in September.*
- Roche Courbone or Red Diapre Plum—a large, fine round, red fruit, powdered with a farinuous bloom, richly flavoured; *the end of August, &c.*
- Cheston Plum—a fine, middle-size, oval fruit, of a dark-blue, most rich and good; *the middle of September.*
- White Bonum Magnum, or Egg Plum—a most large, ovate, or egg-shape, yellow fruit, powdered with a farinuous white bloom, esteemed principally to preserve for sweetmeats, also good to eat raw; *the middle of September.*
- Red Imperial Plum, or Red Bonum Magnum—a most large, oval fruit, deep-red colour, finely powdered, valued for sweetmeats, and good for eating raw; *the end of August and in September.*
- Apricot Plum—a large, round, yellow fruit, having a whitish bloom; the flesh firm and rich; *the middle or end of September.*
- Myrobalan Plum—a middle-size, round, dark, or purple-violet fruit, very rich and sweet; *the end of August, &c.*
- Drap d'or, or Cloth of Gold Plum—a middle-size, round, bright-yellow fruit, red spotted, rich and juicy; *the middle of September.*
- Royal Plum—a fine, large, oval, light-red fruit, narrowing towards the stalk, rich and sugary; *the middle of September.*
- La Mirabelle—a smallish-round, greenish-yellow fruit, most rich and sweet; *the end of August and in September.*
- St. Catharine Plum—a large, oval-oblong, compressed fruit, amber-coloured, with a whitish bloom, excellently rich and sweet; *the middle or end of September.*
- Brignole Plum—a large, oval fruit, yellowish and red, sweet and rich flavoured; *the middle or end of September.*
- Wentworth, or Monsieur's Plum—a most large, oval, yellow fruit, of a sharp, acid flavour, good to preserve, or to eat raw, when fully ripe; *the end of September.*
- Imperatrice, or Empress Plum—a large, fine, round fruit, of a violet-red colour, with a whitish bloom; *the beginning of October.*
- White Pear Plum—a middle-size, oblongish, white fruit, of an acid fla-

vour, better for preserving than to eat raw; *the end of September and in October.*

Cherry Plum—a small, round, red fruit, the size, shape, and colour of a large red-heart cherry, esteemed chiefly as a curiosity; *August or September.*

Damascene, or Damson Plum—a small, round, blackish-blue fruit, very profitable for many kitchen purposes, in tarts, pies, &c. also for eating raw, when fully ripe; *September and October.*

Muscil Plum—a middle-size, oblong, compressed fruit, of a dark or black-red colour; but of an indifferent flavour; the tree valued by the nurserymen, for stocks, on which to bud peaches, &c. *the end of September, &c.*

St. Julian Plum—a small, roundish, oblong, violet-coloured fruit, with a farinuous bloom; *September.*

Almond-Shape Plum—a middle-size, oblong fruit, deeply furrowed, and of a whitish-yellow, tinged with red; *September.*

The above being the principal and most generally known sorts of Plums, there are many others of less note that occur in different parts of this and other countries; but this collection affords a plentiful choice, to furnish any garden with a proper variety.

The above varieties consist of many fine eating Plums, and for tarts, pies, and preserving; are various in size, shape, and colour; some being small, others middling and large, and in shape, round, oval, oblong, &c. in colours, black, red, white, yellow, green, blue, &c. and attain perfection, in the different varieties, from the middle or latter end of July, in regular succession, till October; and all of which are produced plentifully, both on standard-trees, wall-trees, and in espaliers.

2. PRUNUS *infinitia*, Infinitious Wild Plum, or Bullace Tree.

A small, deciduous tree, growing fifteen or sixteen feet high—the branches somewhat spinous; leaves (*smallish*) ovate, villose, hairy on the under side, convolute; and peduncles or flower-stalks, mostly in pairs, the flowers succeeded by small plums; ripe in September and October.—Native of Germany and England. (*Any common soil.*)

Varieties of the Fruit.—Black-Bullace.
White-Bullace.
Red-Bullace.

The Bullaces are of the smaller and inferior sorts of Plum, ripening late, of a tartish flavour; and a few trees merit admittance in the plum collection, in a garden or orchard, chiefly in small standards.

3. PRUNUS *spinosa*, Spinous or Thorny Wild Plum, or Sloe Tree.

A small, deciduous tree, of shrubby, bushy growth, ten to fifteen feet high—the branches thorny; leaves (*small*) spear-shape, smooth; and peduncles or flower-stalks, singly, and by pairs; and small, berry-like black fruit, called Sloes; ripe the end of October and November.—Native of most parts of Europe, in woods and hedges. (*Any soil and situation.*)

Variety.—Double-blossom Sloe Tree.

The Sloes are considerably the smallest of the Plum tribe, very austere and sour, but are in request in some families, and for medicines.

Cherry Kinds.

Comprising the Common Cherry in many varieties, the great Wild Cherry Tree, Bird-Cherries, &c.

4. PRUNUS *Cerasus*—(*Cerasus*) or Common Cherry Tree.

A middling, deciduous tree, growing eighteen or twenty feet high, or more—the leaves (*middling and large*) ovate-spear-shape, conduplicate, smooth; and flowers growing in umbels, succeeded by bunches of round fruit; ripening from May and June, till August and September.—Native of different parts of Europe. (*Any common fertile soil.*)

Varieties of the Tree.—Upright, close-branching Cherry Tree, as in most of the Duke kinds, &c.
Strong-shooting, spreading-branched Cherry Tree, as in the Heart kinds.
Slender-branching Cherry Tree, as in the Morello Cherry.
Dwarf Cherry Tree.
Double-blossom Cherry Tree, (*very beautiful.*)
Red-blossom Cherry.
Pendulous-branched or Weeping Cherry Tree, (*very curious.*)

Of the Fruit; ripening from May to September.

- Early small May Cherry—a small, round, red Cherry, valued only principally for its early maturity, as being the first ripe: *the middle and end of May.*
- Early May Duke Cherry—a larger, fine, round, red fruit, ripening of a dark-red colour, and good flavour; *the end of May, or mostly in June.*
- Arch-Duke Cherry—a large, most fine, round, red Cherry, ripening of a deep-red colour, excellent when fully ripe; *the middle or end of June, and in July till August.*
- White-Heart Cherry—a middle-size, roundish-heart-shape fruit, of a whitish-yellow, and pale-red colour; *June and July.*
- Black-Heart Cherry—a middle-size, roundish-heart-shape, black-red fruit; *June and July.*
- Kentish, or common red Cherry—a middling-size, round, red fruit, very juicy, of a sharp, acid flavour, profitable for general or common use; the trees generally plentiful bearers; *June, July, and August.*
- Hertfordshire-Heart Cherry—a larger, fine, roundish-oval, red fruit, firm and good flavoured; *the middle or end of July, till August.*
- Large Spanish Cherry—a large, fine, round, red fruit, ripening of a deep-red colour; *the middle and end of June, till July.*
- Amber-Heart Cherry—a large, roundish-heart-shape fruit, yellowish-amber-coloured, firm, and well flavoured, *July and August.*
- Ox-Heart Cherry—a most large, roundish-heart-form, red fruit, fleshy and well-tasted; *July and August.*
- Bleeding-Heart Cherry—a middling, roundish-hearted, dark-red fruit, often having a red drop at the end; *July and August.*
- Bigeron, or Harrison's Duke or Heart Cherry—a fine large, roundish-hearted, beautiful red fruit, most excellent; *July to August.*
- Lukeward Cherry—a largish, fine, roundish, black-red fruit, of a rich, good flavour; *July to August.*
- Carnation Cherry—a large, roundish-oval fruit, reddish and whitish-yel-

low-coloured, beautiful, with a firm flesh; *August to September.*

Yellow Spanish Cherry—a largish, round-oval fruit, amber-yellow-coloured, of a sweetish flavour; *the end of July and August.*

Turky-Heart Cherry—a large, fine fruit; *July to August.*

Crown-Heart Cherry—a large, roundish-hearted fruit, blackish-red; *August.*

Morello Cherry—a largish, fine, round, red Cherry, ripening of dark-red colour, very juicy, of a fine, acid flavour, and valuable for its long and late continuance; good both for eating and preserving; when of full perfection, become almost black; *August to September.*

White Crossian Cherry—a large, roundish, almost white fruit, firm flesh, well-flavoured; *July to August.*

These being the principal varieties of the common Cherry, are mostly large fruit of the Cherry kind, and are produced abundantly both in standards, wall-trees, and espaliers, attaining perfection, for eating, on the different varieties, from May or June, till September.

5. PRUNUS avium, (Birds) or Great Wild Cherry Tree.

A large, upright, deciduous tree, growing thirty or forty feet high—the leaves (*largish*) oblong-ovate-spear-shape, conduplicate, downy on the under side; flowers in close-fitting umbels, succeeded by bunches of small, round fruit, ripe in August.—Native of England and the northern parts of Europe. (*Any common soil and situation.*)

Varieties.—Small Black Wild Cherry.
Small Red Wild Cherry.
Larger Red Wild Cherry.
Large Black Wild Cherry, or Corroune Cherry.
Double-blossom Wild Cherry Tree.

Of the above varieties of Wild Cherry, the first and second are small, the third larger, and the fourth sort is a middling-size fruit, superior to the others in size and perfection, for eating; all of which are of a bitterish-sweet flavour; ripening the end of July and in August.

Bird-Cherry Kinds, the Fruit not palatable for eating.

6. PRUNUS *Padus*—(*Padus*) or Common Bird-Cherry.

A moderate, deciduous tree, growing fifteen or twenty feet high, or more—the leaves (*middling*) oblong-spear-shape, the base having two glands underneath; and flowers produced in clusters, succeeded by small, black, round fruit, ripe in autumn; but inferior, or not agreeable for eating.—Native of England and different parts of Europe. (*Any soil, &c.*)

7. PRUNUS *virginiana*, Virginian Bird-Cherry Tree.

A middling tree, growing twenty feet high, or more—the leaves (*middling*) ovate, the base glandulous in the fore part; flowers in clusters; succeeded by largish, red and black fruit.—Native of Virginia and Carolina. (*Any common soil.*)

8. PRUNUS *canadensis*, Canada Bird-Cherry Tree.

A smaller deciduous tree, with very smooth branches—the leaves (*middling*) broad-spear-shape, wrinkled, both sides downy; flowers in clusters, succeeded by small fruit.—Native of North America. (*Any common soil, &c.*)

9. PRUNUS *Mahaleb*—(*Mahaleb*) or Perfumed Cherry.

A small, deciduous tree—the leaves (*moderate*) ovate, obtuse; flowers in corymbose bunches; and small cherry-shaped fruit.—Native of Helvetia or Switzerland. (*Any common soil, &c.*)

Apricot Kinds.

10. PRUNUS *Armeniaca*—(*Armeniaca*) Armenian Apple or Apricot Tree.

A moderate, deciduous tree, growing fifteen or twenty feet high—the shoots reddish; leaves (*middling, or largish*) sub-cordate, or roundish, heart-shape; flowers sessile or sitting close; and large, roundish, and oval, firm, yellow fruit, ripe in the end of July, to the latter end of August.—Native of Asia. (*Loamy, or any good garden earth, and warm situation.*)

Varieties of the Fruit, ripening of the following Sizes, Shapes, and Colours, &c. from July to September.

Early Red Masculine Apricot—a small, roundish fruit, red next the sun, the

other side yellowish, not rich flavoured, but early ripe; *the beginning or middle, to the end of July.*

Early White Masculine Apricot—a small, round, whitish-yellow fruit; *the middle or end of July.*

Orange Apricot—a large, roundish, deep-yellow fruit; *the end of July or beginning of August.*

Roman Apricot—a large, roundish-oval, yellow fruit, of a more juicy, rich flavour; *the beginning of August.*

Algiers Apricot—a large, oval-shape fruit, somewhat compressed on the sides, pale-yellow; *the end of July, beginning and middle of August.*

Turky Apricot—a more large, globular, deeper-yellow fruit, firm, and rich flavoured; *the beginning of August.*

Temple Apricot—a large, fine, roundish, yellow and reddish fruit, firm, and well-flavoured; *the middle of August.*

Transparent Apricot—a roundish, yellow fruit, with a clear pulp; *the middle of August.*

Breda Apricot—a large, roundish, deep-yellow fruit; the inside deep-orange colour, of a high, rich flavour; *the middle or end of August, to September.*

Dunmore Breda Apricot—a large, roundish, fine fruit, yellow and reddish; *August and September.*

Brussels Apricot—a middle-size, roundish-oval fruit, red next the sun, tinged with dark spots, the other side greenish-yellow; firm flesh, with a high, rich flavour; *the middle or end of August, to September.*

The Apricots, in their mature growth, are mostly firm-fleshed, if not too ripe, and of a fine, poignant relish; but if too mellow, are soft, mealy, and of but little flavour; so should generally be gathered while the fruit, in its mature state, is of a firm texture.

The above are the principal varieties of Apricots cultivated in the British gardens; all of which are produced in plentiful crops, in favourable seasons, on wall-trees, principally against south and west walls, and some also on espaliers and standards, in warm situations; but as being mostly of the temperature of peaches and nectarines, and the trees blossoming early in the spring, generally when severe cold, or cutting blasts,

blasts, or sharp frosts often prevail, and the fruit in its embryo state, liable to be greatly injured, or cut off by inclement weather; the trees, &c. therefore in most of the varieties, require the protection of warm walls, both to defend the blossom and young fruit more effectually in its early growth, to obtain a more certain, tolerable crop, and to forward them to maturity in the best perfection of growth and flavour; they will likewise succeed on espaliers, or some sorts on standards, especially the Bredas and Brussels Apricots, all as hereafter fully explained in their general culture of the trees.—See culture of the Apricot.

Laurel Kinds.

Which, being also species of the *Prunus*, agreeable to the system of botany, consists of two species, both very eminent and beautiful ever-greens, viz.

11. *PRUNUS Lauro-Cerasus*—(*Lauro-Cerasus*) Cherry Laurel, or Common Laurel Tree.

A large, ever-green shrub, or middling tree, growing twenty feet high, or more—the leaves (*large, shining-green*) oblong-ovate, continuing always green, two glanded on the back; flowers in racemous clusters, succeeded by cherry-shape black berries, ripe in autumn; not eatable.—Native of Trebisend, Asia; brought to Europe 1576. (*Any soil and situation.*)

Varieties.—Broad-leaved Laurel Tree.
Narrow-leaved Laurel Tree.
Silver-striped-leaved Laurel Tree.
Gold-striped-leaved Laurel Tree.

12. *PRUNUS lusitanica*—Portugal Laurel, or smaller Laurel Tree.

A large, ever-green shrub, or small tree, of bushy growth, eight or ten, to fifteen feet high—the leaves (*smaller or middling, dark-green*) ovate-oblong, somewhat doubling, continuing always green, englandulous, or without glands; and flowers in racemous clusters, succeeded by small, berry-like fruit, ripe in autumn.—Native of Portugal and Pennsylvania. (*Any common soil, &c.*)

The last two species are most elegant ever-greens, of principal estimation, to plant, for ornament, in pleasure-grounds, &c.

This numerous family of *Prunus* affords a valuable collection of eminent trees and shrubs, for use and ornament in gardens and plantations, in a comprehensive variety; and particularly in some principal fruit-trees of different species, furnishing many fine varieties of their respective fruits, as in the Plum, Cherry, and

Apricot; some also to cultivate as forest-trees, and many sorts principally for ornamental planting in shrubberies and other districts, in pleasure-grounds: five or six species may be ranked in the fruit-tree collection, consisting of the common Plum and Cherry Trees, in their numerous varieties; the great Wild Cherry Tree, and Apricot; also occasionally the Bullace and Sloe Tree, in a small portion; but the three former for principal culture, both for standards, wall-trees, and espaliers, or the Apricot chiefly in wall-trees, for the general supply, or for forest plantations, the great Wild Cherry Tree, acquiring a lofty, large growth, is proper; and also the *Prunus domestica* and *Prunus Cerasus*, in their natural growth, are eligible to admit in timber-tree plantations, the wood being in request for various particular purposes, in several trades.

But all the other species, consisting of the Bird-Cherry kinds, Perfumed Cherry, and the two species of Laurel, are useful principally for decorative planting, very desirable furniture for diversifying shrubberies and other pleasurable plantations, for ornament and observation; or likewise any or all the fruit-tree kinds are proper to introduce in similar plantations in assemblage, in which they will affect a very distinguishable variety, both in their growth, abundant blossom, and production of fruits of their respective different sorts; and the Sloe Tree or Black-Thorn being very branchy, bushy, and armed with thorns, is employed in forming field hedges: the two species of Laurel are very beautiful ever-greens, to plant as principal ornamental shrubs of the ever-green tribe, for adorning shrubberies, &c. of which the *Prunus Lauro-Cerasus*, or Common Laurel, was also formerly trained for ornamental garden hedges; and is likewise still occasionally planted to cover naked walls and palings, &c. or also to plant for blind in any particular district, or to exclude from sight any disagreeable object; and in all of which, it appears always green and beautiful in its large, shining foliage; the Portugal Laurel is also elegant in its natural growth, in large, bushy, standards; and the Common Laurel, attaining some considerable size in the tree order, by pruning up the under branches by degrees, is also eligible to introduce in tree plantations, and to form Laurel groves, &c.

In the fruit-tree kinds of *Prunus*, for general culture, the common or cultivated Plum, Cherry, and Apricot, and their respective varieties, are the principal sorts; the merit of which being universally known, they demand particular attention, and should be admitted in every garden, especially a collection of the best varieties, in regard to those of their respective fruits, more or less, according to the extent of ground; both in standards, for the principal production, particularly of the Plums and Cherries, and
in

in wall-trees, for earlier and finer fruit, in the greatest perfection, and some in espaliers; or, where no walls or espaliers, may have the two last-mentioned kinds wholly in standards, and in which most of the varieties will produce plentiful crops in good maturity; but the Apricots should generally be trained in wall-trees, against warm walls, and some particular sorts will also produce tolerable crops on standards and in espaliers, as will be hereafter explained.

All the sorts of Plum and Cherry trees produce the fruit principally upon small spurs arising at the sides and ends of the branches, of from two or three to several years old, and the same branches and fruit-spurs continue many years fruitful: though the Cherries particularly sometimes also bear on the young shoots of a year old, or more generally in the Morello and small May Cherry, the most abundantly, especially the Morello, which commonly produces the principal crops of fruit on the young year-old wood.

Of the Plum kinds, to cultivate for the fruit, that of the *Prunus Domestica*, or Common Plum tree, is the most valuable, affording numerous varieties of the fruit in great diversity, in shape, size, and colour, of red, white, yellow, blue, green, black, &c. ripening, in the different varieties, in regular succession, from July till the end of October, both for immediate eating and for pies, preserving, &c. and therefore the trees are very profitable to cultivate in gardens and orchards, for their production of fruit, especially as they will prosper in any common fertile soil, either principally in standards, or some also in wall-trees, where there is the accommodation of walls; in which it is eligible to allot some of the most esteemed sorts, both to obtain some fruit as early ripe as possible, and to have the whole, both early and other kinds, of an improved growth and maturity; and of the Plum kind, should never omit having a few trees of the Damson in standards, the fruit being very useful in a family: likewise may admit some of the Bullaces in small standard-trees, to increase the variety; the fruit, when quite ripe, in September and October, is wholesome and of an agreeable acid flavor; or may also have some of the Sloe tree, the fruit of which being likewise of the Plum tribe, but considerably the smallest of that kind, of an austere quality, though palatable to some persons, and is useful in several domestic occasions.

Of the Cherry kind, the principal species for general planting is the *Cerasus* or Common Cherry tree, comprising its different varieties, a collection of which merits culture in every garden; valuable both for producing the earliest ripe summer fruit, continuing, in succession, two or three months, or more, from May and June till August or September, in the early and

late sorts, all very refreshing to eat in hot weather, and exceedingly useful for several kitchen purposes, and other occasions in a family, as well as a very profitable fruit for market; and the trees of all the varieties generally produce plentiful annual crops, both on standards, wall-trees, &c. so that they may be planted abundantly in gardens and orchards, in standards, for the principal production; and Cherry orchards are very profitable in the production of fruit for sale; and for wall-trees should allot some of the best varieties, both of early and late kinds, planted against south and other walls, or some may also be planted for espaliers. The *Prunus avium*, or Great Wild Cherry Tree, is proper to plant in full standards in orchards, parks, avenues, and hedge-rows, or also in gardens and pleasure-grounds; is a great bearer, the fruit small, but of an agreeable bitterish-sweet flavor; though the large red-fruited Wild Cherry, and the Black Couronne or Couron, varieties of the *Prunus avium*, being tolerably good sized fruit, and of a very agreeable taste, peculiar to these kinds, are deserving of culture in the best collections of the Cherry kind, in gardens and orchards, principally in standards. — See the general culture of the Cherry Tree, &c.

The Apricot, consisting but of one principal species, *Prunus Armeniaca*, furnishing many fine varieties, is cultivated principally in wall-trees, and planted mostly against south walls, and occasionally those of west and easterly aspects; some sorts also in standards, such as the Breda and Brussels Apricot, and in which, in favourable seasons, they produce plentiful crops of fruit, and ripen in good perfection; and these two sorts are likewise sometimes planted in espaliers, in which they also produce fruit very agreeably, in good maturity.

General Culture of the Plum and Cherry.

As the Plum and Cherry are nearly similar in their mode of bearing, and the same method of culture is applicable to both the species and their respective varieties, shall therefore treat of them accordingly, together, under the same general head.

All the sorts of Plums and Cherries produce the flowers and fruit mostly upon natural spurs or cufons, small, robust shoots, half an inch to an inch or two long, emitted along the sides and at the ends of the branches, when of two or three to several years old, arising first towards the upper parts, then gradually increasing in number at the lateral eyes, the whole length of the branches, provided they are continued intire, not shortened; as their mode of bearing does not admit of shortening, which would not only destroy the first fruitful parts, or where the fruit-spurs generally begin to form, but also, by pruning away that part of the shoots

shoots or branches, it makes the sap flow strongly to the lateral eyes or buds, whereby they are apt to push forth vigorous wood shoots, instead of forming fruit-buds for bearing, and therefore, in giving occasional pruning to the trees, should mostly preserve the general branches and shoots at their whole length, except in particular instances, to regulate or reduce any super-extended shoots, or considerable strolling growth, which may be pruned more or less accordingly, retaining all the others entire; and they will naturally furnish the above-mentioned short spurs for fruit: the same branches and fruit-spurs continue many years in a prolific state.

Though in the Cherry particularly, the trees often bear on the year-old shoots immediately from the eyes thereof, as well as upon spurs formed as above explained, on the two, three, and several years old branches; or more generally, however, the Morello Cherry, which always bears abundantly upon the young shoots of a year old, and also on small spurs on the older wood; but when trained in wall-trees, in which an annual pruning and nailing is requisite, should generally, in the Morello, leave a plentiful supply of the young shoots of each year, for immediate bearers the ensuing season, and part of the naked, old wood cut out accordingly in the winter-pruning.

Both these species of fruit-trees, the Plum and Cherry, in their several varieties, are proper to cultivate plentifully in standards and wall-trees, in gardens and orchards, as before intimated; being generally raised by grafting and budding upon stocks of their respective kinds, trained each with a single stem, four to five or six feet high, for half and full standards, and to branch out at those heights, to form the head; but for the general supply, are mostly trained in full standards, in stems of about six feet height, and planted twenty or thirty feet distance, and permitted to branch out fully above; and occasionally trained in dwarf and half standards, with stems of one or two to three or four feet; and for wall-trees, should allot a collection of the best varieties, trained principally in low stems, only five, six, or eight inches, to branch out near the ground, to cover the wall with branches, in a regular expansion, quite from the bottom upwards, and planted against walls of different aspects, as south walls for the earliest production, and on walls of other exposures, to furnish succession and late crops, planting them generally not less than twelve or fifteen to eighteen feet distance; and the branches arranged to the wall horizontally four to five or six inches asunder, all generally at their whole length, both in the Plums and Cherries, in which they will gradually form fruit-spurs along their sides for bearing: some may also be planted in espaliers and trained similar to those in wall-trees; and in both of which, the walls and espalier-trees, they will produce fruit in superior perfection, if regu-

larly managed, by proper pruning and nailing every year in summer and winter; but as to the standards, they having full scope to branch out freely above all around in full heads, they do not require any pruning, at least only occasionally, to reform any very irregular growth, and to cut out casual, decayed wood.

For standards, any or all the sorts of Plums and Cherries may be trained and planted in any common soil of a garden, orchard, &c. and in which may either have a full collection, where sufficient extent of ground, or have only an assortment of the principal or most approved varieties.

But for wall and espalier Plums and Cherries, generally have only the principal sorts, valuable some for their early production, others for the superior quality of the fruit, and some for late ripening, thereby obtain Plums from July and beginning of August to the end of October; and Cherries from May and June till September, of which the principal early sorts are the May and other Duke kinds, succeeded by the Heart Cherries, &c. and of the late sorts, the Morello is superior, as a great bearer and fine large Cherry, and which is commonly planted on north walls, as it bears abundantly in any aspect, and when in a north exposure, it continues in longest perfection; but it is also proper to have some on south walls, to enjoy the benefit of the sun, to ripen the fruit with a richer flavour, in which it proves a very fine large Cherry for the table; when fully ripe, of a black-red colour.

In standard Plums, generally have a principal supply of the best bearers and most useful, both for eating and domestic occasions; such as the Orleans, Green Gage, Imperial Plum, Bonum Magnum, Potheringham, Imperatrice, Royal Plum, Myrobalan, Perdri-gons, Queen Claude, Damask Plum, Mirabelle, White Primordian, Wentworth Plum, &c. and always some Damsons.

And for standard Cherries, all the Duke kinds are proper for principal supplies, some best sorts of Heart Cherries, and plenty of the Kentish or Flemish Cherry, being an abundant bearer and excellent Cherry, when fully ripe; also some Morellos, and Black Courcoun; but as to the Great Wild Cherry Tree, the common small Black and Red-fruited kinds are cultivated principally in large standards, in orchards and out-grounds, or occasionally in garden collections, to encrease the variety, and is very commonly planted in hedge-rows of fields, and in parks, &c.

Proper collections of the different varieties of Plum and Cherry, for planting, may be procured at the public nurseries, both in standards and wall-trees; either young trees, with heads of only one or two years old.

or such as are three or four, to five or six years growth, furnished with a tolerable head of branches, advanced to a proper age for bearing.

The season for planting all the sorts of these trees is either principally in the autumn, at the decay of the leaves, in October or November; and the sooner it is performed at that time the better; and they will have a good chance of striking root the same season; or planted in the spring months, about February and March, or not later than the beginning of April; though they may also be planted any time in open, mild, weather, from October till March.

The propagation or methods of raising the different sorts of Plums and Cherries, is principally by grafting or budding the desirable or respective varieties upon stocks of their own kind, *i. e.* the Plums upon any sort of Plum stocks raised from the stones of the fruit, or suckers taken from the roots of old trees; and the Cherries upon any kind of Cherry stocks, raised chiefly from the stones of the Cherries; for although Plum and Cherry trees may be raised immediately from the stones of the fruit, they neither bear so soon, nor come with certainty of the desired sorts, or, probably, not one in many produce good fruit; but grafting or budding, both continue the respective sorts invariably the same, and the trees also sooner attain a bearing state, and bear more abundantly, which is the case with most other fruit-trees.

Therefore, to raise supplies of stocks on which to graft or bud Plums and Cherries, having a quantity of the stones of the fruit, they should generally be sowed in the autumn, in September, October, or November, or preserved in sand, till February, and sowed in beds of light earth an inch or two deep, either broad-cast and earthed in that depth, or in drills a foot distance, they will come up in the spring, in April or May; which, next autumn, or spring following, or when of two summers growth at most, should be transplanted from the seed-beds, in nursery-rows two foot and a half asunder, in which to remain to acquire proper size for grafting and budding; likewise suckers of Plums, designed for stocks, should be planted in the same order; and when the stocks, both of seedlings and suckers, are advanced in growth from half an inch to an inch thick, they are of proper size to receive the grafts and buds; or occasionally the operation may be performed upon stocks of smaller sizes, of from that of a large goose quill to half an inch thickness, especially for whip-grafting; training the whole with a clean, single stem, five, to six or seven feet high, for half and full standards, and three or four for Dwarf or Common Wall-Trees and espaliers.

The operations of grafting or budding them is performed, the former in the spring, in February and March, and the budding in summer, in July and beginning of August, either of which methods of propagation is eligible; and at the proper seasons as above, chusing grafts and buds of the desirable or intended varieties of the respective trees, observing, for grafts, to take cuttings of the young shoots of last summer's production; and for buds, these must be detached from cuttings of the shoots of the same year; and in both of which, to perform the grafting or budding higher or lower on the stock, according as designed to have standards or dwarf trees; that for the former, should graft or bud upon tall stocks, inserting the graft or bud, at six feet height for full standards, three or four for half, and at one or two feet for dwarf-standards; but for common wall-trees and espaliers, the grafting or budding is performed low in the stock, within six or eight inches of the bottom, in order to obtain a proper spread of branches below, near to the ground, to cover the wall completely from the bottom upward; or occasionally, for half-standard wall-trees, they are grafted or budded at three or four, to five or six feet, whereby to have them furnish an expansion of branches at these heights, and for planting between the Dwarf or Common Wall-Trees, to cover the upper part of high walls while the others are advancing below, and thereby have all parts of the wall sooner and more effectually occupied.

Having performed the grafting and budding at the proper seasons, as above, the grafts will shoot the same year, but the buds not till the following spring; and in both of which they will make strong shoots in one summer, the grafts probably advance in two or three shoots, and the buds commonly but one; and in both of which, when the said first shoots are of one summer's growth, the trees may be transplanted, next autumn or spring, into the garden, orchard, &c. where they are finally to remain, or continue two or three years longer in the nursery, to form larger heads of several branches; but in either of which generally observe, that when the above said first shoots produced from the grafts and buds, are a year old, next spring it is proper, either if transplanted into the garden, &c. or remain in the nursery, to cut them down to a few eyes, in March, especially the bud-shoots, or also the grafts, when only one or two shoots, in order to promote their pushing forth lateral shoots the same year, near the head of the stem, to form the beginning head in an eligible expansion of lower branches, as a proper basis to furnish others in a regular supply upward; and for wall-trees particularly, also for espaliers, it is likewise sometimes necessary to prune down the second year's shoots moderately, to obtain a further supply of laterals; for when the first shoots are not headed down as above, but permitted to run, they are apt to extend

tend long and naked, without furnishing laterals, only towards the extremity.

As above observed, the young trees may be planted in the garden, either when they are of one or two years old, from grafting and budding, or of older growth, with heads advanced to two, three, or four years old, with a good spread of branches, and that are advanced to a bearing state, both of the standards wall-trees, &c.

The planting of standard Plums and Cherries may be performed in gardens, orchards, and pleasure-grounds, in any common soil and open situation: have the trees removed from the nursery with as good a spread of full roots as possible, and of which prune off any broken parts, and only shorten any very long straggler, or may just cut off the ends of the others, sloping on the under side; and as to the top, if furnished with a supply of laterals, forming the head of several branches, they should generally remain intire, except where any cross-placed or others of very irregular growth occur, which may be cut out, or pruned to order, as may seem necessary, or occasionally to shorten any long rambler, continuing all the rest in their full extent; or if the trees are only a year old, having but one or two first shoots, these may be pruned down in the spring, as advised in the nursery culture, to obtain an encreased supply of branches, to form the head of a more full, spreading order, and these permitted to advance in their full growth; and thus, agreeable to the above intimations, proceed to plant the trees in their allotted places, at twenty to thirty feet distance, and if early in autumn, or late in the spring, a moderate watering to the earth, about the roots, will be of advantage; and where support of stakes may appear necessary to trees with tall stems and full heads, it should be done as soon as planted, especially in exposed situations, placing one or two stakes to each tree; likewise, if very dry weather, in spring or early part of summer, occasional waterings would be very serviceable.

In the future growth of the standard Plums and Cherries, after final planting, they, in the first year from grafting and budding, either while remaining in the nursery, or after transplanting into the garden, having their first shoots, if necessary, pruned down, in March, to a few eyes, to force out collaterals, to form the head of a more spreading growth, should afterwards be generally permitted to branch out around every way, in their natural manner; will require very little pruning, or only occasionally to prune to order any considerable irregularity, such as to reduce any casual, long rambler, or to cut out low stragglers, very rampant shoots, and cross-placed branches, or to thin such as are considerably crowded, and to cut out decayed wood; but, except in these instances, suffer all the general regular branches to advance in their

full growth, and they will furnish fruit-spurs abundantly, and bear plentiful crops of fruit.

As to the wall, Plum, and Cherry Trees, they may be planted in the garden, either in their young growth of one or two years old, having the first shoots, from the graft or buds, pruned down when a year old, in March, to furnish a proper supply of collaterals below, to form the head; or if they have been headed in the nursery, and, in consequence thereof, are furnished with a tolerable spread of branches, it may be of greater advantage in regard to their being of larger expansion, as at once to cover a good space of walling, &c. from the beginning, and sooner commence bearers, or sometimes form immediate bearers the first season, in a moderate degree, allotting some principal forts for south walls, to produce fruit earlier, and in finest perfection, in size, beauty, and richness of flavour; and may plant others on walls of different exposures, for succession and late fruit; and for which, have the trees taken up with good roots, prune broken parts, &c. thereof, and long stragglers, as advised for the standards, and cut out any projecting fore-right shoots of the head; then plant them not less than twelve or fifteen feet asunder, or if fifteen to eighteen feet distance, it will be of more advantage, in affording proper scope to extend the branches in their advanced growth, at their whole length.

In espalier trees, may also plant some desirable kinds, both of Plums and Cherries, at the distance above-mentioned for the wall-trees.

After planting the wall and espalier Cherries, let the branches be arranged to the walls, &c. in regular order, extended horizontally, four, to five or six inches asunder, generally at their full length, for the reasons before explained; or in young trees, having only two or three principal shoots in the head, they may be pruned down half way, or to six or eight eyes, in order to obtain a further supply of bottom branches, which train to the wall in the above order; or occasionally, where it appears necessary to have further supplies of wood in particular parts, may shorten contiguous shoots either the same summer they are produced, performing it in June, or in the following winter or spring-pruning, to obtain laterals to furnish the vacancies; and afterwards, in the general pruning, commonly retain the shoots and branches intire, and they will thus afford natural fruit-spurs all along the sides to the extremity, and the same branches and spurs continue many years fruitful.

Then, with respect to the general culture of the wall and espalier Plums and Cherries, it consists of an annual pruning, nailing, &c. every summer and winter; a summer-pruning to regulate the shoots of the year, and a winter-pruning, both in the young wood and

older branches; for as the training them in wall-trees and espaliers, each tree being allotted a certain space, and the branches arranged in regular order, four, to five or six inches asunder, and as they will produce numerous, improper, and super-abundant shoots every year, the above annual prunings is necessary to reform irregularities, and to displace superfluous and useless wood, to preserve the regular expansion of the trees within their allotted bounds; but as the same branches continue many years in a bearing state, upon spurs before-mentioned, they do not require a renewal of a general supply of young wood for bearers, as in Peaches, Nectarines, Apricots, Vines, &c. which bear principally upon the young shoots of a year old; but when, after being trained in a full expansion, they only require occasional supplies of young wood in casual vacancies, or to supply the place of any decayed or worn-out old branches, or such as become of an unfruitful state; though in the Morello Cherry particularly, it is proper to retain annual supplies of young wood for principal bearers; and in the Plums and Cherries in general, should commonly continue a terminal shoot at the end of every branch, where room admits for their extension.

A summer-pruning and training, in the wall-tree and espalier Plums and Cherries, is necessary every year, to regulate the general shoots of the same season only, and which should be commenced in May or June, and continued, occasionally, in July, &c. proceeding to the business first by displacing the ill-placed and evidently useless or unnecessary shoots of the same year, and to retain and train in proper supplies of the well-placed shoots in all vacant parts, and the leading shoot to each main branch, if room admits.

This work of summer-pruning, if commenced early, the middle or end of May, or early part of June, while the shoots are quite young and herbaceous, may be performed by rubbing off the useless shoot-buds and twigs close, with the finger and thumb; but when more advanced in a woody growth, it must be effected with a knife; and, by either method, displace the fore-right shoots that grow immediately from the front of the branches, in a projecting direction, and such others as are not well placed, or improperly situated for training to the wall, &c. with regularity; as likewise any very luxuriant shoots, and others of improper growth; and also in the general shoots, where too numerous, prune out the superfluous or over-abundant in a thinning order, taking the whole off close to the mother branches, being careful, at the same time, to select and retain a moderate supply of the best well-placed side-shoots of middling-strong growth, arising on the lateral part of the branches in the most vacant spaces, both in young and old trees, in order for training to the wall accordingly, and to remain till winter-pruning, ready as a reserve, either to

furnish present or apparent future vacancies, if any, or to supply the places of casual decayed, worn-out, or unfruitful branches, observing also to retain the terminal or leading shoots, one only to each main branch, in all parts where room to extend them; and from the above-mentioned select shoots, cutting out the improper and super-abundant, continuing the reserved supply intire, or at their whole extent, let them directly, or when of proper length, be nailed and trained to the wall in regular order, between the mother branches; and according as they advance in growth, train them along at their full length all summer, at least not shortening any, except such as extend considerably beyond their proper bounds, where not room to run them in their full extension; and of the reserved shoots, if any push forth lateral twigs, they may be displaced in their young growth, leaving the main shoots clean and singly, and continued trained to the wall and espalier regularly as above.

Thus, giving the wall and espalier Plums and Cherries the principal summer-dressing, in May, June, July, &c. and as the trees will continue shooting, they should be looked over again accordingly, at different times, during their summer's growth, to displace any useless after-shoots, and to train in the reserved supply of proper shoots in their advanced or encreasing length, or that casually start or project from the wall, both to preserve the regularity and beauty of the trees; and that by having the shoots trained close, in a regular manner, admits the benefit of the sun, air, rains, &c. to improve the growth and goodness of the fruit; still continuing the principal shoots intire without shortening, or only occasionally, agreeable to the foregoing intimations.

For these and all other fruit-trees that bear the fruit principally upon natural spurs, arising on the two, three, or several years old branches, do not admit of shortening the shoots, neither in summer or winter-pruning, without detriment to their nature of bearing, as it would force out numerous useless or unnecessary lateral twigs from the eyes below, and prevent the formation of fruit-spurs, which, as being the principal bearing parts of these kind of trees, you will, in the process of the summer-pruning now under consideration, be careful to distinguish and preserve every where, they appearing of short, robust growth, half an inch to an inch, or more, long, arising along the sides, quite to the extremity of the branches, gradually, if not shortened, or but as little as possible, or not any, where room for their full extension, as formerly observed.

Though in particular instances, shortening may be occasionally practised, such as, if in the process of the summer regulation, in June, any considerable vacancy occur, or in young trees, under training, requiring

ing further supplies of branches, some strong shoots, contiguous to the vacant parts, might be shortened in May, or the beginning of June, pinched or cut down to a few eyes; they will produce a supply of collaterals the same season, and thereby furnish the vacancies more expeditiously and effectual; however, except in the above instance, continue the reserved general shoots intire; and the whole remaining till winter-pruning, when, selecting a sufficiency of the best where wanted, and a leader to each branch, the rest must be then cut out close to their origin, as explained in the following directions of *Winter-Pruning*.

The WINTER-PRUNING of Plums and Cherries trained in wall-trees and espaliers, which may be performed any time from the fall of the leaves in November till March, consists of a general regulation both in the old branches and young wood, in which it must be observed, that as in these and most other of the spur-bearing trees, or that produce the fruit mostly upon small, natural spurs, the same bearers continuing fruitful several years, and increase in the number of spurs as they advance in length, do not want a general renewal of young wood annually, as in trees which bear principally on the young shoots of a year old; as in Peaches, Nectarines, Apricots, Vines, &c. the same general branches are to be continued from year to year, as long as they remain fruitful or well furnished with a proper abundance of eligible fruit-spurs for bearing, and only an occasional supply of young wood is necessary, either to furnish young trees under training, with an encreased supply of branches, more or less, as required, or in old or full-trained trees, to supply casual vacancies, or the place of any unfruitful, or worn-out old branches, which happen either to decline bearing, or casually decay.

That, according to the above intimations, in proceeding to the operation of winter-pruning of these trees against walls and in espaliers, examine both the general mother branches and the supply of young shoots which were trained in last summer; if in young trees, requiring supplies of branches to encrease or give the head a proper expansion, retain well-placed young shoots accordingly; and if old trees, or having a full expansion of branches, see if any bearers appear of an unfruitful, worn-out, or decaying state, or assume any disorderly or bad growth, they should now be retrenched, and their places supplied with young wood, this being the only proper season for making any necessary reform in the general branches in the operation of pruning; at the same time observe where supplies of young wood is wanted in any vacant parts, or to furnish the places of improper old wood, as above, let the requisite supply of the best-placed side-shoots of last summer be

accordingly selected and retained in the proper places, cutting out therefrom all the super-abundant and ill-placed shoots, pruning them close off to their origin on the mother branches, not leaving any stump, snag, or eye thereof, to shoot forth again unnecessary wood, being careful to preserve on the bearing branches all the natural fruit-spurs of half an inch to an inch or two in length, and only of which cut away such as are decayed, or assume a too-long projecting, or rugged, stumpy growth, which being cut off close, new ones will be recovered in or near the same places; observing in all vacant parts to leave some well-situated middling-strong shoots, as also retain some in any void spaces below, or near any apparently declining or ill-bearing main branch, in old trees, in order for training up between the main branches to a bearing state, ready to supply the places of the above improper old wood, when cut out in a year or two after; and always, where room, preserve the main leader, or terminating shoot to each principal branch or bearer; or if more than one leading shoot, generally cut off all but the principal one; or if this appears too long for the allotted space, either above or on the sides, may occasionally shorten it, or prune down the branch, more or less, to some convenient lateral shoot, to remain for the leader; and where any old branches are too crowded, or of a decayed state, cut them out either to some lower branch arising on the lateral parts thereof, or in default of such, take them clean out to whence they originate, retaining some contiguous young shoots to supply the place; continuing all the shoots and branches intire, or at their whole length, at least, as far as there is room to extend them in their full growth, and they will thus emit fruit-spurs all along their sides, for bearing.

But likewise observe, in winter-pruning of wall-tree and espalier Cherries, that as some sorts bear also on the young shoots of a year old, immediately from the eyes thereof, without forming previous spurs, as more generally occur in the small May and Morello Cherry Trees, and which also bear upon small spurs on the older branches, it is adviseable, in these sorts particularly, to retain plenty of the above-mentioned year-old shoots for bearing fruit the ensuing summer, cutting out part of the naked, old wood in proportion, pruned down, more or less, to some eligible young shoots, or branches furnished therewith; or some cut clean out, leaving contiguous shoots to supply the place of the unserviceable, old branches, where thought necessary, or as circumstances may require, retaining the whole still at their full length, where room to extend them agreeable to the foregoing intimations.

Likewise observe, in pruning these wall-trees, to preserve all the natural fruit-spurs as are of sound, good growth, and only where any casually assume a
decayed

decayed or barren state, cut them off close, also all naked, barren stumps.

According as each tree is pruned, as above, let it be nailed to the wall, &c. in regular order, arranging the branches horizontally, all still at their full length, three or four, to five or six inches asunder, and nailed in straight, and close to the wall; or those in espaliers have the branches tied and nailed occasionally to the rails of the trellis.

Thus far concludes the general culture of the Plum and Cherry, in standards, wall-trees, and espaliers.

As to the other species of the Plum and Cherry kinds, consisting of the Bullace, Sloe, different sorts of Bird-Cherry, &c. they are admitted in plantations, for variety, and may be propagated by seed, the stones of the fruit, sowed in the autumn or spring, and by layers, and some by suckers; or any particular sorts are also raised by grafting and budding, as observed of the cultivated varieties of the Plum and Cherry.

Or also, to plant for variety and ornament, may introduce the common Plum and Cherry kinds, and great Wild Cherry Tree, &c. and their respective varieties; all raised as above.

But these, and the Bullaces, Sloe or Blackthorn, great Wild Cherry, &c. may, for common use in plantations, be raised abundantly from the stones of the fruit; and the Sloe-Plum also, plentifully by suckers from the root, where required to plant this kind for hedges, in fields, &c.

Or any desirable varieties of the Bullace, Damson, or great Wild Cherry, &c. may be propagated by grafting or budding, to continue these sorts in their improved state.

Early Plums and Cherries are obtained by having trees thereof in forcing-houses, by the aid of which Cherries are ripened in April and beginning of May, and Plums in May and June: having, for this purpose, young trees of the most esteemed early and other kinds, generally such as are advanced to a bearing state; both in dwarf trees, in small standards, and to train against a trellis, in the wall or espalier-tree manner; and some also in half and taller standards, especially Cherries, to elevate the heads near the top glasses of the forcing-house; and may all be planted in autumn, about October or November, in the borders within; or also some small trees of Cherries, &c. in pots introduced; or sometimes forcing apartments are allotted principally for Cherries, the bottom space being wholly of good earth, a proper depth, and the trees planted in cross-rows from the back to the front, in tall, half, and dwarf standards.

Though in general forcing-houses, several sorts of fruit-trees are introduced in assemblage.

The forcing is commonly commenced by fire-heat, in the middle or end of January, or beginning of February; or is occasionally effected by bark-bed heat; and the heat, in both methods, continued moderately till the fruit is advanced to perfection, in April, May, &c. observed for *Peaches* and *Nectarines*, under the Genus *Amygdalus*.

Apricot Kinds.

The Apricot being considered as a species of the *Prunus* family, but requiring some different management in the general culture, it is eligible to explain it under a separate head.

This species of *Prunus*, Apricot Tree, differs somewhat in its general mode of bearing from the Plum and Cherry; it, in all the varieties, produces the fruit principally upon the young wood of one year's growth, and likewise upon small, natural spurs, arising on the two and three years old branches; but generally bears the principal supply of fruit mostly upon the young shoots of a year old; that is, the shoots produced one year bear fruit the year following, emitting the blossom-buds immediately from the eyes thereof along the sides; and of which young shoots, in the operation of pruning the wall and espalier Apricots, a general supply of the best-placed, of middling-strong growth, must be retained every year in all parts of the trees, for successional bearers, and the superfluous and improper shoots thereof, with part of the naked, old bearing-wood cut out in the winter-pruning, to make room for the young supply; but where eligible fruit-spurs appear on the two or three years wood, above-mentioned, the said branches and spurs are proper to reserve occasionally, as they also produce fruit in good perfection.

And as the young shoots retained for principal bearers, as above, both produce fruit, and a supply of young shoots at the same time, for next year's bearing, and which shoots are also produced occasionally upon the older wood, and, in both of which, a plentiful abundance must be reserved in summer, and trained in mostly at their full length all that season; but in winter-pruning, selecting a sufficiency of the well-placed shoots, cutting out the super-abundancy and all ill-placed, with singularly luxuriant shoots, the remaining proper shoots should be then shortened moderately, both to encourage their producing collaterals more effectually, and properly situated on the lower and middle, as well as the upper parts, to train in to select from, for next year's bearers; as, when not shortened in winter-pruning, the successional bearing-shoots are apt to advance principally only towards the upper parts of the mother shoots or bearers, and which would mostly be naked below, whereby the
lower

lower and middle parts of the wall-trees would become unfurnished with proper supplies of young wood.

But as to the standard Apricot trees, they being planted detached, and having full scope to branch out freely every way in their natural manner, furnishing, as they advance, both plenty of young bearing wood, in successional annual supplies, and fruitful spurs on the two or three years branches, do not require any regular pruning annually, as in the wall-trees, only need occasional regulation, to cut out casual, irregular, and very crowded branches, and decayed wood, permitting the other general branches to advance in their full growth.

Propagation or Method of raising the Trees.

The propagation or method of raising Apricot trees is principally by budding or inoculating buds of the different varieties, or of any desirable sorts upon Plum stocks, in July or beginning of August, inserted into the side of the stock one bud in each, at six or eight inches, for common wall-trees, and at three or four to five or six feet height, for half and full standards; and the buds remaining dormant till next spring, when the stocks being then headed down a little above the insertion of the buds, these push forth each one strong shoot, and forms the new tree of the respective sort.

To proceed in the above propagation, proper supplies of stocks, on which to perform the budding, must be raised, and which should be principally Plum stocks being more hardy and durable than stocks of their own kind, raising them from suckers or stones of the fruit, or both; though they are also budded occasionally upon those of Apricots raised from the stones; but the Plum stock is most adviseable for the general supplies; and which, as above observed, may either be young suckers, produced from the roots of Plum Trees, taken off and planted in nursery-rows in autumn, winter, or spring, or by stones of the Plums, sowed in autumn in beds of common earth, one or two inches deep; and when the seedling stocks are a year old, or of one or two summers growth, should be transplanted in autumn or spring into the nursery, in rows two or three feet asunder, in which to advance in growth, one, two, or three years; training the stocks in general each with a single stem, and when half an inch to an inch thick they are proper for budding; which should be performed in July or beginning of August, as before intimated; when, for the buds, take off a quantity of cuttings of young shoots of the trees of the different or respective varieties intended for propagation, and from which shoots take the buds for inoculation, one at a time, and inserted into the side of the stocks, which should previously have the lateral shoots pruned off, continuing the top entire, so insert one bud into each stock, performing it low in the

stock, within about five to six or eight inches of the bottom, for common dwarf wall-trees and for espaliers; and at three or four to five or six feet for half and tall standard wall-trees, to be planted occasionally between the common dwarf trees, to cover the upper parts of high walls, while the latter are advancing below, especially where required to have the walls completely covered as soon as possible, to afford a more plentiful production of fruit; or likewise some may be budded on tall stocks, as above, or budded low, and the first shoot run up for a stem, for half and full common standards, to plant detached in the open ground, to branch out in full heads; particularly the Breda, Brussels and Dunmore Apricot, or any others, occasionally.

Thus having performed the budding, the buds remaining dormant till the spring following, and the head of the stock continuing, then, in the beginning of March, the stocks should be headed down, cutting them off sloping, three inches above the insertion of the bud, which will then soon after advance, each in a strong shoot, two or three feet in length, the same year.

The young trees thus raised, advancing at first with one strong shoot, this, either the same year, in summer, or the following spring, should be headed down to obtain lateral branches, to form the head; so that to effect this, the above first shoot may either be topped the same year early in June, and will thereby furnish several lateral shoots the same season, or the said first main shoot is generally permitted to run in its full growth all summer and continued intire till next March, then headed down to about six or eight inches, or to so many eyes, and it will then soon after push forth four, five, or more, collaterals, to give the head its first proper formation, training the shoots, when of due length, in a spreading order, to form the tree for the walls; or if any are designed for detached standards, they being also headed down as above, permit them to shoot out freely every way to form full heads.

The young Apricot trees, as above, are proper for final transplanting into the garden, against walls, &c. or occasionally for detached standards, when they are from one, two, or three, to four or five years old, either of but one summer's growth, with the first shoot from the budding intire, and planted in the autumn or spring following, and the said first shoot to be headed down in March, as above advised, to force out a supply of lower lateral shoots; or the trees remain in the nursery, for heading down, and trained therein for two or three years, or more, or till advanced in some tolerable spread of branches and arrived to a bearing state, then planted in the places where they are to continue.

Or trees for planting, of a proper growth, as above, may be had at the public nurseries, in the different varieties,

rieties, either young, of one or two years old, or that are more advanced, which the nursery-men call trained trees, being ready trained with some considerable expansion of branches to commence immediate bearers the first year they are planted.

The planting of Apricot trees may be performed either in autumn, in October, or beginning of November, to strike fresh root the same season; or may be done any time in open weather, from October till February or March.

In planting the different varieties, allot some best fourth walls, for the principal forts, others on west and east walls; having proper borders of good earth along the walls of the different aspects, three, four, or five, to eight or ten feet broad, and of two spades, or at least one full spade deep of fertile soil; and if the borders are naturally of good, rich garden mold, or of a loamy kind, it will be of particular advantage, and no more will be required than to dig or trench the ground, or only, for the present, to dig an aperture for each tree; but if the soil is bad, unfavourable, or of a very poor, light, unsubstantial nature, it should be improved with some strong, rich earth and rotten dung; or would be much benefited if augmented with a quantity of fresh surface loam from a common or pasture-ground; removing part of the bad or worst soil of the borders, in proportion to the quantity of fresh earth added; and which improvements may either be applied to the whole border, if thought eligible, or only to the places where the trees are to stand, and the other parts enriched afterwards by degrees, in the two or three following years, in winter or spring: however, it is proper also to intimate that these trees will prosper in any common fertile ground of a garden, without any present additional improvement.

For planting the wall-trees, mark out places at twelve or fifteen to eighteen feet asunder; observing, if low walls, it is generally advisable to allot a greater distance than in those of more considerable height, that in default of good scope of walling above, there may be sufficient room to extend the branches horizontally, and if any are designed for espaliers, they should also be allowed the above-mentioned distances; and for both of which, have the trees dug up with all possible good roots; prune any broken parts thereof, and shorten any very long stragglers sloping on the under side; and of the head, prune only, at present, any irregular projecting fore-right shoots; or if young year-old trees, leave the whole head entire till March, or if planted in that month, may be headed soon after: dig a wide hole for each tree, in which place the roots in a spreading manner, with the stem thereof three or four inches from the wall, and the head inclining thereto; fill in the earth equally about the roots and fibres, shaking the tree gently to make

the earth settle in close, and then tread it moderately to the roots; and if planted early in autumn, about October, or late in the spring, and the ground is dry, give a moderate watering to the earth to moisten and settle it close about the roots more effectually, and will also prove beneficial in assisting their rooting.

If high walls, and if desirous of having all parts covered as soon as possible, you may plant standard wall-trees in the spaces between the common dwarf trees, either half standards, with stems of three or four feet, or with five or six feet stems, for more lofty walls; and thus have all parts of the wall expeditiously covered; the common dwarf trees furnishing the lower and middle, and the half standards, &c. occupy the upper parts, while the others are advancing below; and as the common wall-trees are to be considered as the principal residents for continuing, that according as they advance in a large expansion upward, the branches of the standards may be pruned away by degrees, or the trees transplanted elsewhere, to give proper scope to extend the others in full growth to cover the wall regularly from the bottom to the top, in a continued expansion of branches.

The trees planted, if they are young, having only the first main bud-shoot of a year old, this should be headed or cut down in March, to five or six eyes, to promote a supply of lower lateral shoots the same year to form the head, nailing them to the wall, &c. at their whole length, all summer; and in winter-pruning, or towards the following spring, cut or shorten each shoot about one half or third, according to their strength, to obtain a further supply of well-placed collaterals to encrease the head in a larger expansion of branches; and then managed afterwards in the several methods of pruning and training hereafter explained; and when three or four years old, will begin to produce some fruit.

But if trained trees are intended for planting, having been previously headed down in the first shoot, in the nursery, and, in consequence thereof, are furnished with a head of several branches, two or three to four or five years growth, these branches, &c. are to be principally retained, or only prune any fore-right or other ill-placed shoots not well situated for training regularly to the wall, cutting them out close, and the remaining regular shoots be shortened about one third of their length; and then the general branches and shoots nailed to the wall horizontally in a regular expansion, four or five inches asunder, they will probably produce some fruit the first year, but in greater abundance and perfection the second, if a favourable season; and will increase in the production annually, in proportion as they acquire a larger expansion of branches and advance in age; and generally in Apricot trees of some considerable growth, they bear more abundantly and the fruit richer flavoured;

voured, and will continue fruitful a great number of years, in good perfection, with proper management in regard to pruning and training, as in the following directions for their general culture.

For standard Apricots, may plant some half and full standards, detached from walls, in the open ground, in a warm, sheltered situation, in the full sun, where they may be defended, as much as possible, from the northerly quarter, in the spring, when in blossom, and setting their fruit, and in which, they, in favourable seasons, will often produce plentiful crops, ripening in very good perfection.

Their general Culture of Pruning and Nailing.

As to the culture of the wall Apricot Trees, and such as are trained in espaliers, it consists of a summer and winter-pruning every year; and in both of which seasons of pruning, as those trees bear chiefly on the young wood, a general supply of the young shoots of each year must be retained for principal bearers, and the superfluous and improper shoots cut out; and according to the supply of young, retained shoots, a proportionable part of the useless old wood cut out, to make room for the young.

The summer-pruning consists of a general regulation among the young shoots of the year only, to displace the fore-right with other ill-placed and improper growths, and to retain a plentiful supply of the well-placed and proper shoots, for requisite supplies of wood, in vacancies, and for successional bearers, the following year; and should generally commence the business in May or June; and if proceeded in early, while the shoot-buds, or advancing shoots, are only about two or three, to four or five inches long, before they become very woody, the irregular and useless productions may mostly be rubbed off, or displaced expeditiously with the finger and thumb; though, in the more advanced state of the shoots, and in the general summer-dressing, must always use the pruning-knife; and by both of which methods, should now take off close all the fore-right shoots as arise immediately from the front part of the mother branches, in a projecting direction, and with others as are ill-placed, or not well situated for training in regularly to the wall, together with such as are evidently improper, unnecessary, or superfluous, leaving an abundant supply of the proper, well-placed side-shoots, and with a terminal or leading shoot to each branch; and in the further advanced growth of the shoots in June and July, it is necessary to prune out, in a thinning manner, part of the considerably superfluous, or over-abundant shoots, and generally to cut away such as affect a very luxuriant, rank growth; and all the retained, proper shoots, should be mostly continued at

their full length all summer, as far as there is room to extend them, and all nailed, or fastened in close and regular to the wall, during that season, to remain till winter-pruning, ready to chafe from, in sufficient plenty, for next year's bearers.

In this business of summer-pruning the wall Apricots, it is always adviseable to commence the operation early in summer, before the shoots are very considerably advanced, to assume a confused, disorderly state; as when this work is performed while the shoots are of but a moderately advanced growth, the necessary regulation of pruning out the useless, and retaining the useful supplies, can be effected, both with much greater accuracy and expedition, and prove of particular greater advantage to the trees, and the present production of the advancing young fruit, whereby to obtain it in all possible perfection of maturity, in size, beauty, and flavour.

Therefore generally proceed in the first regulation of summer-pruning in the early growth of the shoots, when from about three or four, to six or eight inches, to a foot long, at most; or, as before observed, may commence the operation when the shoot-buds are advanced only two or three inches, which will be of singular advantage just to run over the trees, and disbud, or rub off the advancing fore-right buds and shoots, and such others, in young growth, as are improper, or ill-placed, for training to the wall, taking them off close to whence they originate.

Then with regard to the general operation of summer-pruning, that either after performing the early or first pruning, or disbudding the evidently useless productions, as above, in May or beginning of June, while in young growth; or if that business was omitted, should begin this principal regulation in the more advanced growth of the shoots, in the beginning or middle of June, at farthest, before the trees have shot into considerable disorder, in which they both appear very unsightly, require considerably more time and particular attention, as well as often occasion much perplexity in the confused thicket of young wood, to perform the necessary regulation in displacing the useless, and selecting the requisite supply of proper shoots, and proves greatly detrimental to the advancing fruit.

Thus proceeding to this business in proper time, cut out close all remaining fore-right shoots, and others that are ill-placed, and carefully selecting a plentiful supply of the best regular-placed side-shoots, and a leading one to each mother branch; all which to be retained for training in, to chafe from, for successional bearers, next summer; leaving also proper supplies in vacant spaces, and below, to have all parts

of the trees regularly furnished with bearing wood; the whole of the retained shoots continued at their whole length, at this season; and as generally a super-abundance of shoots are produced, or more than is wanted, or can be trained in with proper regularity, must prune out the superfluous, cutting away the worst shoots in a thinning order, retaining great plenty of the well-placed, moderately-strong ones; cut out all small, weak twigs, both on the old wood, and such as arise on the select reserved shoots of the year; and, of the proper shoots, if two advance from the same eye, or near together, leave but one, the most promising, and cut the other off close; likewise prune off close all such as casually assume a bad growth, as bunched, crooked, &c. and such as are singularly luxuriant; and in this manner, cutting out the evidently superfluous, and improper, retain a requisite abundance of the best shoots, for training in, to chuse from in winter-pruning, both for next year's bearers, and a further encrease of principal branches, where required, generally retaining doubly more, at least, than what may apparently be wanted, that you may have plenty from which to make a proper choice in the winter-regulation, before observed.

As you proceed in this regulation, let all the retained proper shoots be continued at their whole length, and let those of each tree, as you advance in the pruning out the improper young wood, be nailed or fastened in close and regular to the wall; not shortened during the summer, except occasionally, where any extend considerably beyond their limited bounds, at sides or above, which may be discretionally shortened, as it may seem expedient; but except on these considerations, preserve the whole entire, as shortening would force out many lateral twigs the same season, hurtful to the principal shoots, and crowd the trees with a thicket of useless wood.

In the above summer-regulation of these trees, if any have produced very rampant, or remarkably luxuriant shoots, of considerably more rank and vigorous strength than most of the other shoots of the same tree, they should be mostly either cut out close to their origin, as not being adapted for bearing wood, and would draw the proper nourishment away from the other adjacent or neighbouring shoots of moderate growth, proper for the production of fruit the year ensuing; or where any luxuriant shoots advance in or near some vacancy, or where future supplies of wood will be apparently wanted, one or more might be occasionally retained, and pruned down early in summer, to a few eyes, to promote several collaterals the same season, which, by dividing the exuberancy of sap, may separately prove of more moderate growth, proper to supply the vacant space.

But where any trees assume a general luxuriant state of strong rank wood, of an unfruitful state, it is proper, in this case, to cut out some of the most rankly-vigorous, and retain as many of the best-placed, less luxuriant shoots thereof, as can be commodiously trained in with some degree of regularity, in order to divide and carry off the redundancy of nourishment amongst a considerable expansion, which, in a smaller quantity, would break out in greater luxuriant, in proportion; but being expended in a more considerable number of branches, will be more effectually moderated by degrees, and the trees will gradually be reduced to a moderate growth, and commence a proper bearing state; and thus, in luxuriant trees, observing the above method in the summer-regulation, train in all the reserved shoots, close and regular, at their whole length, and laid as much horizontally as possible, the more effectually to check the luxuriance.

Or, in summer-pruning, if any of these wall-trees are of an infirm state, shooting weakly, and do not produce fruit in good perfection, prune out the ill-placed shoots, and all very small, weakly twigs; and select, for training, principally only the strongest, well-placed shoots, of best growth, and train them regularly to the wall; and by thus continuing only the most promising strongest shoots, the trees will gradually encrease in strength, and improve in bearing accordingly.

Observe, in the summer-pruning any young Apricot Trees, of one, two, or three years growth, yet under training, be careful to displace the fore-right, and other ill-placed shoots, and such as appear considerably over-abundant, together with any of very luxuriant growth, and leave as many of the regular, well-placed shoots as possible, that are properly situated for training to the wall, to furnish an additional expansion of branches, arranged horizontally in a regular manner, at their full length; or in any considerable vacant parts, one or more shoots, in or near the vacancy, may be pinched or pruned down, the beginning or middle of June, to a few eyes, in order to have them produce collaterals the same year, to fill the vacant space more effectually, as soon as possible.

And in the summer-pruning of the wall Apricots in general, if any vacancies occur, be careful always to retain a proper supply of young wood, in or as near the vacant parts as possible; and likewise, if any vacant spaces appear to require a larger supply of wood than is at present produced, some convenient shoots of the year, contiguously situated, may be pruned down early in June, to four, five, or six eyes or buds, in order to force out and obtain an additional supply of lateral young wood the same year, in June
and

and July, from the remaining lower eyes of the shortened shoots, whereby to furnish the vacancy expeditiously the same season, with proper supplies of young wood, or some that will probably produce fruit the ensuing summer.

After performing the general summer-regulation in pruning out the improper, and training in the requisite supply of proper shoots of the year, in regular order, it is necessary to continue your attention in the further advancing summer's growth of the trees and reserved shoots, in order to preserve the proper regularity, by going over the trees once a week, or fortnight, as you shall see occasion, both to divest them constantly of all useless or unnecessary after-productions, particularly such as advance in a projecting direction, or any very irregular or disorderly growth; as likewise to regulate or adjust any disorderly growth in the retained supply of the general, select shoots, that, according as they increase in length, continue them still intire, and trained along close to the wall, in their full extension; and where any casually detach, or project from the wall, train them in close and regular; and by thus preserving the requisite uniformity of these wall-trees, they not only appear beautifully agreeable to the sight, but, by being continued closely trained in proper regularity, admits the essential benefits of the full air, sun, rains, &c. necessary both to improve the growth and goodness of the fruit, the principal object; and also to promote a proper degree of maturity, in the young wood, for successional bearing.

Thus, agreeable to the foregoing intimations, the practical business of the general summer-regulation in the shoots of the year of the wall Apricot Trees is conducted, and which should be carefully performed every summer, in May, June, July, &c. being essentially necessary, both for the prosperity and beauty of the trees, when continued in the most regular order during their summer's growth, and that the fruit may thereby have every possible advantage to attain the utmost perfection.

But before we conclude the summer management of the trees, it will be proper to give some necessary intimations respecting the fruit in its different stages of growth.

First, that as sometimes the Apricot, like the Peach and Nectarine Trees, in favourable seasons, set super-abundant productions of fruit, often in clusters, or close together, that they would neither have room to grow prosperously, nor the trees be capable of bringing the whole to good perfection; and in which case of super-abundancy, the fruit should be thinned in its young growth, when not exceeding the size of ordinary green gooseberries, or nuts, &c. principally in May and early part of June; and at which time the

fruit that is thinned off will be excellent for tarts, while green and young, before they begin to stone hard in the heart.

Therefore, in May and early part of June, at farthest, should proceed in the thinning, by degrees, when look carefully over the general branches, and where the fruit is crowded, thin off the most irregular, leaving proper supplies of the best, well-placed, at somewhat regular distances, three, to four or five inches asunder, according to the strength of the different trees, and that of the respective bearing shoots; in which should generally leave the fruit thinner on trees of a weakly state than those of middling or stronger, free growth; the select, retained fruit will thus have room to advance freely in full growth, in their proper shape, size, and colour, and ripen in good perfection and richness of flavour; but if permitted to remain crowdedly-thick, the fruit would both assume an impoverished growth, and in their advancing state, would, for want of room, thrust one another off, and not one in ten would attain good maturity; and besides, in their great super-abundancy, they would draw the whole nourishment, and prevent the trees making proper shoots for successional bearers, &c. and prove detrimental to their growth for two or three years to come; therefore should not be omitted to give a proper thinning, when required, both for the advantage of the trees and prosperity of the eligible crops of fruit; or even where not a general super-abundance, only here and there in clusters, they should be thinned in those parts; and in all of which, commence the thinning in proper time, while the fruit is young, from the end of April, or beginning of May, till June, as before observed.

In the above occasional thinning the superabundant young Apricot fruit, these taken off are valuable to use for tarts, being of a fine, acid relish, and for which are in much estimation as one of the first principal green fruit of the season, for tarts and pies; and may be thinned off, by degrees, for that occasion, in May, &c. both in wall-trees, espaliers, and standards.

With regard to the further care of the regular crop of fruit in its advancing state, give proper attention to continue the trees divested of all useless after-shoots, and to keep the others trained in close and regular, to admit the essential benefit of the sun, air, rains, &c. all most necessary to forward the growth and improve the goodness of the fruit, to attain the utmost perfection of maturity; observing, likewise, when arrived to full growth towards a ripening state, in July and August, to continue all the shoots close trained, to give free access to the beneficial influence of the sun, to promote a proper flavour in its peculiar degree.

According as the Apricots ripen in July and August, they should be gathered while in good flavour, before they become too soft and mealy; these fruit being always in best perfection for ripeness while they remain moderately firm, and of a poignant relish; and generally, when in full ripeness, if gathered in the early part of the day, before much heated by the sun, it will be preserved in better flavour for eating.

As sometimes these trees are attacked, in summer, with blights and insects, should endeavour, as much as possible, where it occurs, to stop their pernicious effects, being discoverable generally by the leaves crumpling, and the ends of the shoots becoming hunched and clammy, either generally, or appearing first in particular parts of the tree, and will soon spread considerably, greatly detrimental to the progress of growth both of the trees and fruit; or are sometimes suddenly attacked with a dry blight or blast, often destructive without remedy; but where, in either of which maladies, the disorder comes on more gradually, or occasioned by numerous minute insects, some means may be used to stop the depredation, by pulling off the most infected leaves, and cutting away the disordered parts of the young shoots, &c. using also the other assistant remedies advised for the Peaches and Nectarines, which are casually attacked with the same malady.

We now proceed to explain the operation of winter-pruning these wall-trees, which is necessary every year, any time after the fall of the leaves in November, till March.

The winter-pruning of the wall Apricot Trees comprehends a general regulation in the young and old wood, both in the supply of young shoots which were produced and trained in last summer, and mostly in the whole expansion of older branches, as observed for the Peaches and Nectarines, &c. in pruning out the most irregular, improper, and super-abundant, to make proper room for training in a general supply of successional young bearing wood, consisting of the last summer's shoots, to produce the fruit the year ensuing; and the whole to be new-trained, or nailed to the wall, in a regular manner, four or five inches asunder.

Observe, in performing this operation of winter-pruning, to keep in mind, that as these trees, as in the Peach and Nectarine, produce the fruit principally upon the young wood or shoots of last summer, and often on small, natural spurs arising on the two years wood, though generally the principal production of fruit is obtained on the last year's shoots, as formerly intimated, the blossom-buds arising immediately from the eyes of the said shoots, and seldom bear but once in the same order, only on casual, small spurs, aforesaid, sometimes emitted from the sides in the second

and third year, that a general successional supply of the best young shoots of the preceding summer, must be annually preserved in all parts of the trees, in the winter-pruning, for bearing the principal crops of fruit the year following; and, likewise, to retain occasional spurs, before-mentioned, which, furnished with blossom-buds, also produce fruit in equal perfection; observing, at the same time, in this regulation, must cut out the super-abundant, ill-placed and improper shoots, with part of the former bearers, and naked, or worn-out, old branches, not furnished with bearing wood, to give room for retaining the requisite supply of young bearers, four or five inches asunder, as before observed; and all the retained shoots, or greater part, to be now shortened about one third, more or less, according to their strength, to promote a production of shoots from the lower eyes thereof, next summer, for successional bearers the year after, which, otherwise, would arise mostly towards the upper parts, that the trees would thereby become naked below, or not well furnished with proper supplies of bearing wood, equally from the bottom upwards.

The season to commence the winter-pruning is soon after the fall of the leaves, or any time in mild or moderate weather, from November till the spring, and should be wholly completed in February, or beginning of March, before the blossom-buds are considerably advanced.

Generally, in proceeding to this business of winter-pruning these trees, that as it comprises a regulation in the general expansion, it is proper first to unnailed all the young shoots of last summer, and great part of the smaller mother branches, in order both to give proper scope in using the pruning-knife, in cutting out the super-abundant and unserviceable wood, and to have an opportunity of training the proper branches and shoots with eligible regularity, according to the regulation made in the general pruning.

And being furnished with proper pruning-knives, a smaller and larger, as explained for the Peaches and Nectarines, as also with proper shreds and nails, proceed to the business of pruning and nailing the trees, agreeable to the following intimations.

In proceeding to the operation, give great attention to the supply of young wood of last summer; and of which, to make a proper selection of the best in all parts of the trees, for training in three, four, or five inches asunder, as before intimated, for successional bearers next year, and some for new wood occasionally, to increase the number and expansion of principal branches, where necessary, chusing the most regular-placed, middling-strong shoots, situated principally on the upper and under sides of the mother branches, and occasionally the leading or terminal shoots

shoots in particular parts, where it may seem eligible, though every branch should terminate in a single shoot, either, in some, placed naturally at the end, or in others, the branch shortened down to a proper shoot, for a leader.

That in the general regulation observe, in selecting the principal supply of proper shoots, it is advisable to prefer the moderately short-jointed, that appear the best furnished with blossom-buds, being round, plump, and swelling; and from which, prune out close the superfluous or over-abundant, with any remaining fore-right and other ill-placed shoots, not well situated for training to the wall with proper regularity; cutting away also weak twigs, watery, unripened, autumnal shoots, and singularly rank luxuriant, taking them off close to the old wood; likewise, if any of the retained proper shoots, have small, lateral twigs, prune them off close, that the said principal shoots may be clean and single; and to make room for the requisite supply of young wood, a proportionable part of the former bearers, and naked, old branches, should, in this pruning, be retrenched, either by shortening some down, more or less, to proper young shoots, or some cut clean out, such as are the least productive of eligible, bearing wood; observing, in the process of pruning, to shorten most of the retained shoots about one third, or as hereafter explained.

And generally observe, that where any small, natural spurs, half an inch to an inch, or more, long, occur on the continuing two or three years old mother branches, and appear furnished with blossom-buds, they should be carefully retained, as they often bear abundantly in as good perfection as the principal bearing shoots; but cut out close, any long, projecting, and naked, barren spurs, old stumps, and all decayed wood.

But, to explain the above pruning as fully as possible, it is necessary to observe, that as great part of the select or proper shoots, now requisite to retain, are produced chiefly upon the smaller branches, or two or three years old wood, or principally upon the last year's bearers, arising on the lower and upper parts, and some terminal or proceeding immediately from or near the extremity; and therefore, in order to make room for the necessary supply of the young shoots, a considerable part of the said mother branches should be cut away, in proportion, either by shortening or cutting down, more or less, in particular parts, to some principal shoots, situated on the respective branches; or others of the worst, old bearers, cut away, as circumstances may require, whereby to have sufficient scope for training the requisite supply of young bearing wood, equally in all parts of the trees, for general bearers, the ensuing season.

Therefore, agreeable to the foregoing intimation, making choice of the proper shoots, and where situated on the lower or middle part, &c. of the former year's bearers, may shorten or cut down the upper parts thereof to the first, second, or other most eligible shoot thereon, which then commences the leading shoot to the respective branch; or if only the uppermost shoot seems necessary to retain, cut away any others below it; or if two are necessary to leave on the parent branch, retain one below and the other above; so, in this manner, leaving on some branches but one, and on others, two shoots, or more, in particular wide spaces, or as it shall seem expedient, according to what appears requisite to furnish the respective parts of the tree.

For example, that where two shoots, or more, appear necessary to retain on any mother branches, or former bearers, to supply the particular parts, leave one of the best above, either the terminal or end shoot, if a proper one is thus situated; or if not, cut down the upper part of the branch to the first, good lateral shoot, and leave the others below, at a proper distance, and cut away any other intervening shoots on the same branch, if not wanted; or, in some cases, it may be proper to retain only the end or terminal shoot, either placed naturally at the end, or where this would extend the branch too considerably, the branch may be cut down to some lateral shoot, if any thereon, that would not extend beyond the limited space; or, in some places, it may probably be necessary to retain both a naturally terminal shoot, or one situated near the termination of the parent branch, or old bearer, and a lateral one towards the middle or lower parts, cutting away any other intervening ones; and sometimes, where long-extended branches occur, or such as, in particular places, extend beyond certain limits, where not proper room, it may be requisite, occasionally, to cut down the extended part of the branches to some best lateral, or lower shoot, that will not extend beyond the limits intended.

Though, as good shoots also often occur on the larger, old, principal branches, frequently on the lower parts, where the said branches do not admit or require being cut away, and that where proper young shoots are well-placed thereon, in parts of the tree in which they may appear necessary, either to supply a vacancy, for succession bearers, or new wood for an increase of young branches, they should be retained in all parts where they can be admitted or trained in with regularity, between the said branches, to have all parts of the trees furnished with young wood, advancing in the bottom, middle, and upper expansion, in a regular progression.

But observe likewise in this pruning, that where casual, long-extended, old naked branches occur, not furnished with proper young wood, adapted either for immediate bearers, or for furnishing such hereafter; or that any old, naked branches are super-abundant, or very irregular, or of a bad habit of growth, this is now the proper time to make the necessary regulation, by cutting out such unserviceable old wood, either some to their origin, if it seems expedient, and there is contiguous young wood to supply their places, where required; or otherwise, pruned down, more or less, either to some good, strong lateral shoots, that are eligibly situated thereon, or to any convenient, younger mother branch, or former bearer, proceeding from the lower parts of the old, and is furnished with one, or more, proper shoots, for bearing; and hereby have young wood in constant supplies, in all parts of the trees, advancing, in regular order, quite from the bottom and middle, to the extremities at top and sides.

It is material, in performing this pruning, generally to leave, or contrive, in cutting, to have a good young shoot to terminate the extreme part of the general branches, one to each, either such as is naturally situated at or near the extremity, or when none of eligible growth is thus naturally placed, and that, when occasion to cut away some unserviceable or extended parts of the branches, they should be pruned down to a proper shoot, to become a terminal or leader to the branch, not, where it can be avoided, to shorten any branch so as to terminate in a naked stump in the old wood, but generally to have a terminal shoot, as above, leaving principally but one, as a leader to each branch; for a leading or terminal shoot is essentially necessary, both in being conformable to the ways of nature, and to the good appearance and regular growth of the trees, as well as being of much advantage in drawing proper nourishment to the fruit in its advancing growth.

Observe further, in this general pruning, that, in cutting out the super-abundant and improper shoots, and retaining the proper supply, and that when necessary to leave two or more shoots on particular parent branches, or former bearers, it is adviseable, where convenient, to have them on opposite sides, in alternate order, at some eligible distance, one above the other; though, as this may not always be practicable, and that sometimes the shoots proper to retain, will happen both, or all on one side, in which it is not very material, only by being on different sides of the branch, as above, they generally admit of being trained with greater regularity to the wall, conformable to the requisite, regular display of the general expansion.

As you proceed in the general regulation, agreeable to the foregoing observations, in cutting out the unnecessary and improper wood, and retaining the neces-

sary supplies of the best young shoots of last summer, it is proper now, in the winter-pruning, as before observed, to shorten most of the said shoots moderately, that by cutting off the weak, infirm, top part, they may more effectually furnish supplies of young wood the ensuing year, properly situated for succession bearers the year after, as formerly explained, generally performing the shortening as you advance in the general pruning, cutting the middling shoots about one third, the stronger ones nearly the same, in proportion to their length; and the moderate or small shoots may occasionally be cut a little more than those of stronger growth; and generally observe, that in strong-shooting trees it is proper to leave the shoots longer than those of a more moderate or weakly state, or generally cut below the weak, sappy, upper part, or autumnal production.

But in the general shortening it must be remarked, that where you prune principally for fruit, be careful, in shortening, not to cut below all the blossom-buds, where they appear, or are expected to advance, discoverable, by their round, turgid, or swelling appearance; the wood-buds being oblong and thin; and should generally perform the shortening with a sloping-cut upward, just behind, and a little above a shoot-bud, to furnish a terminal shoot, for a leader, next summer, to draw the nourishment to the fruit more effectually in its advancing growth.

Or, in shortening in particular trees, where necessary to prune some shoots principally to furnish wood to supply vacant parts, they may be cut shorter than advised above in the general shoots, which are designed for bearers; and, on which occasion, some may be cut to one half, or from five or six, to eight, ten, or twelve inches, according to their strength, cutting the smaller or moderate shoots shorter, in proportion, than the stronger ones, in the particular parts of the tree, where it may seem necessary, whereby to have them more effectually produce the desired supply of lateral shoots the ensuing summer, to furnish the vacancies; or sometimes small shoots on the lower parts of the old branches, where additional supplies of new wood may appear requisite, may be cut to two, three, or four eyes, that they may furnish two or more shoots of stronger growth, to train in between the mother branches, either to serve present occasions, or as a reserve to be ready to supply the places of casual, decayed, or any worn-out, or old, unserviceable wood hereafter; and thus may always have young branches advancing between the old ready, quite from the bottom, middle, &c. both for present bearers, and to furnish others in proper succession in all parts of the trees, advancing in regular gradation.

It must likewise be observed in the winter-pruning, that where any trees are of considerable, luxuriant growth, having generally strong, vigorous shoots, running

running greatly to rank wood, and not producing any tolerable crops of fruit, the shoots should be left closer, or in greater abundance, and should mostly be, but very moderately shortened, or some of the most luxuriant not shortened at all; or others, less vigorous, cut only about one fourth, or less, or some only just topped, or the small, upper part pruned only a few inches; and thus, in general, cut the retained shoots very little, or the strongest left mostly intire; as, in such vigorous trees, if much shortened, they would shoot with greater luxuriance to rank wood, and not become fruitful; but, in which, leaving the select shoots more abundant than in moderate shooting trees, and these but little shortened, agreeable to the above intimations, the redundant nourishment will thereby be more divided and expended amongst a greater expansion and extent of branches than in a smaller number and less extension of wood; and nailing all the shoots as much horizontally as possible, which also contributes, in some degree, in checking the luxuriance, the trees, by these means, will be reduced, by degrees, to a moderate state, productive of fruitful shoots adapted for general bearing.

Likewise, in this pruning, if any trees as are generally of moderate growth, have produced casual, very-rank shoots, considerably more vigorous than the generality of the others of the same tree, they should mostly be cut out close, that they may not exhaust, or draw the nourishment too much from the adjacent, moderate shoots; except any are produced in or near some vacant space, or upon the lower parts of old branches, where a future supply of young wood will be apparently wanted, some may be retained singly, and pruned down, more or less, to furnish several collaterals next summer, which, separately, may prove of a more moderate, kindly state.

Though, where any tree of a generally strong growth, inclines rather to commence a vigorous habit of shooting, and that some shoots occur that are considerably more luxuriant than the rest, one or more might be retained in different parts, to carry off part of the exuberancy of sap from the others, to prevent, as much as possible, too great luxuriance taking place in the general expansion; and, likewise, to assist further in preventing the production of rank wood, it is adviseable, in retaining the requisite supply of proper shoots, to leave them closer, or more abundant than in trees of moderate growth, and the shoots in general but moderately shortened, and these trained down as much horizontally, as room admits, in which they generally shoot less vigorous than in a more upright position.

Or, in winter-pruning such trees as assume a weakly state, either shooting reluctantly, or producing mostly small, weak shoots, it is eligible to cut out most of the smaller, infirm twigs, and retain princi-

pally only the strongest shoots for the general supply; and that to promote their furnishing a production of stronger wood, they should be shortened more than in trees of a free growth; or some, in the most vacant parts, may be cut to one half, or others, a little more or less, according to their strength and respective situations, or as supplies of future wood may be required in particular parts of the trees; giving proper attention to keep the lower and middle parts supplied as well as possible; where, in vacancies, or where room to train between the mother branches, cut particular shoots to a few eyes, to obtain some collaterals of stronger growth, next summer.

In the general winter-pruning, it being mostly advised, in cutting out the super-abundant shoots, to prune them close to the old wood, yet, in some cases, it may be proper, in particular parts below, and the middle, &c. in such as are produced on the sides of the larger, parent branches, or in places where future supplies of young wood may be the most apparently wanted, some of the smaller shoots, thus placed in different parts, lower and higher, &c. may be pruned to one, two, or three eyes, to furnish one or more laterals next summer, in case they should be wanted, and trained up between the principal branches, till winter-pruning; and if not then required, may be cut away, or some retained as a reserve, ready to supply any unforeseen vacancy; and by this means may have all parts of the trees always furnished with young wood, both for present bearing and future emergencies.

For in these wall-trees, as observed of the Peaches and Nectarines, should give good attention always to have a general supply of young wood in all parts of the trees, quite from the bottom and middle, to the upper expansion, advancing in regular gradation, as it were, one under or after another, at proper, moderate distances; and always keep the lower and vacant parts well furnished with requisite supplies of proper shoots, by the means explained in the general prunings; and thus the trees, even when advanced to a great age, may be continued every where abundantly fruitful.

And it may be observed of old Apricot wall-trees, when well managed, as above, they are particularly valuable, in being generally more prolific than younger, and the fruit attains greater perfection in richness of flavour, and therefore should give particular attention to encourage their growth, by preserving proper supplies of young wood; and as decayed, or worn-out, old branches occur, having young ready to supply their place, should be cut out, now, in the winter-pruning, either to the origin, or to some lower, fruitful branch, or good shoot eligibly situated; and thus keep all parts well furnished with bearing wood, by
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methods explained in the foregoing general directions, both in the winter and summer-prunings; continuing the general branches extended in a full expansion, as far as their allotted bounds admit, and they will remain abundantly fruitful, in a superior degree of perfection, to a considerable old age.

Young Apricot wall-trees, that are still in training, requiring additional supplies of principal branches to form the requisite expansion, should, now, in the winter-pruning, be carefully managed, to retain the well-placed shoots where required, and to prune out the improper, giving good attention to preserve a proper supply of the best side and terminal shoots, both in the lower and advanced parts, where an increase of branches is wanted, both to multiply the expansion, and to extend the others in length, as well as for bearing wood; keeping the middle well supplied, and both sides as equal as possible, both in the number, strength, and length of the branches and shoots; and from which cut out the irregular and superfluous, if any, with ill-growing fore-right and other ill-placed shoots; and if any singularly strong luxurians occur, which apparently, by their vigorous growth, would draw the nourishment from the rest, they should be cut out close, especially where on one side of the tree and not on the other, that both sides and all parts may advance equally in strength; or if any are in a vacant bottom or middle parts, it may be occasionally retained and pruned down, to furnish two, three, or more laterals to supply the vacancies.

Thus far concludes the principal observations and directions relative to the winter-pruning of the wall Apricots, next follows some intimations for nailing the trees to the wall.

According as you advance in the general winter-pruning, or as soon as each tree is pruned, it is generally advisable to have it nailed directly as you proceed, observing in this business, that the shoots and branches should be arranged, more or less, horizontally to the wall, in proportion to their general expansion and extent, and as the respective space of walling, &c. admits, as observed for the Peaches and Nectarines; and, being furnished with proper wall nails and cloth shreds, cut about half an inch broad, and two to three inches long, arrange the branches straight and regular, at equal distances, four or five inches asunder, proceeding with the lower branches first, then with the others regularly upward, extending them equally on both sides to the right and left, and nailed straight and close to the wall; observing if any shoots, &c. were left too close in pruning, they, in the nailing, should be cut out, the most irregular and inferior, that the others may be trained with proper regularity.

Where any Apricots are in espaliers, they should have the same care in regard to pruning, &c. as advised for those in wall-trees, both in the summer and winter-pruning; and the branches also ranged and trained to the espalier in the same order, either by nailing some of them to the principal rails, or others tied thereto, or to the smaller cross bars, with oser twigs, or occasionally with old ship rope yarn.

That as the Apricot Trees, as observed of the Peaches and Nectarines, generally begin to blossom early in the spring, when sharp frosts and cold cutting blasts sometimes prevail, and that the blossom and the fruit in embryo, and during its young state, is tender and liable to be destroyed by frost, it would be of much advantage to afford them some occasional protection, especially in trees of the most esteemed principal sorts, by covering them with large garden mats, when inclement weather, as above, and which care is necessary principally in March and April, when the blossoms expand, and the fruit setting, as well as during its infant growth, until the middle or end of April, if cutting weather happens at that season, but particularly when frosts prevail; in which, nail up large mats against the trees in the evening; to continue till after sun-rising, or till nine or ten o'clock in the morning, or all day, if cutting frost and no sun; but when warm, sunny, or in all mild, open weather, take off the covering; or some trees might be defended with cuttings of the small branches of ever-greens, as laurel, yew, fir, &c. being furnished with the leaves, and sticking them between the branches in a spreading manner, to cover the blossom and young fruit as well as possible; and to remain constantly night and day, they will break off part of the cutting effects of the frost; or, in the same manner, may occasionally use cuttings of the branches of dried fern; likewise, old fishing nets are also sometimes suspended before the trees, to remain constantly, as intimated of the ever-greens and fern.

And thus these different protections should be continued until the fruit is well set, and increased a little in size to that of large peas, or middling, green gooseberries; afterwards, about the middle or end of April, or according as the season proves more or less favourable, all the covering should be entirely removed away, to admit the free air, sun, &c. fully to the fruit.

Then, about the end of April, or in May, and beginning of June, if the fruit is set considerably thick, or in clusters, it should be gradually thinned, as advised in the summer management of the trees, leaving a sufficient abundance of the finest fruit to attain maturity.

The further care of the fruit, in its advanced growth, is explained in the summer culture of the trees; it attains maturely for gathering in July and August.

Standard Apricot Trees planted detached from walls, in warm situations, in the open ground, often produce plentiful crops of fine fruit that ripen in good perfection; and as to their management, they having full scope in the head to branch out freely every way, like other standard-trees, they only need occasional pruning, not regularly every year, as is necessary for those in wall and espalier-trees, but only to cut out casual, disorderly branches, or to thin others where considerably crowded, or sometimes to reduce any of long, rambling growth, and to cut out decayed wood; and which occasional pruning should generally be done in the winter season, or early in the spring.

Early Apricots are obtained by means of hot or fire walls, or forcing-houses, by having bearing-trees planted therein, and forwarded by assistance of fire heat, communicated by flues extended within the forcing apartments along next the front and back parts, and sometimes also by bark-bed heat, in a capacious pit within; and by either or both of which methods of artificial heat, the forcing is generally commenced about the end of January, or beginning or middle of February, continued till May, when, and beginning of June, early ripe Apricots are obtained.

The trees, for this occasion, should be previously raised to a bearing state, against walls, &c. in the open ground; or some also in pots, that they may be more conveniently transplanted with the ball of earth about their roots, intire for immediate forcing; and, in either method, the trees should be planted in the autumn, in the borders within the forcing-house, and the branches trained to a trellis of wood work; and afterwards managed, in regard to the forcing and other particulars, the same as explained for forcing early Peaches and Nectarines, under the article *Amygdalus*.

Of the LAURELS.

The LAURELS, agreeable to the Linnæan system of botany, being considered as species of the *Prunus*, conformable to the *characters* of their flowers and fruit, we have retained them accordingly, as species of that Genus, arranged and described each in its proper place, among the other species thereof; and under this head is explained their general uses and culture.

The two species of Laurels are fine ever-greens, of the first estimation for ornamental planting in shrubberies and other plantations, in pleasure-grounds,

being of the large shrub, or small or moderate tree kind, most beautiful in their continuing shining foliage, at all seasons; large, thick, and splendid in the common Laurel, smaller in the Portugal sort, and generally doubling a little; and both of which species are most desirable ever-greens, to plant both in assemblage with others of that tribe, in clumps and running plantations; and also to admit in those of deciduous, ornamental trees and shrubs; and also to plant singly in detached standards, in lawns, plats, borders, &c.

The Common Laurel particularly, is a superbly noble ever-green, of strong growth, and large, elegant leaves, of singular beauty; and the tree is hardy to grow freely in any common soil and situation, both in open exposures, and under shade of trees, &c. or where required; desirable to admit as a principal first-rate ever-green in all shrubby compartments, and to form Laurel clumps and plantations wholly of that kind, which, in pleasure-grounds, parks, &c. has a fine effect; and is also peculiarly adapted to plant close for blind, or to cover or hide any disagreeable object, or naked, unsightly walls, palings, ditches, &c. in gardens, or where thought eligible, as it will grow any where; it was also formerly trained for ornamental garden-hedges; though, in giving the necessary annual clipping, the shears, by cutting the large leaves, occasions them to appear unsightly, and sometimes, in hot, dry weather, make them assume a rusty hue in the cut-parts; but when, instead of clipping with shears, the projecting shoots are pruned in with a knife, without mangling the leaves, but preserved whole, the hedge will then continue beautiful at all seasons of the year.

The Portugal Laurel being likewise a handsome ever-green, growing with a large, full, bushy head, is eminently adapted for adorning principal shrubberies, &c. and to plant singly in detached standard shrubs, in borders, plats, lawns, or other conspicuous compartments, for ornament.

They may be obtained, in proper growth, for planting, at all the public nurseries, in plants two or three, to four or five feet high, and planted principally in the autumn or spring; or may be raised plentifully by the following methods.

Both these species of Laurel are raised from seed, cuttings, and layers; but as they grow very freely from cuttings of the young shoots in autumn, that method is commonly practised.

However, they may be occasionally propagated by any of these ways; the seed ripens, in the berries, in autumn, and may either be sowed in that season, in September or October, &c. or in the spring, in light earth,

earth, half an inch deep; and when the seedling-plants are of one or two year's growth, transplant them into nursery-beds, &c. to acquire a proper size for the shrubbery; cuttings of the young shoots of the year, towards the latter end of August, and in September, or occasionally in the spring, cut off about eight or ten, to twelve or fifteen inches long; or if cut off with an inch or two of the last year's wood, at the lower end, it will be some advantage to their striking: preserve the tops entire, divest them of the under leaves, and planted in a shady border, they will strike freely, and be well rooted in one season; and layers of the young wood, as above, in autumn or spring, will also be properly well rooted, to plant off in the autumn or spring following, in the nursery.

And thus, by either of these methods, train the plants in the nursery to a proper growth, either some branch quite from the bottom, or others pruned up a little below, and, in both of which, permitted to branch out above in full heads; and when advanced two or three, to four or five feet high, are of proper size for final transplanting.

The principal season for removing or planting the Laurels, is, as advised for other ever-greens, either in autumn, from about the middle or latter end of September, to the end of October, or any time in November, in mild weather, or in the spring, from February to April, not very generally in the dead of winter, or only occasionally, when settled, open weather prevails, or that the plants can be transplanted with good balls of earth about the roots, not to feel their removal; observing in the general transplanting, they may either be removed with small balls of earth, where convenient, which would be of advantage in large plants particularly, and be also beneficial in those of smaller growth; or may, likewise, be successfully transplanted without balls, removing them carefully in their full spread of roots; and in either of which, plant them as soon as possible after removal out of the nursery, &c. and watered, especially if planted early in autumn, or late in the spring.

In their future growth in the shrubbery, &c. they may grow nearly in their natural order, or only give occasional pruning to reduce casual run-away, rude shoots; or if any are planted to cover walls, train the branches thereto at first in a spreading manner; and if in hedges, train them also in proper order, for that purpose; and in both of which last-mentioned methods, prune in the projecting shoots in summer or autumn, if required to have them grow close and regular; or where this is not regarded, they may be permitted to run up in their natural growth.

PTELEA, SHRUB-TREFOIL.

Class and Order.

Tetrandria Monogynia,
Four Males, One Female;

Or Plants with Flowers (Herm.) having four Stamens and one Pistillum.

COMPRISES one hardy, deciduous, flowering-shrub, of bushy, moderate growth, adorned with trifoliate leaves; and small, yellow flowers, of four petals, having four small stamina or male genitals, and one pistillum or female; succeeded by roundish pericarpiums, or seed-vessels, containing obtuse seeds, ripe in autumn; and by which, sowed in that season or spring, the shrub is propagated, and by layers and cuttings of the young shoots.

One Species.

PTELEA trifoliata, Trifoliate-leaved Ptelea, or Shrub-Trefoil.

A middling, deciduous shrub, of upright, bushy growth, four or five, to six or eight feet high—the leaves (*middling-size, dark-green*) ternate, or composed of three folioles or lobes.—Native of Virginia. (*Any soil.*)

This shrub is cultivated in shrubbery collections, makes an agreeable variety in its bushy growth and trifoliate leaves, and appears ornamental as a flowering shrub, continuing in flower a considerable time in autumn: may be obtained at the nurseries, for planting in autumn or spring, or any time in open weather, from October till March or April.

It is propagated by seeds, layers, and cuttings, in the autumn or spring; and when the plants are raised to half a yard, or two feet growth, or more, are proper for the shrubbery.

PUNICA, POMEGRANATE TREE.

Class and Order.

Icosandria Monogynia,
Twenty, or more, Males, One Female;

Or Plants with Flowers (Herm.) having twenty, or more, Stamens, or Male Fruifications, and one Pistillum or Female.

THE PUNICA furnishes two species, small or middling tree, and dwarf shrubby kind, both of a tender

der nature, more particularly the latter, requiring protection of a green-house in winter; but the tree kind, common Pomegranate, is more hardy, admits of being planted in the open ground, in a warm situation, or against a south wall; cultivated principally for variety and ornament, as a fine flowering-tree and for the beauty of its fruit; is a tree of moderate growth, very branchy and bushy, adorned with narrow, spear-shape leaves; and very ornamental, scarlet, quinquepetalous flowers at the ends of the branches; having one-leaved, bell-shape, five-parted cups, coloured and permanent; five roundish expanded petals; twenty or more stamina, a roundish germen below, supporting a single style; and the germen grows a large, globular fruit, of several internal cells, full of a succulent pulp, and many granulous seeds, good and delicious to eat; and by the seeds sowed the tree may be raised; but is more generally propagated by layers of the young branches in the spring.

One hardiest Species, viz.

PUNICA *Granatum*—(Granatum) or Pomegranate Tree.

Moderate, deciduous tree, fifteen to eighteen, or twenty feet high—a tree-like stem, very branchy from the bottom upward; the leaves (*narrow*), spear-shape; and many elegant, red flowers, in bunches, at the ends of the branches and young shoots, in spring and early part of summer; succeeded by large, round fruit, sometimes ripening, in tolerable perfection, against a south wall; some kept in pots, to shelter in winter.—Native of Spain, Italy, and Mauritania. (*Rich ground and warm situation.*)

Varieties.—Common Pomegranate Tree, with single flowers.

Double-flowered Pomegranate Tree.

Striped-flowered Pomegranate Tree.

Small-flowered Pomegranate Tree, with single and double flowers.

This species, in the several varieties, are desirable to plant for ornamental flowering-trees, allotting them a warm, defended situation, in the full sun; and the common single-flowered kind may also be planted both as a fruit-tree and for ornament, one, two, or three trees against a south wall, and the branches trained thereto, regularly, in the wall-tree manner, in which they will both flower very ornamentally, and in favourable seasons produce large, beautiful fruit, in some tolerable degree of maturity, in autumn; but in greater perfection, if the trees are protected with glass frames, in cold weather, in spring, &c. while flowering, and in wet, cold weather, in autumn, when the fruit is ripening;

though, at best, they seldom ripen here with equal flavour, as in their native countries.

However, considered as ornamental flowering-trees, they merit culture in every curious collection, some planted against warm walls, or others trained in small standard-trees, in a bushy growth, for adorning the shrubbery, and in both of which, their elegant scarlet flowers will make a beautiful appearance, more particularly the double-flowered kind, which are of singular beauty, continuing in succession, two or three months.

All the varieties are propagated by layers of their young branches, in the autumn or spring, by slit layers, and will be well rooted, for planting off, by the autumn following, planting them in a warm situation, or trained as above; or some planted at once where they are to remain; or may also plant them in pots, singly, to move under shelter from frost in winter.

When designed to plant any against a wall, to produce flowers and fruit, should train the branches there-to four or five inches asunder; and it should be observed that as the tree produces the flowers, &c. at the ends of the branches or shoots of the same year, should annually prune them, in the autumn or spring, cutting out the small, weak twigs, of the former summers, reserving the middling-strong shoots; and those shortened according to their strength, that they may more effectually produce a proper supply of flowering-shoots; and when thus shortened train them to the wall, and in the following summer, when young shoots advance, prune off any as are of vigorous projecting growth, and retain the others for flowering, &c. and train them to the wall.

PYRUS, PEAR TREE, comprising also the APPLE and QUINCE.

Class and Order.

Icosandria Pentagynia

Twenty or more Males, Five Females;

Or Plants with Herm. Flowers, having twenty, or more, Stamina, or Males, and five Pistillums, or Females.

THE PYRUS, conformable to the sexual system of botany, comprehends the Pear Tree as the principal or original of this Genus; and the *Malus*, or Apple Tree, and the *Cydonia*, or Quince, formerly considered as distinct Genera, are ranged as separate species of the Pyrus family; which, consisting of four or five different species, furnishing many varieties, are all of the deciduous tree kinds, most valuable fruit-trees, or some occasionally for ornamental planting; but principally to plant abundantly as fruit-trees, in gardens and orchards, for their productions of fruit, of superior value, as the

most generally useful and profitable, more particularly the Pears and Apples, in their very numerous varieties, but less abundant and valuable in the Quince; are trees of large, middling, and small growth, in the different species; garnished, in summer, with ovate, spear-shape, and oblong leaves, of middling sizes, and pentapetalous, roseaceous, white, and pale-reddish flowers, in umbellate bunches, and singly, produced from the sides and ends of the branches, April and May; having monophyllous, or one-leaved, concave, five-lobed cups, five concave petals, twenty, or more, short stamina; a roundish, central germen, supporting five styles; and the germen grows a large, pyramidal, roundish, top-shape, and umbilical, fleshy, eatable fruit; ripe in summer and autumn; furnished each with five oblong seeds, or kernels, by which, separated from the fruit, and sowed, the trees may be raised; not, however, for general propagation, as all the desirable varieties are raised by grafting and budding, whereby to have the sorts continued permanent, and sooner commence good bearers; and some are also raised occasionally by layers and cuttings, and some by suckers.

The principal characters of the Pyrus are—the flowers all hermaphrodite—have each a one-leaved, concave calyx, five-parted at the top—corolla, or flower, five roundish petals, concave, inserted into the calyx—stamina, twenty, or more, awl-shape filaments, crowned by single anthera—Pistillum, a roundish germen, under the flower, supporting generally five styles within, and terminated by single stigmas; and the germen grows a pyramidal, roundish, and top-shape fruit, in the different varieties umbilicated at the top, and produced at the base, especially the Pears and the Quinces, but not the Apples; and all of which have five internal membranous cells, containing each one small oblong and pointed kernel, or seed.

This Genus consisting of five or six parent species, some of which furnish numerous varieties, particularly the Pear and Apple, shall range the varieties under each respective species.

1. Pear Kinds.

1. PYRUS communis, Common Pear Tree.

A large, deciduous fruit-tree, twenty or thirty, to forty feet high, growing with upright and spreading branches, in the different varieties—the leaves (*middling and largish*) ovate-oblong, sawed on the edges; and whitish flowers, in pedunculated or foot-stalked, corymbus bunches, in April and May; succeeded by the fruit, in June, &c. pyramidal, oblong, roundish, and top-shape, the different sorts; ripening from

July, to October and November.—Native of many parts of Europe. (*Loamy or any common soil.*)

Varieties of the Tree.—Common, cultivated, Pear Tree. (*Many varieties of the fruit, as hereafter.*)

Double-flowered Pear Tree.

Twice-flowering Pear Tree.

Stripe-leaved Pear Tree.

Varieties of the fruit.—Very numerous, consisting of summer, autumn, and winter Pears; the summer kinds, ripening, for eating, immediately off the trees, from the beginning or middle of July, to the end of August or beginning of September, and mostly or principally for present use, as they do not keep long, some only a few days, others not above a week; the autumn kinds also, both ripen on the trees for immediate eating, in September and October, and some, after being gathered, will keep two, three, or four weeks, or more; and the winter Pears attain full growth in October, but do not generally acquire maturity for eating raw, until after being gathered, and lain in the fruitery rooms two, three, or four, to five or six weeks, in the different sorts, and some two, three, or four months, as expressed below, in the different seasons of ripening, annexed to the names of the respective varieties, both of the summer, autumn, and winter Pears: though of the winter Pears, several sorts, although not of maturity for eating raw as soon as gathered, are proper for culinary occasions, in baking, stewing, &c. and for making perry; and likewise some of the winter kinds are proper principally only for baking, &c. all which, as explained in the following register of the names, &c. of the different sorts; observing, that as most of the principal sorts were originally obtained from France, many are still known chiefly by the French names, and others by the English; they are here ranged accordingly, by the names by which they are the most generally known, with short descriptions of the different varieties, and their times of ripening or maturity, viz.

Supreme, or little Musk Pear—a small, roundish, early fruit, ripening of a yellowish colour, and rich musky flavour; *beginning and middle of July.*

Citron

- Citron des Carmes, or Green Chiffel Pear—a smallish, roundish, top-shape, early fruit, of a light green, or greenish-yellow colour; the flesh melting, rich and juicy; *middle or end of July, and beginning of August.*
- Red Muscadelle Pear—a largish, beautiful, oblongish, early fruit; ripening of a yellow colour, striped with red; the flesh somewhat melting and rich flavoured; *middle or end of July.*
- Little Muscat Pear—a small, roundish, oblong fruit, ripening yellow and musky flavoured; *end of July and beginning of August.*
- Primitive Pear—a small, yellowish and red fruit; *middle and end of July.*
- Jargonelle Pear, so called in England, but, from its shape, is more properly the *Cuisse Madame* (Lady's Thigh)—a large, long, pyramidal, early fruit, ripening of a russetty-green colour, or of an irony tinge next the sun; a most fine, summer Pear, the flesh tender, breaking, rich and juicy, superior to all other Pears of the season; *beginning and middle of August.*
- Cuisse Madame, so called, but is more properly the Jargonelle, as above; and is also very commonly called the Windfor Pear—a fine, large, oblong, pyramidal, early fruit, ripening of a yellowish-green colour, and sometimes reddish on the side next the sun; soft, rich, and juicy, if not too ripe, but soon becomes mealy tasted; the tree generally a great bearer; *middle of August.*
- Windfor Pear, a variety of, and somewhat resembling the last sort; a large, oblongish, top-shape fruit, but shorter and more swelling towards the top than the Cuisse Madame, ripening of a yellowish-green colour; soft or tender, and tolerably juicy, but soon becomes mealy; *middle of August.*
- August Muscat or Averat Pear—a middling-size, roundish, flat fruit, of a whitish colour, breaking flesh, rich, and juicy; a very fine summer Pear; *end of August and beginning of September.*
- Orange Muscat—a middle-size, shortish, globular fruit, yellowish, black spotted, musky flavoured; *beginning and middle of August.*
- Little Blanquette Pear—a middling or smaller, roundish fruit, greenish-yellow; tender juicy, and musky; *middle of August.*
- Long-Stalked Blanquette—a middle-size fruit, roundish-oblong; breaking and rich, sugary; *middle or end of August.*
- Red Orange Pear—a middling, roundish fruit, yellowish-green, and reddish-purple; melting, juicy, and perfumed; *end of August.*
- Musk Robine—a smallish, round, top-shape Pear, ripening yellowish; of a rich, musky flavour; *middle or end of August.*
- Early Russet Pear—a middle-size, oblong fruit, of a reddish-russetty colour; melting and sugary; *middle of August.*
- Musk Drone Pear—a middle-size, roundish fruit, ripening yellowish; melting and musky; *end of August.*
- Musk Orange Pear—a large, roundish fruit, greenish-yellow, the flesh melting; *end of August.*
- Perfumed Pear—a middle-size, roundish-turbinated fruit, deep-red, spotted with brown; melting and perfumed; *end of August.*
- Rose Pear, or Thorny Rose—a large, short, roundish fruit, yellowish-green, red next the sun; *end of August.*
- Autumn Russet Pear—a large, oblong fruit, of a brown colour, dark-red on the sunny side; soft, tender, and good; *middle or end of September.*
- Hamdens, or Summer Bergamot—a largish, round, flattened Pear, yellowish-green; melting, and rich perfumed; *middle of September.*
- Cassiolette Pear—a middling-size, longish fruit, ash-coloured, or whitish; melting, juicy and perfumed; *end of August.*
- Onion Pear—middle-size, roundish fruit, brownish and purple; melting and good; *end of August.*
- Princes Pear—a small, roundish, bright-red and yellowish fruit; melting and high flavoured; *middle to the end of September.*
- Pear Pouchet—a large, roundish, whitish-yellow Pear; soft, tender, and sugary; *end of August.*
- Summer Boncrétion, (Good Christian)—a large, oblong Pear, beautifully reddened next the sun, the other side whitish-green; tender, juicy, and perfumed; *beginning of September.*
- Salviati Pear—a moderately-large, roundish, flat fruit, a little hollowed at both ends, red and yellow one side, the other whitish; soft and sugary; *beginning of September.*

- Rose-water Pear—a large, round fruit, hollowed at the base, roughish, and of a brown colour; breaking and sugary; *middle of September.*
- Great Mouth-water Pear—a large, round, smooth, green fruit; melting and very juicy; *middle of September.*
- Autumn Bergamot—a middle-size, roundish fruit, yellowish-green, reddish next the sun; juicy and rich; *middle or end of September.*
- Swifts Bergamot—a middle-size, roundish Pear, greenish, striped with red; melting, rich-juicy; *beginning of October.*
- Deans Pear, or White Autumn Beurree—a large, fine, roundish-turbinated fruit, smooth and yellowish; melting and very juicy; *beginning of October.*
- Red Beurree Pear—a large, oblongish-top-shape fruit, reddish-brown colour; soft, melting flesh, most juicy and rich; *beginning of October.*
- Brown Beurree—a large, oblongish, brownish-green Pear; rich and very fine; *beginning of October.*
- Green Beurree—a large, greenish Pear; most rich and juicy; *beginning of October.*
- Autumn Verte Longue, or Long Green Pear of Autumn—a largish, long, green fruit; the flesh melting, very juicy and sugary; *middle of October to December, &c.*
- Muscate Fleuri, or Long-stalked Autumn Muscate—a middle-size, roundish, very fine Pear, russety, or darkish-red; tender flesh, juicy and most rich flavoured; *middle and end of October.*
- Messire Jean, or Monsieur John Pear—a largish, or middle-size, roundish-turbinated fruit, with a rough, brown skin; the flesh breaking, full of a rich, sugary juice; *middle or end of October and November.*
- Swan Egg Pear—moderately large, roundish-turbinated, gradually swelling in the middle, generally of a greenish-yellow, on one side a little purplish; most juicy and delicious; *October and November.*
- Poire Pendar, or Knaves Pear—largish-oblong, whitish-green fruit; tender, with a sugary juice; *end of October.*
- Rouffeline Pear, or Late Long-stalked Autumn Muscate—a middle-size, oblong, smooth fruit, greenish-yellow, and deeper next the sun; very tender flesh, sugary and perfumed flavour; *middle to the end of October.*
- Green Sugar Pear—middle-size, oblong-pyramidal fruit, smooth green; buttery, sweet, and rich-flavoured; *end of October.*
- La Befideri, or wilding Pear—middle-size, globose, or round fruit, whitish-yellow; better for baking, &c. than eating raw; *end of October or November, &c.*
- Craffane Pear, or Bergamot Craffane—a middle-size, roundish-flat Pear, umbilicated, or hollowed at the crown and bottom, ripening of a greenish-yellow, and russety; very tender, buttery, and most rich flavoured; *end of October to the end of November or December.*
- La Marquise, or Marquis Pear—large, oblong-roundish, flat at top, greenish-yellow, reddish next the sun; tender, sugary, and delicately-rich flavoured; *beginning of November to December, &c.*
- Dauphine Pear—middling-size, roundish-turbinated, flat at top, of a yellowish colour; tender, rich, sugary, and most excellent; *end of November, &c.*
- Martin Sec, or Dry Martin Pear—largish-oblong, deep-russet on one side, the other reddish; rich, sugary, and fine; *end of November, &c.*
- Colmar, or Manna Pear—large oblong, the middle swelling, and the head flat, deeply hollowed, greenish-yellow, or yellow-spotted; very tender, and sugary juiced; *December to January or February.*
- Virgouleuse—a most fine, large, long Pear, of a greenish-yellow, the flesh melting and delicately-rich and juicy—*December to the end of January, &c.*
- Winter Verte Longue, (Long Green Pear of Winter)—large, roundish-long, and citron-shape, smooth and green, ripening somewhat yellowish; melting, buttery, and rich; *end of December.*
- Amadot Pear—middle-size, oblong-turbinated, or top-shape, roughish, russety-coloured, flesh dryish, musky-flavoured; *December and January.*
- Chat-brulé, (Burnt Cat)—small, oblong, whitish and russety-brown; *beginning of November, &c.*
- St. Germain Pear—a large, long, very fine winter Pear, ripening of a yellowish-green; melting, most juicy and sweet, and is of much estimation; *December till February or March.*
- Epine d'Hyver, or Winter Thorn—large, long-pyramidal shape, smooth, whitish-green, or ripening somewhat yellowish; a fine eating winter Pear, melting, buttery,

- tery, sweet and high-flavoured *December till March*.
- Poire d'Ambrette, or Ambret Pear—large, roundish, and russet-coloured; sweet, and musky-perfumed; *December to the end of January or February*.
- Louisbon, or Good Lewis—a large, long Pear, smooth, greenish-white, the flesh very tender and sweet—*December, January, &c.*
- Winter Boncrétion—a most large, long-pyramidal Pear, often irregular, or knobby, generally of a yellowish colour, sometimes a little reddish next the sun; the flesh breaking and tender, juicy and rich, and is a most noted and much-esteemed winter Pear; *January, February, and March, to April or May*.
- Marveille d'Hyver, or Wonder of Winter—middle-size, roundish-oblong, green, somewhat spotted; very rich and fine; *December and January*.
- Besi de Chaumontelle—large, oblong, very fine winter Pear, whitish-green, and purplish next the sun; melting, rich, and delicious; *November to January, &c.*
- St. Martial Pear—large oblong, smooth, yellowish and purplish; melting, juicy, and sweet; *January, February, March, &c.*
- Winter Ruffelet—a middle-size, oblong Pear, greenish-yellow, inclining to brown; melting and very juicy; *January, February, &c.*
- Great Orange Pear—large round, of a whitish-yellow colour, the flesh breaking and tolerably good; *end of November and December*.
- Martin-Sire, or Lord Martin Pear—large, oblong-turbinate, unequal, or on one side swelling in the middle, smooth, purplish and yellow; melting, juicy, and rich-flavoured; *December, January, &c.*
- Easter Bergamot—large roundish-oblong, or top-shape, greenish-yellow, adspersed with many rough protuberant spots; breaking, and sweet juiced; *February, March, April, &c.*
- Spanish Boncrétion—a large, handsome, pyramidal Pear, one side purple or red, with many black spots, the other side yellow, the flesh breaking and rich; *December and January*.
- Small Winter Beurre—a small oblongish Pear, yellowish, spotted with red; melting, rich-juicy; *December and January*.
- Easter St. Germain Pear—moderately-large, long, and greenish; melting and rich-flavoured; *February, March, or April*.
- Holland Bergamot—a large, roundish, greenish Pear; tender, juicy, and high-flavoured; *keeps good till March or April*.
- German Muscat—middle-size, oblong-roundish, russety and red; melting, but-tery, and musky-flavoured; *March, April, till May*.
- St. Austin Pear—middling-large, oblongish, of a citron-yellow colour, spotted with red; tender, and moderately juicy; *December till January or February*.
- Golden End of Winter—large, roundish, or almost globular, yellow spotted with red; *January till March*.
- Winter Citron Pear—moderately large, roundish citron, or orange-shape, and of a yellow colour; the flesh rather dry, but good for baking; *December to March*.
- Pound Pear, Black Pear of Worcester, or Parkinson's Warden—very large, oblong-turbinate, roughish, of a darkish, obscure red, on one side, the other greenish; hard and austere; principally for baking, stewing, &c. *November to March*.
- Union Pear, or Uvedale's St. Germain—very large, long-pyramidal shape, mostly deep-green, or sometimes reddish next the sun; the flesh hard, but excellent for baking, &c. *November to April*.
- Cadillac Pear—large, roundish-turbinate, most part yellowish, and reddish next the sun; the flesh hard and juicy, but rather austere; generally esteemed for baking, stewing, &c. *November to March or April*.
- Double-flowered Pear—large, short, and roundish, smooth, and yellowish, and purple-red on the side next the sun; the flesh rather hard, better for baking than eating raw; *December to April or May*.

The foregoing being short descriptions of the principal varieties of Pears, the following consists both of summer, autumn, and winter kinds, as in the foregoing list, are also mostly good sorts; shall mention their generally-known names and times of ripening.

- Katherine Pear; *end of July and beginning of August*.
- Orange Bergamot; *September*.
- Lemon Pear; *September*.
- St. James's Pear; *September*.
- Lord Cheyne's Pear; *September*.
- Red Admirable; *September and October*.

Crawford Pear; *September and October.*
 French Bergamot; *October.*
 Brocas's Bergamot; *October.*
 Auchon Pear; *October.*
 Grey Good Wife; *October.*
 Gansil's Bergamot; *October.*
 Pear Piper; *September and October.*
 Scotch Bergamot; *September and October.*
 Trumpet Pear; *September and October.*
 Vicar Pear; *September and October.*
 Echassery; *November, December, &c.*
 Carlisle Pear; *October.*
 Chateau du Roi Bergamot; *October.*
 Blood Pear; *October, November, December, &c.*
 Carmeline Pear; *October, November, December, &c.*
 Winter Bergamot; *October, November, December, &c.*
 Seven-elbowed Portugal Pear; *October, November, December, &c.*
 Terling Pear; *October, November, December, &c.*
 Beurre blanc; *October, &c.*
 Beurre d'Ore; *October, &c.*

Of the different varieties of Pears, the following being very large, and some too hard and austere to eat, till improved by culinary preparations, in baking, sewing, &c.

Pound Pear, or Black Pear of Worcester.
 Cadillac.
 Union, or Uvedale's St. Germain.
 Double-flowered Pear.
 Winter Citron.
 Blood Pear.

Or may also bake or stew any other large sorts, such

as

Winter Boncrétion.
 Spanish Boncrétion.
 Good Lewis.
 Holland Bergamot.
 Winter Thorn, &c.

Thus far concludes the general register of the species and different varieties of Pears, especially of the principal sorts; as there are still many more than is here enumerated, known in different parts of the kingdom by various names, peculiar to particular places; but as the foregoing list comprises a large assortment of principal varieties, from which to make a collection, more or less, of good kinds for planting, it would be superfluous to add a number of inferior sorts, or of others, not so generally known, of good qualities.

The trees of all the varieties of Pears, are propagated by grafting and inoculating the respective sorts upon any kind of Pear stocks, raised from seed or suckers; and upon Quince stocks to have trees of smaller or more moderate growth for walls, espaliers, and small standards; as more fully explained hereafter, under the article, *the General Culture of the Pears and Apples.*

2. Apple Kinds.

Consisting of three species, one of which is the Common Apple, (supposed originally the Crab) furnishing many fine varieties of the fruit, attaining proper growth for eating and culinary uses, cyder, &c. from June, July, and August, to the end of October; the summer kinds, attaining perfection before September, do not keep long, but the late sorts keep good in winter, and some till next spring and summer; and of the other species, and some varieties of the Common Apple, are also proper to plant for ornament.

2. PYRUS Malus—(Malus) or Common Apple Tree.

A moderate, deciduous tree, fifteen or twenty, to twenty-five feet high, generally with a spreading, branchy head—the leaves (*middling*) ovate-oblong, and the edges sawed; and umbellate bunches of reddish rosaceous flowers, sessile, or close-fitting; succeeded by large, roundish, and oblong fruit, umbilicated at the top, and mostly hollowed at the base.—Native of most parts of Europe. (*Loamy or any common soil.*)

Varieties of the Tree.—Common cultivated Apple Tree.—(*Many varieties of the fruit, as hereafter.*)
 Double-flowered Apple Tree.
 Wild Apple, or Crab, with small, round, very four fruit.
 Whitish-yellow-fruited Crab.
 Purple-fruited Crab.
 Stripe-leaved Crab.
 Dwarf, or Paradise Apple—a small, shrub-like tree, with very small fruit.
 Dutch Paradise Apple—larger and stronger.

Though of the above, the Crab and the Paradise Apples, are by some considered as distinct species, as they generally come the same from seed, and which sorts, are principally used for stocks, upon which to graft or bud the different varieties of the cultivated Apples; the Crab stocks being proper for large trees, and the Paradise stocks to form small or dwarf trees; and are likewise admitted in pleasure-ground plantations, for variety.

Varieties of the Fruit of the Cultivated Apple Tree.

These are numerous, attaining perfection for use immediately off the trees, from June or July, to September, &c. in the summer and autumn kinds, but do not keep long; and in the winter apples, acquiring full growth in October, some both for immediate eating, and which, and the other different varieties of that season, being gathered and housed, continue in perfection one, two, or three, to several months, in the different sorts; consisting of the following summer, autumn, and winter Apples—

Gennetting, or June-eating—a small, roundish, yellow and red fruit—for eating sometimes in the end of June and in July, when growing against a south wall, and on standards in August.

Codlin Apple, or Codlin—a middling, or largish oblong Apple, somewhat angled longitudinally, and of a greenish-yellow, or ripening to a yellowish and red colour; is generally the first Apple for principal use—June and July in young growth, and of full maturity in August.

Margarate Apple—a middle-size, roundish fruit, reddish next the sun, the other side whitish-green; *beginning of August.*

Dutch Codlin—large, oblong, fine Apple, much larger than the common Codlin, of a yellowish-green; excellent for culinary purposes; *August and September.*

Summer Pearmain—a largish, oblong, Apple, red-striped; *August and September.*

Summer Calville—largish, oblong Apple, whitish-yellow; *August and September.*

Summer Rambour—a large, fine Apple, red and yellowish-green-striped; *end of August and in September.*

Summer Pippin—a middle-size, roundish Apple, of a yellowish colour; *September and October.*

Red Autumn Calville—a large, oblongish Apple, of a beautiful red next the sun; good for eating, baking, &c. *September, October, &c.*

White Autumn Calville—largish, oblong, whitish-yellow Apple; *September and October.*

Red Winter Calville; *October, November, till March.*

None-Such—a middle-size, roundish, yellowish-green, and reddish Apple; *September, October, November, &c.*

Loan's Pearmain—middle size, oblong-

ish, handsome Apple, beautifully red next the sun, the other side red-striped; *September, October, and November.*

Golden Rennet—a middle-size, roundish, oblong, beautiful, fine eating Apple, bright-red and yellowish; *September, or October, to March, or longer.*

Aromatic Pippin—a middle-size, roundish-oblong Apple, russetty-coloured next the sun, of a fine aromatic flavour; *October, November, &c.*

Holland Pippin—a fine, large, oblong-roundish Apple, of a greenish-yellow, good both for eating and culinary purposes; *October, November, till March.*

Golden Pippin—a small, roundish-oval, fine eating Apple, of a golden-yellow colour, &c. *October, November, till March or April.*

Pomme d'Anis, or Anise Apple—a middle-size, oblongish fruit, of a greyish-green; spicy-tasted, like anise-seeds; *September, October, &c.*

White, or French Rennet—a large, handsome, roundish fruit, of a whitish-green, becoming yellowish when ripe, good both as a desert Apple, and for kitchen uses; *October, November, to January.*

Violet Apple—moderately-large, roundish fruit, yellowish-green, with red stripes, of a fugary taste and violet flavour; *October, &c.*

Transparent Apple—a middle-size, roundish-oblong fruit, yellow-coloured, of a somewhat transparent nature, esteemed more for curiosity than eating; *September and October.*

Quince Apple—a smallish, oval-oblong fruit, quince-shaped, russet and yellowish; *September and October.*

White Costin—a largish, or middle-size, roundish, white Apple; *September, October, &c.*

Kentish Pippin—a fine, large, oblong Apple, whitish-green, good both for eating baking, &c. *October, November, December, &c. to March.*

Scarlet Pearmain—a handsome, large, oblongish Apple, of a fine red colour, good for eating and kitchen uses; *September, October, November, &c.*

Golden Russet—a middle-size, roundish Apple, of a yellowish and russet colour; *September, October, November, &c.*

Autumn Russet—a large, roundish-oblong Apple, of a russetty-yellowish colour; *September, October, and November.*

Winter, or Hertfordshire Pearmain—a fine, moderately-large, oblongish Apple, red

- on one side, the other yellowish-red-striped; *October, November, December, &c.*
- Royal Russet—a large, most excellent Apple, roundish-oblong, broad at the base, wholly of a deep-russet colour, sometimes tinged with yellow, superior for baking, boiling, and very good for eating raw; *October, November, to March or April.*
- Embroidered Apple—a moderately-large, oblongish fruit, yellowish and broad red stripes; *October, November, December, &c.*
- Grey Leadington Apple—a largish, handsome, oblong fruit, of a greyish-green colour, excellent both foreating, baking, boiling, &c. *October, November, &c.*
- Piles Russet—a middle-size, roundish-oval fruit, russet colour on one side, the other a darkish-green, of a sharpish flavour; *October, and all winter and spring.*
- Kentish Pippin—a large, fine, oblong Apple, of a yellowish-green colour; *October, November, till spring.*
- Norfolk Beeffin—a middle-size, oblong, reddish Apple; *October, November, to January or February.*
- Leathercoat Russet—a smaller, middle-size, roundish apple, dark russetty green, of a sharply acid flavour; *November, and all winter and spring.*
- Wheeler's Russet—a good, middle-size, roundish Apple, somewhat flat, of a lightish russet, and pale-yellow colour; *October, and all winter and spring.*
- Stone Pippin—a middle-size, roundish, whitish, hard Apple, for long keeping; *October, all winter and spring, till May or June.*
- Monstrous Rennet—a very large, oblongish Apple, reddish on one side, the other side greenish; principally for baking, boiling, &c. *October, November, and December.*
- Nonpareil—a most estimable eating Apple, smaller-middling-size, roundish and flat, of a russetty-green colour; *October or November, or all winter and spring, till May.*
- Large, Green Nonpareil—a larger, roundish Apple, of a brighter, russet-green colour; *October and November, till spring.*
- Royal Pearmain—large, fine, oblongish Apple, reddish and yellow; *October and November.*
- Cour-pendu, or Hanging Body—an exceeding large, oblong Apple, with several longitudinal, rising angles or ridges, and reddish on one side, the other a pale colour; having a long, slender stalk, that the fruit is always in a pendulous, or hanging position; *October, November, &c.*
- White Cour-pendu; *October, November, &c.*
- Rennet Grise—a middle-size, roundish-oblong Apple, of a deep greyish green, or one side tinged with yellow; *October and November.*
- Pomme D'apis—a smallish, roundish Apple, bright-purple and yellowish-green, very beautiful, with a firm flesh; *September, October, November, &c.*
- Kirton, or Kirk-Town Pippin—a middle-size, roundish Apple, of a whitish-yellow colour; *October, November, and most part of winter.*
- Kitchen Rennet—a fine, large, roundish-oblong Apple, of a yellowish colour; *October, November, &c.*
- Winter-greening—a largish, roundish-oblong, green Apple, principally for kitchen purposes; *October, November, and most part of winter.*
- Winter Rembourge—a large, fine Apple, yellowish-green, and red; *October, November, and great part of winter.*
- Two-Year Apple—a smallish, roundish fruit, of a russetty colour, hanging on the trees till the second year; valued chiefly as a curiosity.
- Fig Apple—so called, as supposed, like the fig, not to have any visible, or conspicuous, previous flower, or which is very small and fugacious or quick-fading, soon dropping, before it is generally observed.

The above list comprises the names and short descriptions of the sizes, shapes, colours, &c. of the principal varieties of apples; the following are also cultivated in different places, and many of them very good fruit, deserving of culture where plenty of room to admit a large collection; shall just mention their names and times of perfection.

- Summer Stubbard; *August and September.*
- Summer Russet; *August and September.*
- Summer Queening; *August and September.*
- Kentish Codlin; *August and September.*
- Lemon Pippin; *September, October, &c.*
- Virgin Apple; *September, October, &c.*
- Newton Pippin; *October to January, February, &c.*
- Pomme de Gelée; *October, &c.*
- Pomme Pigeonette; *October, &c.*

John Apple; *October, and all winter, till May or June.*
 Lawman's Apple; *October, and all winter, till May or June.*
 Lord Hay's Golden Pippin; *October, &c.*
 Spitzenberg Apple; *November, December, to April or May.*
 Spencer's Pippin; *October, November, till spring.*
 Cats Head; (*very large, roundish-oblong*)
October, November, till spring.
 Pipy Russet; *October, November, till spring.*
 Acllam Russet; *October, November, &c.*
 Margil Apple; *October, November, &c.*
 English Rennet; *October, &c.*
 Autumn Rennet; *September, &c.*
 Barnard's Baking Apple; *October, November, December, &c.*
 Glory of the West Apple; *October, November, December, &c.*
 Queen Charlotte Apple; *October, &c.*
 French Pippin; *October, November, December, &c.*
 Black Pippin; *October, November, December, &c.*
 Salmon Apple; *October, November, December, &c.*
 Kentish Wilding; *October, November, December, &c.*
 Partridge Apple; *October, November, December, &c.*
 Costard Apple; *October, November, December, &c.*
 Norfolk Paradise; *October, November, December, &c.*
 Gilliflower Apple; *October, November, December, &c.*
 Pomme du Roi; *October, November, December, &c.*
 Aromatic Russet; *October, November, December, &c.*
 American Apple; *October, September, &c.*
 Drap d'or; *September and October.*
 Spanish Rennet; *October, &c.*
 Canada Rennet; *October, &c.*
 Norfolk Storing; *October, November, December, &c.*

The following are esteemed principally as cyder Apples, though any of the others of the autumn and winter kinds, where plentiful, may also be used for the same occasion—

Red-streak Apple; *October, November, &c.*
 Devonshire Royal Wilding; *October, November, &c.*
 Gennet Moyle; *October, November, &c.*
 Everlasting Hanger; *October, November, December, &c.*
 White-Scur; *October, November, December, &c.*

John Apple; *October, November, December, &c.*
 Blackmoor Apple; *October, November, December, &c.*
 Styre Apple; *October, November, December, &c.*
 Herefordshire Under-leaf; *October, November, December, &c.*
 Wood-Cocks; *October, November, December, &c.*
 Fox-Whelps, with several others, chiefly known in the cyder countries; *October, November, December, &c.*

Thus far finishes the general catalogue of the principal, or most generally known and esteemed varieties of Apples; the trees of which are all propagated and continued the same, by grafting the different respective sorts upon the stocks of any of the Apple kind, raised principally from the seed or kernels of the fruit; or some by suckers; raised to two, three, or four, to five, six, or seven feet high, for grafting them for standard-trees, espaliers, &c. generally using Paradise or Codlin stocks to form small or moderate trees; and on free stocks, as those raised from the kernels of crabs, or any kind of Apples, indifferently, for common large trees, especially full standards; and all of which commence bearing in two, three, four, or five years after grafting; as explained in the article of their general culture.

Of the foregoing general list of the different varieties of cultivated Apples, should allot a proper assortment of the best middling and smaller kinds, for eating, or desert Apples; such as some of the Gennetting and Margarate Apples, for early eating; with some of the other summer kinds to attain maturity in succession; and for general eating Apples in autumn, winter, &c. have a more plentiful supply of the Pearmains, Golden Rennets, Golden Pippins, Holland Pippins, Aromatic Pippins, Nonpareils, some best Russets, and some other principal sorts; and for kitchen Apples, allot plenty of the common Codlins for the earliest, some Dutch and Kentish Codlins, large Rennets, Russets, the Holland, and other large Pippins, Pearmains, &c. and where required for cyder, may either allot, principally, a collection of the varieties mentioned before, under the list of Cyder Apples; or any others of the autumn and winter kinds in the general list, where plentiful to spare from other occasions, may also be employed for making cyder.

The following are other species of the Apple kind, and cultivated chiefly for variety and curiosity.

3. *PYRUS (Malus) coronaria*—Coronated odorous-flowering Wild Apple, commonly called Sweet-scented Virginia Crab.

A smaller tree, growing ten or twelve, to fifteen feet high—

high—the leaves (*middling*) oblong-ovate, sawed-angulated, and umbels of sweet-scented flowers, pedunculated or foot-stalked; succeeded by small roundish Apples, ripe in September, &c.—Native of Virginia. (*Very common soil.*)

Varieties.—Common Deciduous Sweet-scented Crab.
Ever-green Sweet-scented Crab.

4. *PYRUS (Malus) baccata*—Berried-Fruited Apple, commonly called Siberian Crab.

A small deciduous tree, five or six, to eight or ten feet high—the leaves (*smallish, light-green*) oblong and sawed; and crowded peduncles of whitish flowers, succeeded by very small berry-like Apples, reddish and yellow; August and September.—Native of Siberia and America. (*Any common soil.*)

Variety.—Red American Crab—a very small, roundish, berry-like, deep-red Apple, thickly crowded on the branches.

These two last species and varieties of Apples, are cultivated principally for variety and curiosity, as before observed: the Sweet-scented Virginia Crab is introduced in shrubberies, &c. as a flowering-shrub, and sometimes for its fruit, by way of variety, aforesaid; and occasionally used for stocks, on which to graft the other principal sorts of Apples, in order to have them of moderate growth for espaliers and small standards; and the Siberian Crab is eligible to cultivate for its fruit, which both appear curious in its growth on the trees, and makes a pretty variety in a desert; comes early in autumn, and is agreeably flavoured; and the trees being of small growth, are cultivated in dwarf-standards in borders and in pots; likewise occasionally in espaliers and wall-trees, and is also sometimes planted in shrubberies.

These sorts may be raised from seed; but in order to have them continued more permanent in their respective kinds, and to flower and bear sooner, it is adviseable to propagate them principally by grafting or inoculating them upon seedling-stocks of their own, or on the Paradise Apple, or Codlin; or may also be raised by layers and cuttings.

Quince Kinds, (CYDONIA.)

5. *PYRUS Cydonia*—(Cydonia) or Quince Tree.

A moderate or small deciduous tree, growing twelve to fifteen or eighteen feet high, with very slender branches—the leaves (*middling*) ovate intire, somewhat downy, or hoary underneath; and roseaceous flowers produced singly at the sides of the smaller

branches; succeeded by large, roundish and oblong, yellow fruit; ripe in September and October.—Native of Austria, near the Danube, &c. (*Moist or any soil.*)

Varieties.—Apple-shape Quince; September and October.

Pear-shape Quince; September and October.

Portugal Quince—large, roundish, and of superior quality; September and October.

Eatable Quince—the pulp soft and eatable; September and October.

These fruit, when ripe, impart a strong, fragrant odour, but mostly hard and austere; useful principally for kitchen purposes, in baking, stewing, &c. and for making Marmalade and Quince Wine.

The Quince Trees are raised both by grafting and budding the desired varieties upon their own or Pear stocks, and also by suckers, layers, and cuttings of the young shoots; but those raised by grafting and budding will bear sooner than the others; each method as hereafter explained.

These trees are also in much estimation for stocks on which to graft and bud Pears, to form trees of moderate growth, especially for walls and espaliers, and will generally bear sooner than those on free or Pear stocks.

Culture of the Pears and Apples.

The Pear and Apple Trees, in their numerous respective varieties, being not only species of the same Genus or family, but also similar in their nature of growth, temperature, and mode of bearing, that one method of general culture is nearly applicable to the whole in their different stages of growth, shall, therefore, give the essential directions for their cultivation under one principal head, relative to the methods of propagation, raising, planting, pruning, training, &c. both for standard-trees, espaliers, and wall-trees, with necessary distinctive intimations regarding the respective merits and other particulars relating to the trees and fruit, &c. of each of these two species; and as they are cultivated in standard-trees, generally for principal planting, to furnish the main supplies of fruit, and in espalier and wall-trees, aforesaid, to obtain their respective fruits in a superior degree of maturity, shall explain each method under its proper head.

The trees are raised or propagated by grafting and budding the desired or intended sorts upon stocks of their own kind; that is, Pears are grafted or inoculated upon any sort of seedling Pear stocks raised from kernels of the fruit, and sometimes suckers from the roots of Pear Trees; and both of which stocks being

being generally strong growers, are principally to graft or bud upon for full standards, and other trees of large growth, and upon Quince stocks, to form smaller trees, or of moderate growth, for principal wall-trees and espaliers, and to bear sooner; and Apples, raised principally by grafting, are grafted upon seedling-stocks, raised from the kernels of any sort of Apples or Crabs, which, being of a free growth, are proper for common large trees, and upon Codlin and Paradise stocks, to have smaller and dwarf-trees, and that they may sooner commence bearers; and in all of which, both Pears and Apples, when the trees, after being grafted or budded, have formed heads of one, two, or three, to four or five years growth, they are proper for final planting in the places intended, and will begin bearing, some at three, four, or five years old, others longer before they attain that state, especially Pears; and all of which, by grafting and budding, produce fruit the same as that of the parent trees of the respective varieties from which the grafts and buds were obtained; hence comes the utility of grafting, &c. for although the trees may be raised from seed, *i. e.* the kernels of the fruit, and by which all the fine varieties were first accidentally obtained, it is long before they commence bearers; and even then, though raised from seed of the finest Pears and Apples, they seldom produce the same kind of fruit in return, but vary to other sorts, and probably not one tree in twenty give fruit inheriting any desirable property; but when any new varieties of good fruit from the seedling-trees occur, they being propagated by grafting or budding them on proper stocks, as above described, they are multiplied and continued invariably the same; as is the case with all or most other desirable varieties of fruits; and the trees so raised, always bear some years sooner than seedling-plants.

But, for immediate planting, the trees may be had, ready raised, at the public nurseries, in full collection, or as required, in different varieties, of two or three years old, or more, or that are advanced to a bearing state, to produce fruit the first year, and may be planted any time in open weather, from October till the end of March: the standards planted twenty to thirty, or sixty feet asunder, and the espalier and wall-trees fifteen to eighteen or twenty feet distance.

All the varieties of Pears and Apples, in the different orders of training, bear their fruit upon small, natural spurs, or cursons, being short, thick, shoots, of about half an inch, to one or two inches long, arising on the sides and ends of the general branches, commencing when of three or four, to five or six years old, seldom sooner in Pears; or sometimes in these trees, are eight or ten years before they begin to form tolerable bearers, especially those grafted on crab or free stocks; but when on Quince stocks, they often bear in half the time; as also Apples, which,

grafted on Codlin and Paradise stocks, often commence bearing in two or three years; and in all of which, the same branches and fruit-spurs continue many years fruitful, and, according as the branches encrease in length, they multiply in the number of fruit-spurs, continued quite to the extremities, and often formed at the termination thereof, if permitted to extend in their full growth; and, according as the trees encrease in age considerably, they bear mostly towards the upper and extreme parts of the smaller branches; though, in the wall and espalier-trees, by proper pruning and training, to cut out naked and barren, old wood, having young, advancing shoots to supply the place, they are continued fruitful the whole length of the branches; and it should therefore be remembered, in performing the occasional or necessary pruning, that the branches and shoots of these trees must not be shortened, but permitted to extend always fully in standards, also in espalier and wall-trees, as far as room admits.

As Pear and Apple Trees furnish many different varieties of their respective fruits, most valuable, useful and profitable, both for eating in their natural state, and for many principal culinary purposes, in baking, boiling, &c. occasionally, great part of the year; and for making cyder and perry, the trees merit culture more abundantly than most others of the eatable fruit-bearing tribe, as being not only superior in their productions for domestic occasions, but also very profitable to cultivate in considerable plantations, in gardens, orchards, parks, fields, &c. for public supply in the markets and other occasions, as may be required, or convenient.

It is therefore adviseable to admit plenty of these trees, according to the extent of room which the respective gardens and orchards, and other grounds wherein they are intended afford; generally allot a larger portion, in standards, to produce the principal supplies of fruit for general use, both for domestic occasions and public consumption, where required; and have also a collection of the principal or most esteemed varieties, in espaliers, to obtain the fruit in greater perfection; likewise to have some finest sorts of Pears in wall-trees, for the same advantage as in the espaliers, in a superior degree; and may also allot a few trees of the choicest eating Apples, to plant on south or west and easterly walls, for early ripening in the forward sorts, or in others to acquire a superior flavour: however, as all the varieties of Pears and Apples attain good maturity on standard-trees and espaliers, should allot plenty of these where room admits, generally most abundantly in standards, and in which have principally more of Apples than Pears, as being the most generally useful fruit, and obtained in longer succession, in good perfection and abundance; but not omitting to have some proportional quantity of

Pear

Pear Trees, or nearly equal to that of the Apples, if thought expedient.

In the intention of planting Pears and Apples, no time should be omitted, not to lose a season or more, especially as it should be considered that it will be several years before the trees begin to produce any tolerable quantity of fruit, and in which, the Pears are generally longer than the Apples.

The trees of all the sorts thrive in any common soil of a garden, or in ground of similar quality, in orchards, fields, hedge-rows, &c.

As Pears consist of a great variety of fine eating fruit, desirably-valuable for use in summer, autumn, and winter, both for eating, baking, stewing, &c. and also, where in considerable quantity, are of much estimation for making perry, the trees should be admitted in collection of different varieties, more or less, according to room, in gardens, orchards, &c. to plant in standards, wall-trees, and espaliers; the summer and autumn kinds, attaining perfection for eating immediately off the trees in those seasons, and will not keep long, especially the summer Pears, ripening in July and August, which seldom keep good but a few days; but the autumn kinds, attaining maturity in September and beginning of October, will keep longer, though some of the forward varieties of that season continue only two or three weeks, and some of the later sorts near double that time, serving for use till the winter Pears are in perfection; the winter Pears acquiring full growth on the trees, the beginning, middle, and towards the latter end of October, for gathering; few sorts, however, for immediate eating, except for culinary uses, and being housed, become mellow as they lie in the fruitery; attaining perfection in the different varieties, in regular succession, during the winter, &c. from November and December, till March, April, and May.

So that of the Pears, may plant plentifully in full and other standards, both of the summer, autumn, and winter kinds, for the principal production, planted in gardens, orchards, &c. twenty, to thirty or forty feet asunder; and some of the best varieties allot for espaliers, for producing fruit in superior perfection, planted in the outward borders of the kitchen garden, &c. in a row, fifteen to eighteen or twenty feet distance; and likewise, some of the most esteemed sorts, in wall-trees, of the summer and autumn kinds, planted the same distance as the espaliers, some upon south, and others on east and west walls, to ripen fruit early, and in succession, of improved growth and rich flavour; allotting also a larger portion of the principal eating winter Pears, on walls of the same aspects, to attain all possible perfection of full growth, that they may keep well after being gathered, and acquire good

maturity of mellowness and rich flavour, more effectually, according to their respective kinds in different varieties.

All the varieties of Pear Trees are raised or propagated by grafting or budding the intended sorts upon any kind of Pear stocks, raised from the seed or kernels of the fruit and suckers; forming what are called free stocks of strong growth, for large trees or full standards, &c. or for extensive espaliers and wall-trees; and on Quince stocks to have smaller trees, both for standards, wall-trees, and espaliers; and which also sooner become bearers than those on Crab or free stocks.

Or all the sorts, or any desired varieties, may be procured at the nurseries, ready raised, of a proper growth for immediate planting; or may occasionally obtain such as are well advanced towards bearing; or that are fully arrived to that state, where required to have bearing-trees as soon as possible.

That as Pear Trees are generally several years before they bear, no time should be lost in the design for raising or planting, as they are commonly longer than most other fruit-trees before they bear in any tolerable abundance; as generally from the time of grafting, &c. it is five or six years, or sometimes longer, before they give fruit; especially when grafted on Crab or free stocks, which occasions their assuming a stronger growth; running more considerably to wood than those on Quince stocks; for those latter being of a very moderate growth, the trees grafted or budded thereon, not running so greatly to wood, soon commence bearers; so that it may be proper both to have some worked on free stocks, for larger trees in full standards, and for extensive wall and espalier-trees, as before observed; and others on Quince stocks, for small standards, and for general espalier and wall-trees, and to bear sooner.

Apples being a superior valuable fruit, in a more extensive degree, than the Pears, of great use at most seasons of the year, the trees in standards should be introduced more abundantly in every garden, and in orchards, hedge-rows, &c. than of most other fruit-trees; and where good extent of ground, have great plenty of the standards aforesaid for the principal production; and to allot a portion of the principal sorts for espaliers in gardens, to produce fruit in superior goodness in growth and flavour; generally, in the whole, have an assortment of the summer, autumn, and winter kinds, as much as room admits, to obtain the fruit in proper succession from the earliest to the latest season; the summer and autumn Apples being proper for use immediately off the trees, from June and July till October; some in young growth in June or July, quarter or half grown, as in Codlins, &c. to use in several culinary occasions; and,

their more advanced state, in the end of July and in August, &c. several sorts are proper, both for the same purposes, and attain some degree of maturity for eating in their natural state, as table or desert fruit, as observed of the Pears: though none of these early sorts, even when full grown, will keep long, only a few days, or a week or two, or but little more; but the autumn kinds, acquiring full growth in September, consisting of many principal sorts, are in perfection, both for immediate eating off the trees, and, that when gathered, will keep several weeks; and the late or winter Apples, attaining maturity of full growth, principally by the latter end of September, and in October, proper both for present use, and being then gathered, housed, and thickly covered with dry straw, will keep in good perfection two or three months, or more; and some sorts will continue sound and good till May or June following; or some, even till the production of young Apples for use the ensuing summer.

And therefore, as the varieties of Apples are very profitable fruit, both for many useful culinary purposes in baking, boiling, &c. and for eating, and of great value for making cyder, that where eligible scope of ground in gardens, orchards, parks, hedge-rows, &c. should have plenty of the trees in standards, planted twenty or thirty, to forty feet distance, or more, according to room; as likewise in gardens have a portion of the finest sorts in espaliers, planted in the borders of the kitchen garden, &c. next the walks, in a row, fifteen to eighteen or twenty feet distance, to have their branches trained to the espalier or trellis of posts and rails, in the manner of wall-trees; or likewise a few of the finest early Apples may be trained against walls.

In planting a collection of Apple Trees, more or less, should generally allot some good portion of Codlins in standards, as being the first most useful Apples, for kitchen uses particularly, or for eating when of advanced growth; and the trees being moderate shooters, not spreading considerably, they may be planted closer than the larger standard-trees, and will soon become plentiful bearers.

All the sorts of Apples are propagated by grafting the respective varieties upon Crab or any kind of Apple stocks raised from the kernels of the fruit, which being what are called Crab or free stocks, are principally for larger standard-trees, and occasionally for espaliers, when required to have any of extensive growth; and others are grafted upon Codlin stocks, raised from suckers from the roots, &c. of old trees, which being of more moderate growth than free stocks, are more proper for small or moderate standards, and principal espalier-trees; and upon Paradise and Siberian Crab stocks, being of dwarf growth, are proper for form

small or dwarf standards, and for espaliers of small extension, and to bear sooner than on stronger stocks; and in all of which, the grafting is always performed in the spring: the grafts shoot the same year; and when of one or two, to three, four, or five years old, from grafting, are proper for planting finally in the places where they are intended to remain, and will begin to bear in two, three, or four years; generally sooner in those on Codlin and Paradise stocks, more particularly the latter, which sometimes commence bearers the second or third year; but those on large strong stocks, running more strongly to wood, are longer before they bear.

But, as observed of the Pears, young trees of all, or any of the principal varieties of Apples for immediate planting, may be had at the common nursery-gardens, in good perfection; either in young growth, with small branchy heads, of one, two, or three years old from grafting, or in a more advanced growth, as may be required; and such as are become bearers, to produce fruit immediately, or the first year of planting.

Pear and Apple Trees, in their different orders of training, consist of full standards, half standards, dwarf standards, espaliers, and wall-trees; the standard-trees being such as are planted detached in the open ground, to branch out every way, generally most of the full standards being trained with a tall stem, six or seven feet high, to branch out at that height, and form large heads, for the general production of fruit; half standards in three, four, or five feet stems, to branch out in lower heads for occasional planting; and dwarf standards with short stems, six, seven, or eight inches, to one or two feet, to grow in small, low heads, to plant occasionally, in borders and small compartments; and the espalier and wall-trees, being such as have the branches regularly trained, the former to a trellis of stakes and rails, and the latter to walls, are trained with a low stem, six or eight inches, to branch out near the ground, to furnish the espalier and wall with a regular expansion of branches, quite from the bottom upward; or sometimes for high walls, Pears, in particular, are trained in half standard wall-trees, with tall stems, four or five, to six or seven feet, to branch out at that height, to elevate the branches accordingly.

The full standards, being such as are trained with a tall single stem, six or seven feet high, are generally worked on free stocks, which being run up tall are grafted or budded at that height; or sometimes Pears, &c. are budded low, and run up with a single shoot for a stem, and in either method, having the stem tall, clean, and single, to branch out above, at the afore-mentioned height, forming the first set of branches, six or seven feet from the ground, that the head may be elevated both to admit the benefit of the free air, sun, &c. underneath; and that the spreading branches being

at a distance from the earth, gives liberty for the cultivation of the ground below, and the growth of under crops, either garden-plants, or grafs, corn, &c. and likewise the branches being high, the fruit is more out of the reach of invaders; the head of branches permitted to extend freely every way, all round, in full growth, that in the process of time they form a large expansion, to produce considerable supplies of fruit accordingly; as sometimes a single tree, with a large, spreading and lofty head will produce one or two, to several or many bushels in a season; and therefore, of full standards, where plenty of room, should be admitted abundantly both of Pears and Apples, in different varieties, to furnish the principal crops of fruit for general supply, as all the sorts will attain proper maturity on standard-trees; and which, in their growth, generally permitted to branch out in their natural order, or only to give occasional pruning, to cut out casual irregular-placed, and cross-growing branches, and dead wood.

Half standard Pear and Apple Trees being such as are trained occasionally with middling stems, three, to four or five feet, the branches beginning at that height, and for which, some good sorts are grafted on dwarf stocks, or those that are but of moderate growth, as Pears upon Quince or Medlar stocks; and Apples on Codlin or sometimes Paradise stocks, in order to have them advance with small or moderate heads; and that, as the branches commence lower than full standards, they may not extend considerably to overspread the ground; and likewise being on moderate stocks, the trees not shooting strongly to wood, will bear sooner, and the heads being lower and of less extensive growth, shews the fruit in its growing state, to better advantage; and admits of gathering some occasionally by hand, more readily, when required, without climbing, &c. and therefore, on these considerations, some half standards are admitted in gardens, more or less, as may be thought eligible; all permitted to branch out regularly every way, nearly in their natural manner, agreeable to the intimations mentioned for the full standards, and they will bear fruit abundantly in all desirable perfection.

Dwarf standard Pear and Apple Trees being grafted or budded on small stocks, are occasionally introduced in small and other gardens, both that they may take up but little room, and to have them soon become bearers, as likewise for variety and curiosity; they being raised with low stems, six or eight inches, to one or two feet, or a yard high, by grafting and budding at these heights, upon dwarf-growing stocks; *i. e.* the Pear grafted or budded upon Quince stocks, as formerly intimated; and the Apples on Paradise stocks, for the smallest dwarf-trees; and on the Codlin stock, to have them of a middling growth; and, in all of which,

the trees are intended to grow with low branchy heads, commencing at one, two, or three feet at most from the ground; and to branch out regularly all round, in a moderate expansion, kept to three or four, to five or six feet extent; and are proper to plant in small compartments, or in borders, &c. or some Apples on Paradise stocks, to plant occasionally in pots; and thus, in the whole, the trees, by being on dwarf stocks, shoot moderately, do not run much to wood, will bear soon, and very agreeably, in fine fruit, and abundantly, according to their extent of branches.

These dwarf-trees may be of any varieties of the choicest Apples and Pears, and of which, when desired to have the trees of smallest growth, should graft the Apples on Paradise stocks; and may be kept to two, three, or four feet high; or grafted on Codlin stocks, for larger dwarf-trees, may be kept to four, five, or six feet; and Pears grafted or budded upon Quince stocks, will grow low and bear in two or three years; whereas those upon free or Crab stocks run much to wood, and are often eight or ten years before they bear fruit.

In this their dwarf growth, they are trained sometimes with concave or hollow heads, the branches pruned out in the middle, the outward branches continued in a somewhat circular order; and all shoots that advance in the middle, pruned away to preserve the concavity; others are trained with convex or full heads, having an upright leader advancing in the middle, encouraged to branch out side-ways all round from the bottom upwards; and of which, cutting out the irregular and super-abundant, and leave the others in a regular manner, the lower ones longest, diminishing gradually above to promote the convexity in a somewhat pyramidal form; and some are permitted to branch out from the bottom in several principal branches to grow in a natural order, and only cutting away casual irregular growth, and to thin such as are too abundant or crowdedly thick; likewise some dwarf-trees, particularly Pears, are trained with several branches proceeding from near the bottom, and these trained in a spiral manner to stakes placed in the ground in a circular form round the tree, three, four, to five or six feet high.

Thus dwarf standard Apples and Pears, trained as above, may be planted in any principal outward borders adjoining main walks, in a row, ten to fifteen feet asunder; or where straitened for room, some dwarf-trees on Paradise stocks, may be planted only eight or ten feet distance; in the whole, the branches generally permitted to advance mostly in their full growth, without much shortening, except where any assume an irregular direction, or extend too considerably in length beyond the others of the general expansion, or that exceed the intended limits of growth;

or, likewise, to prune out casual ill-placed, and super-abundant branches, and such as grow across the others in a disorderly manner; and generally, in performing any occasional shortening of too-advanced branches, should cut to some lower, moderate shoot, if any occur that do not exceed the bounds; or if none, cut occasionally, either to a lateral fruit-spur, or a shoot-bud; but, except in such instances of particular branches rambling considerably from the others, it is most adviseable to preserve them at their natural length, and they will furnish fruit-spurs all along the sides to the extremity.

Though sometimes dwarf Apple standards, on Paradise stocks, are kept down, by pruning, to half a yard, or two or three feet high; or, however, when on Paradise stocks, and permitted to take their full growth, they will always remain perfect dwarfs, of only three or four, to five or six feet high.

However, notwithstanding that these dwarf-trees generally bear sooner, and produce fruit in great perfection, they, from their small extent or expansion of branches, especially those on Paradise stocks, cannot furnish it in considerable quantity, as in full and large half standards; and therefore are chiefly proper to cultivate either principally to become bearers more expeditiously than large trees, or to furnish some fruit till the latter commence a bearing state, and as also to take up but little room in a garden, or for small compartments; and likewise to introduce in gardens, both for variety and curiosity, to have trees of such small dimensions producing, proportionally to their size, abundant crops of fruit in the fullest maturity of growth, according to the respective varieties or kinds; and being worked on dwarf-stocks, they soon become good bearers.

The espalier-trees are such as are trained, in a faned expansion, to ranges of stakes and rails, to which the branches are fastened in a spreading manner, in the order of wall-trees; have low stems, only a few inches high, branching out, near the ground, in a regular expansion upwards, and extended horizontally on both sides, till the branches of the different trees meet, and thereby forming a sort of hedge, thence sometimes called espalier hedges, and are applicable, not only to Apples and Pears, but to Plums, Cherries, Figs, Grapes, Apricots, &c. but generally more of Apples and Pears than other fruit-trees; and in all of which, the espalier-trees being generally planted in the borders bounding the large quarters of a kitchen garden, or any other, where convenient, in a row longways the borders next principal walls, and the branches being extended only to the right and left, in a straight range, to the espalier, or trellis of stakes and rails, four, to five or six feet high, take up no room, bear on both sides, equally in the front and back part; and

the branches being thinly and regularly arranged at equal distances, have the full benefit of the sun and air to forward the fruit to the utmost perfection of maturity.

The trees for espaliers are always trained with short stems, only six or eight inches long, in order to have the branches commence near the ground, that they may cover the trellis, &c. of the espalier, in a regular expansion, equally from the bottom upward, four, five, or six feet high, having the branches arranged horizontally, four, to five or six inches asunder, one above another, mostly extended always at their full length, to the utmost extent of room in the espalier.

So, that in raising Pear and Apple Trees for espaliers and wall-trees, they should be grafted, &c. low in the stocks, or at five, six, or eight inches from the bottom, either some on free stocks, for largest trees, in extensive gardens, where room to spread in a considerable extent, in their full growth, or worked mostly on middling and dwarf-stocks, for the general supply, as on Quince stocks, principally for Pears; and Apples on Codlin and Paradise stocks, in order both in the Apples and Pears, to obtain trees of smaller or moderate growth, and to have them bear in a shorter time than those on Crab or free stocks, which, shooting strongly to wood, are longer before they form fruit-spurs plentifully; but, when on dwarf-stocks, they shoot moderate, and sooner furnish spurs more abundantly for bearing.

Or proper trees, for espaliers, may be obtained at the common nurseries, of proper growth for immediate planting.

In espaliers it is particularly adviseable to plant a collection of the finest eating and culinary Pears and Apples in every garden of any tolerable extent, or even in small gardens, to admit only of a few trees in that order of training; and in which, the trees being trained in a spreading expansion, in the wall-tree manner, generally produce fruit in a superior degree of perfection; and besides, the trees do not take up much room, and have also an ornamental appearance, as well as afford some shelter to the adjacent under-crops in the ground, in winter, and shade in summer.

And wall-tree Pears, more particularly than Apples, being adviseable to have a collection of the choicest kinds in every garden accommodated with walls, &c. they are most commonly trained with dwarf stems, as observed for the espaliers, about six or eight inches, grafted or budded at that height, that the branches may come out low, to cover the wall regularly from the bottom to the top; should generally be grafted, &c. on Quince stocks, to have the trees shoot moderately, and soon become bearers, and that, in advanced growth, they may continue within moderate bounds,

by which, both to admit of having a larger portion of different varieties on the allotted space of walling, and that they may sooner bear plentifully than when grafted or budded on free stocks; though, where there is large extent of walls, may also have some that are worked on Pear stocks, in which the trees will spread a considerably larger extent, and, when planted, should be allowed a greater distance between the trees accordingly.

Or sometimes Pears are trained in standard wall-trees, or with tall stems, five, six, or seven feet high, the branches commencing at that height, and serve either, some to plant occasionally between the common dwarf wall-trees, where there are lofty walls; or sometimes to plant against the ends of high buildings, in situations open to the power of the sun and free air; and in which, if much exposed, the stem of the trees being tall, elevates the head above the immediate reach of the hand, to preserve the fruit both from being pilferingly plucked by strangers, or other persons who have less right to the product than the proprietor.

However, for the general supply of wall Pears, allot principally those trained in the common wall-tree manner, with dwarf or low stems, branching out near the ground, and to plant them against south and other walls; for it is essential to have some of the most esteemed varieties of the finest eating Pears in wall-trees, both some of the earlier and late kinds, but more abundant of the latter, consisting of the best autumn and winter sorts, that they may attain the utmost perfection of full growth and rich flavour, for eating; planting the trees fifteen, to eighteen or twenty feet distance, the branches extended to the wall horizontally, four, to five or six inches asunder, always mostly at their full length, as observed of the espalier-trees, and they will emit fruit-spurs all along the sides, and produce fruit, both of the early and late kinds, in a superior degree of maturity.

Or likewise for walls, may have a few trees of the choicest varieties of eating Apples, to ripen earlier, and of superior flavour, as Golden-Pippins, &c. planted and trained as mentioned for the Pears.

The propagation, or way of raising Pear and Apple Trees, being by grafting and budding the respective varieties of each upon stocks of their own kinds, as before observed, is performed according to the following intimations.

The Pears are propagated both by grafting and inoculating them upon Pear and Quince stocks, which, in the former, are raised from the seed or kernels of the fruit of any sorts of Pears sowed in the autumn or

spring, and likewise by suckers from the roots of Pear Trees, though the seedling-stocks are rather preferable; and either or both of which stocks being of strong, free growth, are commonly adapted for large trees in standards, wall-trees, and espaliers; and upon Quince stocks raised from seed of the fruit and from suckers, cuttings, and layers of the Quince Trees; which being of moderate or small growth, as before intimated, are proper stocks whereon to graft and bud Pears, to have small or dwarf-trees accordingly, both in small standards, espaliers, and wall-trees, where required to have the trees in these different orders of training continue of a moderate or dwarf growth, both that they may take up less room in a garden, and to admit of planting a larger variety, as well as to commence bearers sooner than trees on free stocks; however, for the general supply of common large or full standards, the Pear stocks are the most eligible for that purpose.

And the Apples are principally raised by grafting them upon Apple or Crab stocks, raised from the seed or kernels of the fruit of any kind of Apples, &c. which being what are called Crab or free stocks, generally of a strong growth, are proper whereon to graft, to obtain large or full standards, or occasionally large, spreading espalier-trees; and on Codlin stocks, raised by suckers from the roots and cuttings of Codlin Trees, to form smaller standards and espaliers of moderate growth, and sooner become good bearers; and Paradise stocks for dwarf-trees of smallest growth, and to bear as soon as possible in smaller productions, according to their size.

To raise supplies of proper stocks for Pears and Apples, from seed, suckers, cuttings, &c. the seed or kernels for sowing, are obtained from decayed or rotten fruit, or any others in the autumn or spring, from October or November, till February or March, and sowed in beds of common earth an inch deep, they will come up in the spring, for planting out in nursery-rows the autumn or spring following; the suckers, cuttings, layers, &c. may be planted in the same seasons; all of which, both seedling and other stocks, to be planted in a nursery, in rows, two feet and a half, to a yard asunder, to have two or three, to four or five years growth, for grafting, &c.

Sometimes, where large supplies of common standard Apple and Pear Trees are required, and that there is proportionable extent of ground in fields, stocks, for grafting, are occasionally raised or planted in hedge-rows, to remain for that purpose; or some places where Crab stocks grow naturally in hedges, they are trained up in proper stems; and in either of which, they are grafted as required, and permitted to remain always in the same places, to acquire full growth in standards, and to produce their fruit accordingly.

The season for grafting and budding them is, for the former, in the spring, from about the middle or latter end of February, to the end of March or beginning of April; and the inoculation or budding is performed in July and beginning of August.

In the grafting and budding these trees, allot generally tall stocks for full standards, to graft or bud at five, six, or seven feet high, to branch out at these heights to form the head; or for half or small standards, graft, &c. at three, four, or five feet, to form the head accordingly; or occasionally, in both cases, may be budded on smaller stocks, low or near the ground, and the first main shoot run up singly for a stem to the proper height, to furnish branches as above; and for dwarf standards, graft or bud at six or eight inches, to one, two, or three feet, to branch out in low heads; but for general wall and espalier-trees, they must be grafted, &c. low in the stock, at six or eight inches from the bottom, to form the first set of branches near the ground; or when intended to have tall or standard wall-trees, especially Pears, to plant between the common dwarf wall-trees, where lofty walls, or against the end of buildings, as formerly mentioned, may be grafted, &c. either on tall stocks, at four, five, or six feet, as for common standards, or budded low in the stock, and the main shoot trained for a stem to the requisite height; and then, in either method, permitted to shoot above and furnish the proper expansion of branches.

After grafting and budding, as the foregoing, the grafts will shoot the same year, and the budded trees not till the following spring; and in all of which, in the advanced growth of the shoots and branches, from the grafts and buds, train the trees, for the purposes intended, in standards, wall-trees, and espaliers; the standards run with clean stems below to branch out above regularly every way, in full heads: cut out only any ill-placed productions, and the general branches permitted to extend in full growth; and the wall and espalier-trees, train the branches in full expansion, cutting off projecting, fore-right shoots, and extend the others horizontally to the right and left, and nailed, &c. to the wall or ranges of stakes, in regular order, at equal distances, at their whole length; and when thus, in the different methods, they have formed heads of one, two, or three, to four, five, or six years growth, they are fit for final transplanting into gardens, orchards, &c.

But previously observing in the young growth of the trees, that whether they remain in the nursery, or planted in the garden, &c. the first and second year from grafting and budding, it is sometimes or generally proper to give a particular pruning while of that age, to the first shoots, to promote an eligible set of branches to form a regular head from the beginning;

for instance, if, in the first year, the young trees have advanced with only one or two single shoots, it is proper, in the following spring in March, to prune down the said shoots to a few eyes, or within six or eight inches of the bottom; and they will thus send forth several lateral shoots from the remaining lower eyes in summer, to give the head its first proper formation; and which, heading down, is more particularly necessary in the wall and espalier-trees, in order to obtain a proper spread of first branches, advancing regularly from the bottom, whereby to furnish the wall and espalier with a full expansion of branches from that part upward; or likewise, in standard-trees, if required to have them form spreading heads, commencing immediately from or near the top of the stem, the first year's shoots may also be headed down, to have them branch out below accordingly, in several branches, to form the head more full and regular; but when required to have standards form more upright aspiring heads, they may be permitted to advance in their first shoots in a natural growth; and in those headed down in the first shoots, both of wall, espalier, and standard-trees, if they furnish others sufficiently to form the head properly in a first regular set of branches, as above, no future general shortening will be required, except probably to particular shoots in the second and third year, &c. especially the wall-trees and espaliers, to promote a further increase of branches.

However, if the trees headed down, and the second production of shoots being not fully sufficient to form a proper expansion, as a foundation to furnish all the other regularly upward, they may also be pruned or shortened, more or less, as it may appear necessary, in the winter-pruning or in the spring, and from which there will generally be enough produced in summer to give the head a first regular formation of several well-placed branches; after which, they may generally or mostly be permitted to advance in full growth, without any future shortening; the standards to advance mostly in their natural order, and the wall and espalier-trees to have the branches always trained regularly to walls and espaliers, at their full length; and which will require pruning and training every year to continue them in proper regularity, as hereafter directed.

Or sometimes wall-tree Pears, &c. are trained with a single upright shoot, and this promoted to branch out laterally from the side eyes, cutting off the fore-right shoots, and retaining the side laterals at regular distances, are extended to the right and left in a perfect horizontal position; the upright in the middle being continued in advancing growth, or topped occasionally, to encourage its producing a further supply of collaterals, more effectually to furnish the wall regularly upward, trained in the same horizontal manner;

so that all the branches proceed immediately from one upright middle stem, and extended to both sides, five or six inches asunder.

But when designed to procure the intended supply of trees from the nurseries for planting, they may be obtained in a plentiful choice in the different orders of training, either in young growth, of one, two, or three years old heads, or of a more advanced state, for immediate bearing; and may occasionally have trees ready trained of a proper growth for walls and espaliers.

All the sorts of Pears and Apples, both in standards, espaliers, and wall-trees, being very hardy, will prosper in any common fertile soil of a garden, orchard, field, &c. and in any open situation in ground not liable to be very wet of much continuance, which should be avoided as much as possible, as, in such, the trees would not thrive; but in a moderately-dry mellow earth they will be prosperous and durable; or, where a moderate loamy ground, it will prove beneficial to their growth; and, in which eligible soils, the trees may be planted without any additional preparation; or, however, if the ground is unavoidably bad, such as very gravelly, or other unkindly soil, it should be improved, if only for the present, in the place where each tree is to stand, by removing the bad soil, and adding a proportional supply of substantial good earth, either of fresh loam, where attainable, or any other good fertile soil, or a compost of earth and rotten dung; or in a low very wet situation which cannot be avoided, or no other choice for planting, it would be of advantage to raise the ground, or occasionally in a gradual swell for each tree, with additional earth, to have the roots out of the water; and afterwards, the sides of the raised places, may be augmented by degrees: however, as before observed, the trees will thrive abundantly well in any common ground of a garden and cultivated field-land, either of grafs or corn ground, or both, as may be required, or convenient to the planter.

And therefore, the trees may be planted both in kitchen gardens and pleasure-grounds, in standards, wall-trees, and espaliers; and in any out-grounds in fields and enclosures for orchard-plantations in full standards.

And as to the preparation for planting, that if entire new ground, and for a general plantation in gardens, it may be trenched or digged one or two spades deep, either wholly or only for the present, along where each range of trees is intended; or at least in the places where each tree is to stand, three or four feet in width, or more; or in cultivated or any tolerable good ground, may only dig a wide aperture or hole for the reception of each tree; observing that where the wall and espalier-trees are intended, the

borders should be four or five, to six or eight feet wide; and if not before cultivated should be trenched two, or one full spade; or if in cultivation before, may either be wholly trenched, or only at planting, to dig a hole for each tree, and the other parts digged afterwards, at some convenient opportunity.

The season for planting these trees is principally the same as for others of the fruit-tree kind, &c. any time from the decay of the leaves, in October or November, in open weather, till the end of March, or occasionally the beginning or middle of April, but not to exceed the middle of the last-mentioned month; or, however, if planted soon in the autumn, they mostly strike root the same season, or be advanced in good preparation for striking freely in the spring; but may also be planted any time in winter, in mild seasons, and in the early spring months, generally more successfully than late planting, that they may be effectually well struck in that season, to proceed in a free growth the following summer.

The distances for planting these trees as standards, wall-trees, and espaliers, is, the former, in full standards, should not be less than twenty or thirty feet, to allow for advanced growth in large spreading heads; and where plenty of ground room, thirty to forty or fifty feet, would be more eligible, especially for any continued plantation; but small standards may be planted at half the distance; and the wall and espalier-trees, planted not less than twelve to fifteen feet, those on dwarf-stocks, or larger trees, eighteen or twenty, to twenty-five feet asunder.

Of the full standards, those designed for garden plantations, may be planted twenty to thirty feet in the row, or thirty to forty or fifty, or more, between, where room admits, both that there may be proper scope for the branches, when of full growth, and to allow for the growth of under-crops on the ground between the trees; but where designed for orchard plantations, in grafs ground, or any other, they are commonly planted at equal distances, and to range in lines every way, thirty to forty feet asunder, as before observed; though sometimes in extensive orchard plantations, in cultivated fields, where considerable quantities of Apples are wanted for cyder, &c. the trees are planted thirty to forty or fifty feet, or more, in the row; by fifty or sixty, to an hundred feet between the ranges, to admit of good room in the intervals to plow, sow, and cultivate the ground, in corn, grafs, &c. as may be required; and the same order of planting might be observed in the large farming and other extensive kitchen-garden grounds, as in the neighbourhood of London, in which standard Pear and Apple Trees and others may be planted to great advantage, in their production of fruit; and, being in rows fifty or sixty feet, or more, asunder, would admit of sufficient room to cultivate the ground in kitchen crops; and the planta-
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tion of trees would give an air of greater importance and value at all times, and more considerably when in fruit.

But in small standards, as Pears grafted on Quince stocks, and Apples on the Codlin or Paradise stocks; which growing with moderate heads, or of small extent, may be planted in gardens only twenty feet asunder in the rows, or less, where straitened for ground room; or small dwarf standards planted in borders, ten, to fifteen or twenty feet apart; or some small dwarf Apple Trees on Paradise stocks, may be planted in pots, for moving them into any particular compartment, occasionally, while in flower and fruit, for variety or curiosity, or to serve up in deserts with the fruit growing on the trees.

In procuring the trees for planting, they should be carefully taken up with their full extent of roots, or as intire as possible; for this is of much importance to the future prosperity of the trees.

To prepare them for planting, prune out the broken parts of the roots, and shorten the ends of very long stragglers, and examining the head, cut away or reduce to order any disorderly branches or shoots; or in the wall and espalier-trees, giving attention to the proper expansion of regular branches, prune off fore-right projecting, and any other irregular or ill-placed shoots; and generally, in the whole, preserve all the proper regular branches intire, both in the standards, wall-trees, and espaliers, not shortened, except where any branches extend considerably longer than all the rest, they may be reduced or pruned to some lateral shoot, &c. conformable to the extent of the general branches, to form the head in somewhat regular order, of nearly equal extent; cutting away all shoots from the stems below the head.

Proceeding to the planting, observe at the proper distance to dig a wide round hole for each tree, a foot or more deep, and capacious enough to receive all the roots freely to their full extent; place the tree therein upright, or in the wall and espalier-trees, incline the heads to the wall, &c. trim in the earth over the roots, shake the tree a little up and down, to make the earth fall in close between the roots and fibres, filling up the hole at last, and tread the earth gently down to the roots; first, round towards the outside, continuing it inward to the stem; and if early planting, in dry weather in autumn, or also in the spring, especially late in that season, and the ground dry, may give each a moderate watering to settle the earth more effectually about the roots, and to promote their striking fresh root more expeditiously; and if a continuance of very dry weather in the advanced part of the spring, two, three, or more occasional waterings, in April, May, &c. would prove very beneficial; observing, likewise,

in the tall standard-trees, it would be of much advantage to give support of stakes, by driving one, two, or three long stout ones into the ground near each tree, inclining the tops of them to the upper part of the stem, which tie in that part to the stakes with a piece of cord, rope yarn, &c. previously winding some hay band round the stem to prevent the bark being rubbed against the stakes by the motion of the wind.

The wall and espalier-trees to be planted in the same manner as the foregoing, allotting principally Pears for walls more generally than Apples; some planted on south and other walls, as before observed, of different varieties of early and late kinds, set at the distance formerly mentioned, fifteen to eighteen feet for those on dwarf stocks, and if on Crab or free stocks, plant eighteen or twenty feet distance, or more, as, in their strong growth, they will extend more considerably than the others: open for each tree a hole of proper width and depth to contain the root freely, place the tree therein near to the wall, inclining the stem and head thereto; fill in the earth about the roots, tread it down gently, keeping the head close to the wall; and may then nail the branches finally, or rather defer it a little time, till the earth and tree together is fully settled, and then trained to the wall, as hereafter explained.

The espalier-trees are planted in a single range along any principal borders next the main walks; or generally in borders which surround the large quarters of a kitchen-garden; or in any other garden districts where thought eligible, mostly in a free situation open to the sun and air; having the borders four or five, to six or eight feet wide, the trees planted towards the back part, in a row, three or four, to five or six feet from the outer edge next the walk, at eighteen or twenty feet distance in the row, those on free stocks, and those on moderate or dwarf stocks, plant not less than twelve to fifteen feet asunder in the row, that, in both of which, there may be proper room to extend the branches; and, in the whole, observe the same method of planting as directed for the standards, &c. and when thus planted, should have either a regular espalier or trellis of stakes or of post and rails, erected close behind the trees; or only for the present, some stakes placed a foot apart, as far as the trees now extend; and in their advanced growth encrease the trellis-work by degrees, or form at once a full trellis, either of tall stakes driven into the ground a foot asunder, standing three and a half, to four or five feet high, and a rail nailed along the top, both to keep them more steady, and for the greater regularity; or have a regular espalier framed the same height, with posts, five or six feet distance, and three, four, or five ranges of horizontal rails, and to these, have occasionally, small upright cross bars, twelve, to fifteen inches asunder.

Observing, of the wall and espalier-trees, the branches must be regularly trained to the wall and espalier, in a spreading expansion; first, give any requisite pruning, where necessary, to cut out fore-right or other ill-placed shoots, and retaining the others at their full length; and train them in horizontally to the wall and trellis of the espalier, by nailing the branches of the wall-trees with nails and shreds; and the espalier branches may either also be mostly nailed to the trellis or rails, or tied thereto with osiers, or some nailed and tied occasionally, as convenient; and in which, both wall and espalier-trees, arrange the branches four, five, or six inches asunder, and in their full extent, not shortening any, especially the general branches, designed for bearers, but continued always at their whole length, both in their young and advanced growth, as far as there is room to extend them; as, from their nature of bearing, Apple and Pear Trees do not admit of shortening, and is only to be practised occasionally, where any extended shoots advance beyond their limited space of room, or in any very irregular growth, or to prune casual decayed ends; or sometimes where any principal branches extend considerably out of bounds, they are pruned or cut down to some lateral shoot, or lower branch, that admits of training within the proper limits, the terminal part thereof continued intire, at least as far as the utmost extent of the allotted space of walling and espalier for each tree allows, and only shorten agreeable to the above intimations, where they extend beyond their proper bounds.

For, as before observed, all the varieties of Apple and Pear Trees being of the spur-bearing kinds, shortening the branches or shoots, forces them greatly to wood, without furnishing fruit-spurs, consisting of short robust shoots, of half an inch to one or two inches long, produced naturally at the sides and extreme part of the branches, when from two or three, to many years old, and always sooner and more abundant when not shortened, but all or mostly left intire; as shortening not only retards their bearing, by cutting away the upper or extreme bearing part of the branches in which fruit-spurs would arise, but also, by reducing them above, occasions their sending forth strong lateral wood-shoots below, in the parts where natural fruit-spurs would otherwise have been formed by degrees; and thereby every shortening retards the branches one or two years longer, before they form bearers; which, therefore, determines that in the general pruning of those trees, the shoots as are designed for bearers, must not be shortened, but permitted to extend in their whole length to the utmost extent of their allotted bounds in the wall and espalier; they will thus proceed in a moderate growth, and gradually form fruitful spurs at the lateral eyes, along the sides, and at the extremity for bearing, and the same bearers continue many years fruitful.

And as, in these trees, the same branches and fruit-spurs continue encreasing in fruitfulness and remain many years in a plentiful bearing state, they should be constantly retained accordingly; except when in advanced age, any branches decay or become unfruitful, should fore-cast to have young wood advancing below or between the old, ready to supply the place when necessary to cut any away as unserviceable; as likewise, when any fruit-spurs appear of a worn-out or unfruitful state, they being cut away, new ones are often acquired in or near the same places to succeed them on the same parent branches; so that these trees, in walls and espaliers, in the process of pruning and training, only require renewals of young wood, occasionally, in the above instances, not annually, as in trees bearing principally on the year-old wood, but the same bearers remaining fruitful are continued from year to year in long duration.

Respecting the culture of Pear and Apple Trees, it consists principally in giving occasional pruning to the standards; and to the wall and espalier-trees a general pruning is necessary every year.

The pruning of standard Pears and Apples is only required occasionally, as before observed, to reform casual irregularities of disorderly branches, and to cut out decayed or worn-out barren branches in old trees; and which occasional pruning in the standards, as they, having full scope of growth, branch out freely every way, may probably be only necessary once in several years; and when requisite, it should generally be performed principally in winter, any time from the fall of the leaves in November, till March or April; observing in this business that the standards must be permitted to advance in their full growth in a regular expansion of branches all round and above; and only in which, if any considerable irregularities occur, either in young or old trees, they should have requisite pruning as you shall see occasion; such as to cut out cross-placed or any of very disorderly growth in the branches; and where any are greatly crowded in wood, should not omit to prune out the worst and most irregular, in a thinning manner, both in the larger and smaller branches, where it may seem necessary, whereby to keep the general branches moderately thin or clear of one another, in some regular order; also, occasionally to reduce any disorderly, long rambling boughs, cut or shortened down to some lateral branches thereon, consistent with the general extent of the head; likewise to prune up low stragglers, or underhanging branches in the same proportion; and generally cut away any strong upright crowded shoots in the middle of the head and other parts; and to cut out casual decayed branches and dead wood; and eradicate suckers from the root and stem of the trees; and thus, giving the above occasional regulation, permit
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the general expansion of the regular branches to extend in their natural growth, and they will produce proper fruit-spurs abundantly all along the sides to the extreme parts, for plentiful bearing; and the same branches continue many years in good fruitfulness.

Sometimes old standard Pears and Apples are greatly infested with moss growing on the branches, hurtful to their growth, that the production of fruit is of inferior quality; it is therefore adviseable to clear the branches from the grossest part of the moss as well as possible, which generally perform in winter, by scraping it off with some small instrument of iron or wood, a little hollowed on the edge; and where any trees thus infested, are very abundant in wood, in a crowded disorder, give them a proper thinning, to admit the sun, air, &c. and the roughest of the moss cleared away, they will soon improve accordingly, by degrees, in a revived growth, and superior goodness of the fruit.

For it is generally adviseable in the standard-trees, when any casually become considerably crowded in wood of a disorderly growth, to give them some necessary thinning, keeping the general branches moderately thin, to grow mostly clear of one another, in somewhat regular order, whereby you will always have the fruit of superior quality, in proportion.

The pruning of the wall and espalier Pear and Apple Trees, is required constantly every summer and winter, to preserve the regularity of growth, and good fruitfulness in the peculiar degree of perfection, which, by proper management, is generally obtained on trees in this order of training; and in which different prunings, that in summer comprehends a regulation among the young shoots of the year only; and the winter-pruning includes a general regulation both in the young wood and older branches occasionally, each as explained below, under their separate heads.

The summer-pruning is necessary, as before intimated, to regulate the shoots of the same year, which generally, in full-trained trees, are produced numerously, or super-abundantly more than is wanted for training, as well as many that are ill-placed, not admitting of being trained with proper regularity; and in both of which instances, many of the year's shoots will require cutting out, especially in trees already furnished with a full expansion of branches; for as these trees continue bearing many years on the same branches, they only require occasional supplies of young wood, either to furnish vacant parts in young or other trees, or to supply the place of casual, worn-out, old branches and decayed wood; therefore, beginning the summer-pruning in May and June, when the shoots will be considerably advanced, cut away all fore-right and others as are ill-placed for training, and thin out the superfluous or over-abundancy of the

other more proper shoots, retaining only some of the best well-placed thereof, in the most vacant parts, with generally the terminal or leading shoot to each branch; observing, however, of the best lateral side-shoots, generally to leave rather more than what may appear just necessary, in order that there may be plenty to chuse from in winter-pruning, in case they should be wanted; cutting all the unnecessary or improper shoots close to the old wood, not leaving any stump or bottom snag thereof to shoot again; and let all the retained shoots be continued at their full length, and tied in regularly to the trellis of the espalier; and after the first general regulation, keep the trees cleared from all after-shoots, except any of proper growth occur in a vacancy where wood is wanted; and continue all the other reserved proper shoots trained along at their whole length, during their summer's growth, to remain till winter-pruning.

The winter-pruning of the wall and espalier Pears and Apples is performed any time in November or December, till March, or not later than the beginning of April; consists of a general regulation, more or less, both among the super-abundant and improper young wood of last summer, and occasionally in the older branches; observing, now, in this pruning, that, as the same general mother branches formerly trained, either now present bearers, or advancing to that state, continue many years fruitful, they are to be retained accordingly; and therefore, in trees of full expansion, a renewal of young wood is only required occasionally to supply the place of casual, worn-out, or decayed branches, or to furnish accidental vacancies; but in young trees, still under training, a requisite supply of young shoots must be retained for the necessary encrease of branches for bearers.

Thus, in proceeding to the winter-pruning, observe, agreeable to the above intimations, to examine the general mother branches or bearers, and still retain all that are of sound and good fruitful growth, or advancing to that maturity, conformable to their mode of bearing, and only to cut out any worn-out, barren, or decayed wood, and examining the supply of young shoots which were trained in last summer, and, as probably more were then retained than is now required, the super-abundancy and ill-placed, if any, must be pruned out, and selecting only what may be wanted of the best well-placed side-shoots thereof, of moderately strong growth, to supply any wants or vacant parts in young or old trees, as above; or where any old branches appear on the decline, or of a barren, unfruitful state, leave some contiguous young wood, advancing between, to a bearing state, ready to supply the places of the casual unfruitful branches; observing always to continue one good terminal or leading shoot, and no more, to each of the mother branches; or where two or more shoots occur at or near the end.

cut off all but one, either that naturally placed at the termination of the branches, where room to extend them therewith; or in branches very considerably extended, may occasionally prune them down to some eligible lateral shoot, to remain for a terminal to the branches; all the retained shoots to be left at their whole length, none shortened where room for their full extension; and let all the others, not wanted, fore-right, or other ill-placed shoots, be cut off close to the old wood, not leaving any stump or snag to shoot again; but be careful to preserve all the natural fruit-spurs appearing along the sides and at the extreme parts of the several years old branches.

Further observe, in winter-pruning these trees, or especially those of some considerable age, that, in the older branches, if any casually become of an unfruitful or worn-out, declining or decayed state, cut them away; retaining young to supply the place, if necessary, cutting the improper old wood either clean out to the bottom, or pruned down to any good lateral branch properly situated on the lower part, or may previously fore-cast to have young wood advancing below, between, or contiguous to any apparently, declining, old branches, one, two, or three years, forwarding to fruitfulness, ready to supply occasional deficiencies; or also where any old branches are very crowdedly too abundant or irregular, cut them out, or pruned agreeable to the foregoing intimations; but, except in the above instances, retain always the same principal branches or bearers, as long as they continue in a fruitful state, furnished with plenty of good bearing fruit-spurs, and permitted to extend at their full growth without shortening, as far as their allotted bounds admit, that they may not shoot vigorously in useless wood, but furnish bearing-spurs the whole length, being careful to preserve the said spurs, and only cut off such as casually decay, or become barren or unfruitful, or that project too considerably in length in a fore-right growth, and cut away any large, barren and old ragged stumps and snags, close to the branches, leaving only the good natural spurs; and by cutting off close the worn-out spurs and useless wood stumps, new bearing spurs are often obtained in or near the same places in a year or two after; and thus, agreeable to the above methods, these wall and espalier-trees are continued always regular and abundantly fruitful to the longest duration.

Generally observe, in old trees, or where it may seem necessary, it is advisable to have, in any most vacant parts below, some well-placed young wood trained in occasionally, to be advancing between the main branches, ready either for present supply or for any future deficiency.

Likewise observe in this pruning, that, in cutting out the unnecessary and improper shoots, &c. and re-

taining the useful, always cut close the former, not leaving any bottom stump or snag, which would shoot from every remaining eye the ensuing summer, in a profusion of useless wood; and in the requisite supply of proper shoots now retained, cut off any lateral twigs thereon, close to the main shoots, preserving the whole of the latter at their full length, not shortened, which, as in the stumps, would also occasion a production of much unnecessary wood, and retard their forming fruit-spurs, for bearing; but, being continued intire, will gradually emit natural spurs at almost every eye, their whole length.

Sometimes very old Pears and Apple Trees, in walls, espaliers, &c. have become almost wholly unfruitful by false pruning, all the branches covered with numerous large, projecting, ragged spurs, of barren growth, formed by the remaining bottom parts of shortened shoots, year after year, multiplied and increased by every pruning, both rendering the trees very unsightly, and unprolific or bad bearers; and in which case, the only remedy is, at this pruning, to cut off all the largest and most irregular stumps close to the mother branches, and sometimes natural spurs will be obtained in or near the places, or some of the most unpromising large, old barren branches may be cut away, leaving young ones to supply their place; and have also young shoots in training from below, between the old branches, which, according as the young advance to bearing, may be cut away by degrees; and the trees will thereby be gradually recovered, and furnished with a general expansion of proper branches for good bearing, being managed agreeable to the foregoing directions in the summer and winter-pruning and training.

Or where any old wall and espalier-trees, &c. either through bad pruning or other cause, have advanced in large, barren wood, or branches of a decaying or worn-out state, the whole may be cut down low, to shoot out in the spring and summer, in young wood, and of which to retain a general supply of the best regular shoots, cutting away the unnecessary and improper, and train the others to the wall and espalier, at their whole length, in the usual manner already explained; and will thus form a set of new branches, furnished with spurs, for more plentiful bearing, in two or three years, and increase in abundant fruitfulness by degrees.

In any old trees or others, of the wall and espalier Pears and Apples, where vacancies or want of wood occur in any particular parts, and that no young shoots arise naturally in or near the vacancy, it may sometimes be obtained by cutting a notch on the lower parts of any contiguous large branches, which having a somewhat similar effect as shortening, promotes the emission of shoots in or near the cut or notched part.

Sometimes old Pear and Apple trees, being either of bad sorts, or become of an unfruitful growth, are cut down in the spring, and some of the principal, best-placed branches are grafted with shoots of any desirable varieties; the larger branches by crown-grafting, or smaller ones cleft-grafted; and they will thus renew the head of branches, and sooner become good bearers than quite young trees.

Where there are young trees of the wall and espalier Pears and Apples, that are still under training, not furnished with the requisite expansion of branches, should, in this pruning, give proper attention to retain an eligible supply of the best-placed young shoots, cutting out the fore-rights, and continue the others at their natural length, and trained to the wall and espalier in regular order; and, as observed in the general pruning, extend the whole, both of the present and former training, always in their full growth, except it may appear necessary to shorten any particular middle shoots or others, where further supplies of wood are required in vacant parts to form the necessary expansion of branches; but when this is obtained, continue them wholly at their full length, and they will emit and form fruit-spurs abundantly, and form plentiful bearers in due time accordingly; some beginning to produce fruit at two or three, others four, five, or six years old, and some, especially Pears, &c. on free stocks, will sometimes be five, six, or eight years, or more, before they commence bearing in the general branches.

According, in the general pruning, as each tree is pruned, it is advisable generally to train them to the wall and espalier, nailing the branches of the wall-trees with nails and shreds, and the espaliers, some branches may both be nailed occasionally to the stakes and rails, and others or the whole tied thereto, with small osier twigs, or old, tarred rope yarn; and in all of which arrange the branches horizontally, more or less, according to the general expansion, at four, five or six inches asunder, equally to both sides, both in the number and position of the branches, all laid straight and parallel, nailed and tied close to the wall and espalier in the most regular order; observing that where, in the pruning, any considerable retrenchment was made in cutting out unserviceable, large branches in old trees or others; should now, in the nailing, &c. be careful to regulate the others accordingly, by training some higher or lower, that the whole may arrange at equal distances.

Thus far finishes the general culture of the trees, shall next give some intimations relating to the maturity of growth of the fruit for gathering, &c.

The fruit, in the different varieties of Pears and Apples, acquire maturity, to gather for use, from June

and July till October, immediately off the trees for present occasions; and the late kinds, attaining full growth in September and October, and being then gathered, continue in good perfection all winter. Several of the different forward varieties of the Apples particularly acquire proper growth, to gather for use immediately off the trees, both in their young growth and more advanced state, in summer and autumn, in June, July and August, especially for various culinary purposes, for which Codlins in particular, and some others, are eligible for these occasions, both when of quarter and half growth and when full grown; and in many sorts, both of Apples and Pears, they attain a proper degree of mature growth the latter part of summer and early in autumn, to gather off the trees for immediate eating in their natural state, as desert fruit, &c. some earliest sorts in July, but more abundantly in August, though these will not keep in perfection above a week or two, or some of the forwarder sorts but a few days, especially Pears; but many of the autumn Apples and Pears attaining full growth the beginning and middle of September, are proper to gather and housed for keeping a short time, till the late kinds acquire maturity in the latter end of September and in October, for use both at that time, and for long keeping in winter, and some till next spring and summer.

The late kinds of Pears and Apples, consisting of many principal varieties, should generally, or those designed for keeping, be permitted to have their full growth on the trees before they are gathered for that occasion; they acquiring maturity of full growth, in the different varieties, from the latter end of September to the beginning, middle and end of October, many of them are proper both for immediate use, particularly most sorts of the Apples, and some sorts of Pears, and for keeping; but many finest eating Pears do not acquire maturity for eating till after being gathered and lain some time in the fruitery; some probably two, three, or four weeks, others double that time, or more; and, both in Apples and Pears, many principal varieties continue good in the house for several months; and all of which are valuable for their property of keeping a considerable time in perfection, and for their generally superior quality, both as eating or desert fruit, and all culinary purposes in which Pears and Apples are commonly used; as well as for making cyder and perry; therefore, permitting these late Apples and Pears to remain on the trees till they have full growth, they should be then gathered accordingly, as they attain perfection, or some as wanted for present supply, and a large portion for keeping.

Or where large quantities of Apples are wanted for cyder, or Pears, for perry, many of the autumn kinds of September are proper, if used soon after being gathered.

thered, or before they spoil or decay; but of the late sorts, they may either be used for that purpose, both as soon as gathered, or will admit of keeping longer for that occasion at a future opportunity.

The maturity of full growth in Pears and Apples, after attaining their respective full sizes on the trees, according to that of the different varieties, is discoverable some by changing, more or less, to a somewhat yellowish colour, and in many also by their mellow, palatable taste and flavour, especially of the summer and autumn kinds, ripening in the end of July and in August, or early part of September; others, both of those sorts and the later varieties, not changing colour in any material degree, but either indicate tokens of maturity by their mellow or agreeable flavour, aforesaid, or some, both of the forwarder and late, or winter kinds, or more generally many of the latter, not discovering any particular degree of perfection, as above, on the trees, but which, and in Apples and Pears in general, having attained a peculiar plumpness in size, their full growth is apparent by their readily quitting the trees on being plucked, or by gently turning some of the fruit upward; and likewise often by the fruit frequently dropping from the trees naturally: however as many of the late autumn and winter Pears, &c. shew but small indications of maturity, while on the trees, it may be observed that all these late Pears and Apples attain full growth for gathering in the end of September to the middle and end of October.

So, according to the above intimations, of mature growth in these fruit, they should be gathered in their proper seasons, that as many of the summer and autumn kinds acquire a mellow eatable state on the trees, they should be gathered accordingly, as wanted, for immediate occasions; and the succeeding and late sorts acquiring a more durable state, for future supply, they, in the proper season, may be gathered both some for present use, and a principal quantity for keeping; as none of the forward sorts are eligible for that purpose, especially those attaining ripeness before September, which keep good some but a few days, or a week or two; or others of the later autumn Pears, &c. will keep some time longer; and therefore allotting most abundantly of the winter Pears and Apples for keeping all winter, spring, &c. in the different varieties; for, as above remarked, the forward sorts do not keep long after being gathered; but the late kinds attaining full growth from the middle and end of September to the end of October, should then be finally gathered and housed for keeping, some three or four, to five or six weeks, and many principal sorts to keep good several months.

Generally, in proceeding to gather Pears and Apples for keeping, chuse dry days, and when the trees

and fruit are also quite dry; and likewise observing that, for the same occasion of good keeping in perfection, they should be mostly or all gathered by hand, that they may not be bruised, as would unavoidably be the case if shaken down, as sometimes practised in the common standard fruit, which, by their falling on the ground and against one another, being consequently much bruised, soon begin to decay; and therefore all the principal fruit, both on standards and espaliers, &c. should be carefully hand-gathered in baskets.

Though sometimes any of the more common sorts, on large standard-trees, wanted to gather in haste for immediate supplies, and not required for long keeping, may occasionally be shaken down, or especially where not convenient to reach or time does not admit of hand-gathering in any considerable quantity for any present use required.

According as the Pears and Apples, designed for keeping, are gathered, they should be housed in the fruitery or some dry apartment; and the different varieties deposited separately, in proper divisions, upon shelves, and the floor, &c. or where previously convenient to lay them together in heaps, to sweat and discharge the watery juices, and then all wiped clean and dry, they will keep the better and be of improved flavour; that in depositing them finally in the fruitery, it would be eligible, in the principal keeping sorts, to lay first some clean, dry straw, and upon which place the fruit either thinly, more or less, thicker together, as room admits, laying them gently, not to bruise one another; and if then closely covered with clean straw, a foot thick, to exclude the external air, damps and frost, they will thereby keep longer sound, in good perfection; or some choicest eating Pears may be packed close in boxes, jars, or hampers, having straw at bottom, sides, and top; and the whole afterwards covered thickly with straw, as above; and thus the fruit will keep in good condition for winter and following spring.

Observe, during the winter, &c. to examine the fruit occasionally, to draw out such as decay in due time, before they affect the others adjoining.

Of the QUINCE.

(*Pyrus Cydonia*.)

The Quince formerly constituted a distinct Genus, denominated *Cydonia*, but by the modern botanists is now ranged as a species of the *Pyrus*, as being similar in the generic characters, consistent with the sexual botany of Linnæus, and in which we have placed it accordingly, having described the species, and its respective varieties of the fruit, in the proper place:
shall,

shall, under this head, proceed to give some general intimations relating to the fruit and culture of the trees, which being principally raised in standards, and occasionally in espaliers, and, in both of which, their mode of bearing being nearly similar to that of the Pears and Apples, already explained, there is no very material difference in the methods of cultivation.

Quinces, however, are of inferior value to Apples and Pears, with regard to the general utility of the fruit; and a much smaller portion of the trees is required, or probably not more in proportion than one to ten or twenty, or more, for any general culture for the supply of a family; for these fruit, although beautiful in their large growth and golden-yellow colour, impart a high fragrance, are mostly too hard and austere to eat without some previous preparation in cookery, &c. and from their very strong flavour and taste, a small portion of the fruit serves for those occasions; but as they are likewise used for making marmalade and Quince wine, larger quantities will be required accordingly.

The Quince fruit, therefore, being too hard and astringent to eat raw, are valued principally for some culinary or kitchen purposes, in which they, being of a singular strong flavour and taste, are used occasionally to slice in apple pies, tarts, apple sauce, &c. to improve the flavour in a high relish, where required; and, as before intimated, are in estimation for making marmalade, Quince wine, and some other domestic occasions; and for all of which purposes, the fruit attains perfection in autumn, in September and October, both for immediate use off the trees, and being gathered in October, when of full growth, housed and covered close with straw, will keep good some considerable time to use occasionally.

That according as Quinces may be in request for the above purposes, the trees may be admitted in a smaller or larger portion, from two or three, to several or many.

The trees are cultivated principally in small standards in gardens, orchards, or any out-grounds, or by the sides of ponds, watery ditches, &c. as they delight in moist places; though they will also grow in any common soil and situation; and some may likewise be trained in espaliers, in assemblage with those of Pears and Apples, but in a smaller portion, by way of variety to diversify the espalier plantations in different kinds of fruit, and the trees will appear ornamental both in their blossom and fruit, which will also acquire an improved growth, and, when full grown, appear beautiful in its large size, and golden-yellow colour; however, the fruit attains abundant perfection on standards, which may be planted any where in open exposures, and raised

both in half and full standards, with stems, three or four, to five or six feet, and to branch out at these heights to form the head.

Those trees are of very moderate growth, the branches slender, producing the blossom and fruit upon small natural spurs emitted at the sides and toward the extreme part of the branches, nearly similar to the Pears, &c. but the blossoms, &c. generally come singly, and the fruit produced consequently in the same manner, only one in a place; and observing that, as in their nature of bearing, the same branches continue many years fruitful, furnishing bearing spurs quite to their extremity, they should not be shortened, but permitted to extend in their full growth.

They are raised or propagated, either both by grafting and budding upon stocks of their own kind, raised from the seed or kernels of ripe Quinces, or suckers from the roots of Quince Trees, or occasionally upon Pear stocks, to have trees of larger growth; and may also raise the trees wholly from suckers, layers, and cuttings, to run naturally without grafting, &c. or likewise, occasionally, from the seed or kernels of the Quinces, but these will not bear near so soon as grafted trees, or those raised from layers, cuttings, &c. of the young branches and shoots of trees of the desired varieties.

Or young ready-raised Quince Trees, for immediate planting, may be procured of proper growth at the general nurseries in the common planting seasons.

But when designed to raise supplies of the trees, if intended by grafting, &c. provide eligible stocks, raised either from kernels of the fruit, or suckers from the roots, in autumn or spring, and when of proper growth, of two or three years, or more, graft them in the spring, or bud them in summer, upon the proper stocks, at three, four, to five or six feet, for standard-trees, and at six or eight inches for espaliers; or raise the trees wholly from suckers, layers, or cuttings, which may be planted in autumn, about October, November, and December, or in the spring; or may sow kernels of the fruit at the same seasons, either for natural trees, or stocks for grafting: the suckers from Quince roots are proper to plant off, for the above purposes, when of one or two years growth, and planted in nursery-rows, and for layers and cuttings, should generally be of the young wood of a year old, which will root in one year; and all of which young plants may be trained up in nursery-rows, either in stocks for grafting, &c. or continued in their natural state, as may be thought convenient.

In the above different methods, the trees may be raised in half and full standards, trained in single,

clean stems, three or four, to five or six feet, either grafted, &c. or run up in their natural growth, to those heights, and then to branch out to form the head accordingly; or some may also be trained in dwarf standards, in low stems, six or eight inches, to one or two feet; or also for espalier-trees, in stems of six or eight inches, to branch out low in spreading heads, as observed of Pears and Apples for the same occasion; and when, in either of the above methods, the trees have formed heads of two or three, to four or five years growth, they may be finally transplanted where they are to remain.

The season for planting the trees is autumn or spring, or any time in open weather, from October or November, till March or April.

The trees may be planted in any common soil, either in kitchen gardens, pleasure-grounds, orchards, hedge-rows, &c. as formerly intimated, fifteen or twenty feet asunder, the standards, and the heads of which be permitted to branch out every way in their natural manner; and for espaliers, may plant some, for variety, in assemblage with those of Pears, Apples, &c. and the branches arranged horizontally to the trellis, at regular distances, generally at their whole length, to the full extent of their allotted space.

Or Quince Trees may also be admitted in shrubberies and other ornamental plantations in pleasure-grounds; and in which will display an agreeable variety, in their flowering and fruit, in summer and autumn.

In the general growth of the Quince Trees, their culture is, in the standards, to give only a little occasional pruning, when any disorderly growth in the branches occur; and in the espalier-trees, they require an annual pruning every summer and winter, to preserve the requisite regularity in that order of training; and in regard to the methods, both in the standard and espalier pruning, may observe nearly the same as directed for Pears and Apples, which in general is applicable to the Quinces, as being similar in their growth and ways of bearing, and to which we therefore refer for the particulars, relating to the article of pruning and training those trees.

The Quinces attain full growth, for use, in September and October, mostly large, yellow, and impart a high odour; and may then be gathered, both for present occasions, as wanted, and likewise for keeping, laying them in a dry apartment, and covered thick with clean straw, to exclude the air, &c. and they will keep in perfection some time, for future use, as may be required.

Further Observations relating to the different Species of the Apple, Pear, and Quince Kinds.

In the different species, &c. of the Pear, Apple, Crabs, Quinces, &c. some may also be introduced, with propriety, in pleasurable plantations, for variety and ornament.

The Siberian Crab and American Dwarf Apple, being trees of small, slender growth, producing singularly small fruit, of the Apple kind, of a curious appearance, are proper to cultivate both some as fruit-trees, in small standards, espaliers, &c. and to plant in shrubberies, for variety; they ripen fruit in autumn, and are agreeably flavoured, particularly the Siberian Apple, and both sorts make a pretty variety in a desert; the trees bear the fruit in clusters, on small spurs, the same manner as the Common Apple, and like them raised by grafting, &c. or by layers of the young branches, or occasionally by seed of the fruit; and trained both in small, dwarf and half standards, to plant detached in borders and other small compartments, or also some occasionally in pots; and likewise some trained in low, spreading heads, for espaliers and wall-trees; and in all of which, they, in their mode of flowering and abundant fruitfulness, will have a pleasing effect; and in their culture of pruning, &c. is the same as the Common Apples, explained in its proper place.

But the Sweet-scented Virginia Crab, both of the deciduous and ever-green kinds, are esteemed principally to admit in shrubberies, borders, &c. of pleasure-grounds, for variety, in which they will make an agreeable appearance in their ornamental and sweet-scented flowers; and the ever-green kind continues in verdant foliage the year round; and both sorts will sometimes produce fruit very agreeably, more desirable, however, for variety or curiosity, than eating: are raised by seed or kernels of the fruit, and by grafting or inoculation, and by layers; and trained in low or small standards; may be planted at the general season of removal, in any common soil and situation, the heads permitted to branch out fully, or give only occasional pruning, to reform any considerable irregularity of growth, in disorderly branches, &c.

For ornamental planting may introduce occasionally any sorts of Pear and Apple Trees, and Quinces, in tree plantations, to increase the variety in their general growth, or more particularly in their blossoms and production of fruit, which latter will also be profitable for use; but the sorts which are more generally employed for ornament or variety, in pleasurable plantations, are the double-blossom, twice-flowering, and striped-leaved Pear, double-blossom Apple, and occasionally some varieties of the Quince, with sometimes the two-year and Fig Apple, transparent Apple, &c.

the

the Siberian Crab, American Apple, and the sweet-scented Virginia Crab, both of the deciduous and ever-green kinds.

Likewise, for forest-tree plantations, may admit the Pear Tree particularly, raised in a natural state, from seed of the fruit and suckers from the roots, to run up in tall, straight stems, without grafting, or, if thought proper, some budded or grafted, and trained each with a single shoot, to form a tall, clean stem of some considerable length; as the trees grow lofty and of a large size, and the wood is useful in several trades, as turners, button-mould makers, &c. and may therefore admit them in assemblage with other deciduous kinds, as maple, beech, elm, ash, oak, &c. to form timber plantations and coppices of under-wood, and permitted to run up in their natural growth; and for which occasions, they may be raised either by the kernels of the fruit in a nursery, and also suckers from the roots of Pear Trees, or some by budding, &c. and in all of which train up the plants in clean, single stems, the top-shoot entire, to aspire in height; and when three or four, to five, six, or seven feet growth, transplanted where they are to remain, as above; or seeds or kernels may be sowed in drills in the places where the plants are always to stand, to grow up for large trees, or as required.

QUERCUS, OAK TREE.

Class and Order.

Monoecia, Polyandria,
One Habitation, Many Males;

Or Plants with Male and Female Flowers, distinct and apart, on the same Tree, and the Males having many Stamina.

THE *Quercus* furnish many species of superior, large, deciduous, and ever-green trees, for useful and ornamental plantations, mostly of great utility and value as forest or timber trees, exceeding many others in the strength and durability of their timber, growing forty or fifty, to sixty or seventy, or some near an hundred feet high, with considerable branchy heads, garnished with middling and largish, oblong and ovate, and spear-shape leaves, sinuated, pinnatifid, and intire in the different species, and small, yellowish male and female flowers, separate on the same tree, all without petals or flower-leaves; the males produced in loose catkins or amentums, each floret having a five-parted cup, and many short stamina; and female flowers in close-fitting buds in hemispherical, rough, thick, one-leaved, intire calyxes, with an oval germen, and single, five-pointed style; and the germen grows an oval nut or acorn, fixed into the rough, permanent cup, ripening in autumn; and by which, sowed in that season or spring, the trees are generally propagated.

The Species of OAK, consisting of deciduous and ever-green Kinds are,

1. Deciduous Kinds.

1. *QUERCUS Robur*—(Robur) or Common English Oak.

A most large, lofty, deciduous tree, growing sixty to near one hundred feet high—the leaves (*middling-size, dark-green*) oblong, broadest toward the top, sinuated-acutely, with the angles obtuse.—Native of England and other parts of Europe. (*Loamy or any common soil.*)

Varieties.—Common Oak, with the acorns sitting close to the branches.

Common Oak, with pinnately-sinuated leaves, and acorns on long foot-stalks.
Striped-leaved Common Oak.

2. *QUERCUS alba*—White American Oak.

A large, deciduous tree, growing fifty or sixty feet high, with a whitish bark—the leaves (*middling or large, lighter-green*) oblong, obliquely-pinnatifid, with the sinules angular-obtuse.—Native of Virginia. (*Any common soil.*)

3. *QUERCUS nigra*—Black American Oak.

A middling, deciduous tree, thirty or forty feet high, with a dark-brown bark—the leaves (*broad upward, shining-green*) wedge-shape, slightly three-lobed.—Native of Virginia. (*Any common soil.*)

4. *QUERCUS Prinus*—(Prinus) or Chestnut-leaved American Oak.

A most large, deciduous tree, sixty or seventy feet high—the leaves (*large, long, bright-green*) oblong-ovate, pointed at both ends, sinuated-sawed; the denticles round, uniform; and very large acorns.—Native of North America. (*Loamy or common soil.*)

5. *QUERCUS Phellos*—(Phellos) or Willow-leaved Oak.

A large, deciduous tree, growing forty or fifty feet high—the leaves (*middling, pale-green*) spear-shape, smooth, and intire.—Native of North America. (*Any common soil.*)

Varieties.—Long-leaved, Willow-leaved Oak.

Short-leaved, Willow-leaved Oak.

Variable-leaved, Willow-leaved Oak.

6. *QUERCUS*

6. *QUERCUS rubra*, Red or Scarlet Virginia Oak.

A large, deciduous tree, growing forty, to fifty or sixty feet high—the leaves (*large, bright-green*) oblong, sinuated, with the sinuses obtuse, bristly-pointed; green in the spring, changing to a bright-red or scarlet colour.—Native of Virginia and Carolina. (*Any common soil.*)

[*Variety.*—Three-pointed-leaved Red or Scarlet Oak.

7. *QUERCUS Esculus*—(Esculus) Horse-Chestnut-leaved Oak.

A large, deciduous tree, forty or fifty feet high—the leaves (*broad, light-green*) oblong, deeply cut, or pinnate-sinuated, and smooth; and longish acorns fitting close to the branches.—Native of the south parts of Europe. (*Loamy or any common soil.*)

8. *QUERCUS Cerris*—(Cerris) Lyrate-leaved Spanish Oak.

A large, deciduous tree, fifty or sixty feet high—the leaves (*middling, dark-green*) oblong, lyrate-pinnatifid, or indented in the middle in a lyrie-shape form, transverse-jagged, in acute points, downy on the under side.—Native of Spain, Austria, &c. (*Any common soil.*)

9. *QUERCUS Ægilops*—(Ægilops) or Prickly-cupped Spanish Oak.

A most lofty, large, deciduous tree, of beautiful growth, sixty or seventy feet high, or more, widely branching—the leaves (*middling, pale-green*) ovate-oblong, smooth, with the edges sawed-dentated; and acorns in very large, prickly cups.—Native of Spain and the Levant. (*Loamy or any common soil.*)

The following are Varieties of different Species.

Quercus humilis, Dwarf American Oak.
Quercus oxoniensis, Exeter or Luccombe's Oak.

Ever-green Kinds.

10. *QUERCUS Ilex*—(Ilex) or Common Ever-green Oak.

A largish, upright, ever-green tree, thirty or forty feet high—the leaves (*middling, dark-green*) ovate-

oblong, undivided, sawed, shining-green above, downy underneath, placed on foot-stalks; and small acorns.—Native of the southern parts of Europe. (*Any common soil.*)

Varieties.—Broad-leaved Ever-green Oak.
Narrow-leaved Ever-green Oak.
Sawed-leaved Ever-green Oak.
Intire-leaved Ever-green Oak.
Various-leaved Ever-green Oak, with leaves narrow and broad, some sawed, others intire, and some prickly-edged; sometimes all on the same tree.

11. *QUERCUS gramuntia*, Gramuntian or Holly-leaved Ever-green Oak.

A largish, ever-green tree, thirty or forty feet high—the leaves (*middling, darkish-green*) oblong-oval, sinuated-spinous-edged, downy underneath, sessile or fitting close, without foot-stalks; and glands peduncled or foot-stalked.—Native of the south of France. (*Any common soil.*)

12. *QUERCUS Coccifera*—(Coccifera) Scarlet-bearing or Kermes Oak.

A smaller, ever-green tree, fifteen or eighteen feet high, of bushy growth—the leaves (*middling, bright-green*) oval, undivided and smooth, with the edges prickly-indented, scarlet glands on the branches and leaves, called Kermes, used in dying.—Native of France, Spain, Italy, the East, &c. (*Any common soil.*)

13. *QUERCUS carolinienfis*, Carolinian, or American Live Oak.

A largish ever-green tree, thirty or forty feet high—the leaves (*middling, dark-green*) ovate-spear-shape, intire, and short foot-stalked; and small, oblong acorns.—Native of Carolina and Virginia. (*Any common soil.*)

14. *QUERCUS Suber*—(Suber) or Cork Tree.

A large, ever-green tree, thirty or forty feet high, having a rough, fungous, and cleft bark, which is the cork—the leaves (*middling, dark-green*) ovate-oblong, undivided, sawed, and downy on the under-side.—Native of the southern parts of Europe. (*Any common soil.*)

Most of the species of Oak being of the largest tree kind, growing with stems or trunks of a considerable bulk

bulk and stature, more particularly some of the deciduous kinds, are valuable to cultivate as forest-trees, for the great worth of their timber, to use for many superior purposes where strength and long duration is necessary and required; is of particular value as the principal timber employed in ship-building, and various other occasions, for strength and durability; and for which, one of the species in particular, the *Quercus Robur*, or Common Oak, surpasses most of the others in its vast dimensions of growth in this country, and superior quality of its wood, as well as the great utility of the bark of the tree, as the principal material for tanning of leather; and when after being used for that valuable purpose, becomes of singular use to the gardener, for making tanner's-bark hot-beds, commonly called tan or bark-beds, peculiarly useful in hot-houses or pine-ries, for the culture of the Pine-Apple, and in forcing-houses and frame hot-beds occasionally; though several or most of the other species, being trees of superior growth in height and magnitude of their trunk, are also eligible to assemble with forest-trees, and occasionally in large, ornamental plantations, in parks and any out-grounds; and in all the sorts, their production of acorns ripening in autumn, are good to fatten swine and deer, when they fall from the trees, in September, October, &c.

In several species of the Oak are produced glands, or roundish, protuberant excrescences, larger and smaller, upon the young shoots and leaves in May and June; very abundant in the Common Oak, and which are commonly called Oak Apples, generally occasioned by insects, and are of no particular use, except in the *Quercus Coccifera*, or Scarlet-bearing Oak, where the trees grow naturally, being the Kermes, called Scarlet Grain, and is collected for the use of dyers, &c.

All the species of Oak may be employed in extensive plantations, both as forest-trees, in large standards, for timber, and in under-wood, to use in smaller growths occasionally; likewise, to plant, for variety and ornament, in assemblage with other large trees, in considerable pleasure-grounds, parks, fields, hedge-rows, and in any out districts; but, for useful plantations in forest or timber-trees, the Common or English Oak generally claims preference for principal culture, as superior in growth, and for the known value of its wood; and abundance of the trees may be cultivated, to great advantage, in all extensive grounds, to form Oak woods, both by raising the trees in a nursery, and transplanted where they are to continue, and by sowing the acorns in the places where the trees are always to remain; likewise, should introduce some, or as many of the other species as may be thought expedient, as they will grow to handsome timber-trees, and effect an agreeable diversity in the plantations, in their different growths, foliage, &c.

Or for ornamental planting in considerable grounds, or to embellish different parts of estates, any of the species of Oak may be admitted in forming extending plantations in assemblage with other large trees, or in similar plantations towards the out-boundary of pleasure-grounds, extensive lawns, parks, &c. and in forming clumps, ranges, and singly, both in parks and any extensive out-grounds, as above-intimated; or may also be introduced in large, running shrubbery plantations, for variety; or for garden shrubberies, may have principally some of the smaller kinds, and any of the ever-green Oaks, as they will appear ornamental at all seasons, in their constant verdure.

Most of the Oak Trees are slow growers, and continue, for ages, in an advancing growth; the Common Oak particularly continues growing many centuries.

The Oaks mostly succeed best in a loamy ground, and will also thrive in any common soil, not very wet or marshy; or, however, where the ground, intended for plantations, is of a loamy nature, it will be of advantage in promoting a more expeditious, strong, handsome growth; but they may likewise be planted successfully in any common ground, of a somewhat fertile nature, or of some tolerable cultivating state, as may occur in the places where designed or convenient to have plantations thereof, either for profit or ornament; though, for the latter, the fertility of the soil is not so material as for the former, where intended to plant principally for timber plantations.

All the sorts of Oaks are propagated or raised by sowing the acorns in autumn or spring; and the young seedling plants, when a year old, transplanted in nursery-rows, to advance to three or four, to five or six feet growth, for the intended plantations, as more fully directed hereafter.

Or young trees, ready raised to proper sizes, as above, may be obtained at the public nurseries, for planting.

But when designed to have considerable plantations of the Common Oak, and of any other sorts, to form Oak woods, for timber-trees and under-wood, it is most advisable, where convenient, to raise proper supplies of young trees in home nurseries, to a due size for transplanting, as required for these occasions; or the acorns sowed at once in the places where the plantation is intended, and the trees to remain where thus raised, and they establishing their roots more effectually from the beginning, not having any check by transplanting, they will generally make the most prosperous trees, of long duration, in a thriving growth; or, however, if raised in a nursery, to transplant for the foregoing purposes of timber-trees particularly, it would

would be most successful to perform it while they are young, of three or four, to five or six feet high at most, in which they will more effectually root firmly in the ground, and grow more prosperous than such as are transplanted larger.

The proper season for planting Oaks is either in the autumn or spring, or may be done any time in winter, in open-weather, from November, to February, March, or wholly completed by the beginning of April.

When designed to form Oak woods for timber-trees, it may be effected either by young plants previously raised from the acorns sowed in a nursery, and when two or three, to four or five feet high, transplanted in the places intended, in rows, four or five, to ten or twenty feet distance, or the acorns sowed at once in drills where the plantation is intended, and as they remain where raised, will generally grow more expeditious and prosperous than those which are transplanted, having the ground previously prepared for their reception, by ploughing and harrowing; and, in both of which methods, may either be disposed in wide rows, ten, to fifteen feet asunder, or in close rows, only four or five feet distance, in order that, when of advanced growth, they may admit of thinning out some of the underling trees gradually, either some small, for transplanting, or larger, for other purposes, and of cutting down some for under-wood, every eight, ten, or twelve years, and will shoot up again for the same occasion, leaving a sufficiency of the finest stems from the beginning, to run up for large standards, at from ten to twenty feet apart at first; and when these are considerably increased in size, some may be cut down in a thinning order, for smaller timber, &c. retaining the rest at twenty or thirty feet distance, to acquire full growth; the retained standards, both in their young and advanced state, should be pruned up below, by degrees, each in a clean, single stem, preserving the tops intire to run up in height.

Or, where intended to raise a nursery of Oaks, for transplanting, it is effected in the following manner.

The propagation or method of raising all the sorts of Oaks, being by sowing the acorns, both of the Common Oak, which ripen abundantly every where in autumn, and of the other sorts that can be obtained; all either sowed soon after they are ripe, in autumn, or preserved close and dry till the spring, about February or beginning of March, or as soon as the intended sorts can be procured; or some are occasionally raised by grafting or budding on Common Oak stocks, especially any of the foreign sorts, of which the acorns are not attainable; or also any particular varieties to continue the same, as the Oaks seldom succeed well

by layers or cuttings; and the grafting, &c. is only practised occasionally in the above instances, and by which they will take upon stocks of any of the Oak kind; though, for the general propagation, it is always effected by sowing the acorns.

Therefore, to raise the principal supply from the acorns, and having procured a requisite quantity of those of the Common Oak, for the general plantation, and of such others as may be intended for variety, prepare beds of any common, light earth, in the autumn or spring, aforesaid: sow the acorns either in drills two inches deep, and the drills six or eight to twelve inches asunder; or by broad-cast, first raking two inches depth of earth off the surface of the beds, then scatter the acorns evenly on the bed moderately thick, press them into the earth with the back of a spade, and cover them in with the earth that was raked off evenly about two inches deep: they will come up in the spring; keep them clean from weeds all summer, and when the plants are of one or two year's growth, they should be transplanted, either in the autumn, in October or beginning of November, or in the following spring, in nursery-rows, two or three feet asunder, by fifteen or eighteen inches distance in each row.

In the nursery-rows, let them have three or four years growth, training each with a clean, single stem, by pruning off the strong side-shoots, preserving the top-shoot intire; and when advanced three, four, or five, to six or eight feet high, they are of proper size for final transplanting.

When designed to propagate any particular sorts by grafting or budding, it may be performed upon any seedling-stocks of the Common or other kind of Oak; the grafting performed in the spring, and the budding in July and August; and, in both of which, train the young trees as above.

The young Oaks raised as above, to a proper growth for final transplanting, three, four, or five, to six or eight feet, as before observed, they should be planted out accordingly where they are to remain, in the proper season; have them dug up with as full roots as possible, and of which, only cut away broken parts, or prune any long, naked, tap-root, of down-right growth, and shorten any very long straggler; cut off strong, lateral shoots from the stem, or may prune any rambling or very irregular branches at the head, preserving the main top leaders intire, and plant them at the distances formerly mentioned, five or ten, to fifteen or twenty feet, agreeable to the foregoing intimations, particularly those designed to form Oak woods or any other plantations of the Oak kind, or at ten, fifteen, to twenty or thirty feet, to form clumps, &c. in parks and fields, or in assemblage with other large trees,

trees, either in forming profitable or ornamental plantations, for the improvement and embellishment of estates.

But, in forming Oak woods designed principally for large timber trees, they should generally either be planted in young growth, or the acorns sowed in the places where the trees are to stand; and in which latter method, as not being transplanted, they do not receive any check in their growth, root more effectually, grow faster, more prosperous, and continue of longer duration, in a free growing state.

The young plantations for woods, &c. as above, should be defended by some surrounding outward fence, either a ditch, stake and bush hedge, hurdles, palings, &c. and in the young or small growth of the trees, keep them clear from large, aspiring weeds in summer; and the trees designed to run for standards, both in their young and advanced state, have the stems pruned up from strong lateral shoots, and permit the tops to aspire in height in their full growth.

RHAMNUS BUCKTHORN, comprising also the Frangula, Paliurus, and Alaternus.

Class and Order.

Pentandria, Monogynia,
Five Males, One Female;

Or Plants, with Hermaphrodite Flowers, having five Stamina, or Males, and one Pistillum, or Female.

THE Rhamnus comprises several hardy species of deciduous shrubs, and one ever-green kind; all employed for variety in shrubberies, &c. are mostly of the large and middling shrub kinds, of upright growth, six or eight to twelve or fourteen feet high; some armed with thorns, others not; and adorned with middling and small, oblong, oval and spear-shape simple leaves, and small, greenish-yellow flowers, in clusters, at the sides and ends of the branches; mostly funnel-shape, four or five-parted at the top, each containing five stamina, a roundish germen, supporting a single style, crowned by a quadrifid stigma; and the germen grows a small, roundish berry, several together, in clusters, furnished with three or four roundish hard seeds, ripening in autumn, and by which, sowed in that season or spring, the plants may be propagated, also by layers and cuttings.

The hardy Species of RHAMNUS are—

1. RHAMNUS *catharticus*—Cathartic or Common Purging Buckthorn.

A large, deciduous shrub, branching irregularly

ten or twelve feet high—armed with terminal thorns; the leaves (*middling, dark-green above*) oval, spear-shape, and small, quadrifid or four-parted, dioicous flowers, in clusters, succeeded by bunches of small, roundish berries; used in medicine.—Native of England, &c. in hedges. (*Any soil.*)

Varieties.—Common larger Buckthorn.
Dwarf Buckthorn.
Long-leaved Dwarf Buckthorn.

2. RHAMNUS *Frangula*—(Frangula) or Berry-bearing Alder.

A large, deciduous shrub, branching irregularly ten or twelve feet high—unarmed or thornless; the leaves (*smallish, dark-green*) ovate-oblong intire; and hermaphrodite, monogynous or one-styled flowers, in clusters, succeeded by bunches of small, black, round berries.—Native of England, &c. in hedges. (*Any soil.*)

Variety.—Dwarf Berry-bearing Alder.

3. RHAMNUS *alpinus*—Alpine Berry-bearing Alder.

A large, deciduous shrub, ten or twelve feet high—unarmed or without thorns; the leaves (*larger, rough*) ovate-oblong, doubly-crenated or notched; and dioicous flowers, succeeded by small, round, black berries.—Native of the Helvetian mountains. (*Any soil.*)

4. RHAMNUS *Paliurus*—(Paliurus) commonly called Christ's Thorn.

A large, deciduous shrub, with slender, pliant branches, growing eight or ten feet high—armed with thorns in pairs, the lower ones reflexed; leaves (*smaller, pale-green*) ovate-roundish, and clusters of small, greenish flowers, trigynous or with three pistils; succeeded by roundish, compressed fruit.—Native of Palestine, Italy, Spain, Portugal, the Levant, &c. (*Any common soil.*)

This species, as being a native of Judea, &c. is by many travellers supposed to be the tree of which was composed the crown of thorns which was placed on the head of our Saviour, hence called *Christ's Thorn*—though others suppose the following is the real plant.

5. RHAMNUS *Spina-Christi*—(Spina-Christi) Christ's Thorn, with straight Spines.

A deciduous shrub, with slender branches—armed with straight thorns, by pairs; the leaves (*small*) oval;
C c and

and small yellow flowers, succeeded by round berries.—Native of Palestine, Syria, Æthiopia, &c. (*Dry, warm situation, or against a south wall, or some in pots, to place in a green-house in winter.*)

6. *RHAMNUS lineatus*,—Lineated-leaved, Chinese Rhamnus, called Supple Jack.

A large, deciduous shrub, with long, pliant stems and branches—unarmed, or without thorns; the leaves (*small*) ovate, lineated, repand or serpentine, netted on the under side; and hermaphrodite flowers.—Native of China. (*Any common soil.*)

7. *RHAMNUS Alaternus*—(Alaternus) commonly called Alaternus.

A large, ever-green shrub, of branchy, bushy growth, eight, ten or twelve feet high, or more—unarmed or without thorns; the leaves (*small, dark-green*) ovate, firm and shining, sawed and intire, in different varieties; and small, greenish, dioicous flowers, with a triple stigma; succeeded by small, round berries. Native of the southern parts of Europe. (*Any soil and situation.*)

This species (*Alaternus*) bears a great resemblance to the *Phillyrea*, but differ in the situation of their leaves, which in the latter grow in pairs opposite, and in the *Alaternus* is placed alternate or one above another, singly.

Varieties.—Common green-leaved *Alaternus*.
Broad-leaved *Alaternus*.
Narrow-leaved *Alaternus*.
Jagged-leaved *Alaternus*.
Bloached-leaved *Alaternus*.
Silver-striped-leaved *Alaternus*.
Gold-striped-leaved *Alaternus*.
Sawed-leaved *Alaternus*.
Intire-leaved *Alaternus*.

8. *RHAMNUS lycioides*, Lycium-like Spanish Buckthorn.

A middling ever-green shrub, eight or ten feet high—thorny, armed with terminal thorns; the leaves (*small, dark-green*) ovate linear.—Native of Spain. (*Warm, dry, situation.*)

9. *RHAMNUS Oleoides*—(*Oleoides*) or Olive-leaved Spanish Buckthorn.

A middling ever-green shrub, eight or ten feet high—thorny, armed with terminal thorns; leaves (*small, dark-green*) oblong and intire.—Native of Spain. (*Warm, dry situation.*)

All the above hardy species of *Rhamnus* are employed in shrubbery plantations, to increase the variety, in their different growths and foliage, and some to introduce as ornamental shrubs, particularly the *Alaternusses* as elegant ever-greens, more beautiful for decorative planting than most of the deciduous species of this Genus; though none of the species thereof are of the ornamental-flowering kind; at least, the flowers, being small and of a greenish colour, they do not make any conspicuous appearance; but the plants, trained in bushy standards, serve to diversify large shrubbery compartments, in assemblage with other shrubs and trees; or the *Alaternus*, however, in its different varieties, being very fine ever-greens, are desirable shrubs to assist in adorning the principal shrubbery clumps, spacious borders, and other parts of pleasure-grounds, for ornament; and the Common Buckthorn is sometimes planted for outward hedges, but is inferior to the hawthorn for that purpose.

The above different species of *Rhamnus* are mostly hardy to grow in any common soil and situation; are generally of a free growth, with branchy, full heads, closely garnished with leaves, and produce flowers in May and June, small and greenish, mostly hermaphrodite, or some dioicous, or male and female apart, on separate trees; succeeded by plenty of berries in the Common Buckthorn, Berry-bearing Alders, and the *Alaternus*, but not so common in the others in this country; are of utility principally for sowing, or some for medicine; and where the berries for sowing are not attainable, all the sorts are raised abundantly from layers.

They are trained principally in standard shrubs, to branch out in full heads, either branchy from the bottom, or occasionally pruned up below to a single stem, one, two, or three feet, or more, and to branch out bushy above.

Or the *Alaternusses* are also proper to plant in a spreading expansion against walls or buildings, in fore-courts or other parts where required to have naked walls or palings, &c. covered therewith to appear green at all seasons; and for which occasion the Bloached and Striped-leaved kinds are generally preferred, though the common green sort, in its stronger growth, will sooner spread and effect the intended purpose; however, any or all the varieties may be employed, planted close to the walls, &c. two or three feet asunder, and the branches expanded and nailed to the wall or palings; and in their advancing growth, cut off all projecting shoots in summer and autumn.

Likewise the *Alaternusses* were formerly trained into ornamental, ever-green hedges, though are seldom used now for that purpose, as in the present stile of laying out gardens, most sorts of internal hedges are rejected.

Most or all the foregoing species of *Rhamnus*, may be obtained at the common nurseries for planting, of two or three to four or five feet growth, and may be planted in the autumn or spring or any time from October to March or April, in open weather; or all the sorts may be raised by the different methods of propagation.

They are propagated by seed, layers and cuttings; by seed, procure the ripe berries, or seed, in autumn or spring, of such sorts as ripen in this country, or can be obtained; sow them in beds of light earth, each sort separate, about an inch deep; they will come up in the spring, or sometimes not all freely till the second year; and when the plants are one or two years old, transplant them in nursery-beds, and trained to a proper size for final transplanting; or by layers of the young branches in autumn or spring, slit-layed, or cutting a small gash on the under side, laying that part in the earth, raising the tops above ground, they will readily emit roots and be well rooted for planting off in autumn following; and by cuttings of the young twigs, in most of the sorts, planted in the above seasons, will put out roots and grow, though not all so freely as the layers; and generally observe of the *Alaternusses*, that the Bloached and Striped-leaved kinds, and other varieties, must be propagated principally by layers, or occasionally by cuttings, or budding, &c. as they do not come with certainty the same from seed; and thus, in the above different methods of propagation, the young plants being planted in the nursery, train them two or three years, or more, to a proper growth for final transplanting.

When the plants are advanced two, three, or four feet high, they are of proper sizes for transplanting finally into the intended plantations of shrubberies, &c. where they are to remain; and in which permit them to branch out in full heads, either branchy from the bottom, in some, pruned up below, more or less, to branch out above; and in all of which, may advance in full growth, or only prune rampant, run-away, or other very irregular shoots and branches, to continue the heads in somewhat regular order.

RHODODENDRON, DWARF ROSE-BAY.

Class and Order.

Decandria, Monogynia,
Ten Males, One Female;

Or Plants with Flowers (*Herm.*) having ten Stamina, or Male Parts, and one Pistillum, or Female

THE RHODODENDRONS consist of several species of small and middling, deciduous and ever-green fine

ornamental flowering-shrubs, growing two or three to six or eight feet high, mostly of bushy growth; garnished with oval and spear-shape leaves; and rotate or wheel-form, funnel-shape flowers, in clusters, and singly, at the ends and sides of the branches; having monophyllous or one-leaved cups, cut into five parts, a monopetalous, wheel-funnel-shape, five-parted corolla, ten small stamina, a five-cornered germen, supporting a single style, crowned by an obtuse stigma; and the germen becomes an oval, quinquelocular capsule, containing many small seeds, by which the plants may be raised, also by layers and suckers.

1. RHODODENDRON *hirsutum*—Hairy-leaved Rhododendron.

A small, deciduous under-shrub, two or three feet high—the leaves (*small, shining*) ovate-spear-shape, hairy-ciliated, naked; and funnel-shape pale-red flowers, in bunches, at the ends of the branches; May and June.—Native of the Alps, Austria, and Stiria. (*Any dry soil.*)

2. RHODODENDRON *ferrugineum*—Ferruginous, or Iron-coloured Rhododendron.

A small, deciduous shrub, about three feet high—the leaves (*small*) spear-shape, smooth, with the under side leprosy or scurfy iron-coloured; and funnel-shaped, rose-coloured flowers, in bunches at the ends of the branches, in June.—Native of the Alps and Pyrenean mountains. (*Any moderately-dry soil.*)

3. RHODODENDRON *maximum*—Greater Laurel-leaved Rhododendron.

A middling-size, most beautiful ever-green shrub, six or eight feet high, of bushy growth—the leaves (*moderately-large, light-green*) oval obtuse, glossy-shining and veined, with the margins acute reflexed; and reddish flowers in corymbus bunches, the peduncles one-flowered.—Native of Virginia. (*Any moderately-dry soil.*)

4. RHODODENDRON *porticum*—Pontic, Laurel-leaved Rhododendron.

A moderate size, very beautiful ever-green shrub, five or six feet high, of bushy growth—the leaves (*middling, darker-green*) spear-shape, smooth on both sides, glossy; and terminal racemes of large, purple flowers, June, July, &c.—Native of the East and near Gibraltar. (*Any common soil.*)

5. RHODODENDRON *dauricum*—Daurian Dwarf Rose-
Bay.

A small, deciduous under-shrub, two or three feet high—the leaves (*small*) oval, smooth and naked on both sides; and larger, wheel-shape, rose-coloured flowers, in June.—Native of Dauria. (*Moderately-dry soil.*)

6. RHODODENDRON *Chamæcistus*—(Chamæcistus)
or Dwarf-Cistus of Mount Baldi.

A small, deciduous shrub, two or three feet high—the leaves (*small, shining*) ovate-spear-shape, ciliatid hairy edged, and rotated or wheel-shape; purple flowers.—Native of Mount Baldi. (*Moderately-dry soil.*)

Of the foregoing six species of Rhododendron, the first four sorts are the most generally known in the nurseries and garden plantations, and of which the two latter are greatly esteemed both as most beautiful ever-greens, and fine elegant flowering-shrubs; tho' all the sorts are very ornamental in their flowering; proper to plant for variety and ornament, in the principal and most conspicuous shrubbery-compartments, disposed mostly towards the front, in assemblage with other curious shrubs of similar growth; and in which they will make an agreeable variety, beautiful in their flowers in summer, and the ever-green kinds particularly will both appear ornamental in the continuing leaves all the year, and also singularly delightful in their season of flowering.

They should have a moderately-dry soil, and somewhat sheltered situation.

Most of the species are cultivated in the public nurseries, where they may be obtained for planting, especially the first four sorts, before remarked; and may sometimes be had in pots, in particular the ever-green kinds, to transplant with the ball of earth about the roots.

They may be planted in autumn or spring.

All the sorts are propagated by seed, and occasionally by layers, and sometimes by suckers: sow the seed in the spring, in a bed, or pots of light earth; make the surface smooth, sow the seeds thereon, and cover them in with fine mold, a quarter or near half an inch deep; or pots with the seeds may be placed in a gentle, open hot-bed, to forward their germination, and just to bring up the plants sooner in a free growth, then placed in an east border all summer, and sheltered in winter, and in spring transplanted; giving them

protection for a year or two in winter, from frost, till they attain a little strength; likewise by layers of the young shoots both of the deciduous and ever-green kinds, in autumn or spring, or may try cuttings in the spring in pots, assisted by a bark-bed or other hot-bed; or where any suckers occur, plant them off in the spring or autumn.

When the plants raised as above are advanced one or two feet high, they may be transplanted in the spring into the shrubbery, &c. where they are to remain.

RHUS, SUMACH, and Toxicodendron.

Class and Order.

Pentandria, Trigynia,
Five Males, Three Females.

Or Plants with Hermaphrodite Flowers, having five Stamina, or Males, and three Pistillums, or Female Parts.

THIS Genus furnishes several species of hardy, deciduous, moderate tree and shrub kinds, mostly upright, and some of trailing growth; all principally to plant for variety and ornament in shrubberies, &c. growing three, four or five to ten, fifteen or twenty feet, in the different species; some garnished with long pinnated leaves, of many pairs of folioles, all terminated by an odd one, others with simple leaves, and some trifoliate, or composed of three lobes; and numerous small, pentapetalous, purple and other coloured flowers, at the termination and sides of the branches, in singular paniculated spikes, and some in clusters; having small, five-lobed, permanent calyxes, five small, oval petals, containing five short stamina, a roundish germen, very short style, or rather three small stigmas; and the germen grow small berries, furnished with roundish seeds, not generally ripening in this country, in all the species; and by which, obtained and sowed in the spring, the plants are raised, also some by layers, cuttings, and suckers.

SUMACH Kinds.

1. RHUS *Coriaria*—(Coriaria) or Tanner's Sumach.

A small, deciduous tree, eight or ten feet high, of irregular branchy growth—the leaves (*large*) pinnated, of seven or eight pair of oval-spear-shape lobes, obtusely-sawed, and the under-side hairy; and close spikes of whitish-yellow flowers, in loose panicles, at the end of the branches.—Native of Turkey, Palestine, &c. where the branches and bark are used for tanning of leather. (*Any common soil.*)

2. RHUS

2. *Rhus typhinum*, Stag's Horn, Virginia Sumach.

A small, deciduous tree, fifteen or eighteen feet high, with crooked, irregular branches and shoots, covered with a velvety down—the leaves (*large, dark-green*) pinnated or winged, of six, seven, or more, pair of spear-shape lobes, sharply-sawed, and downy on the under-side; and close tufty spikes of flowers at the ends of the branches, succeeded by large, woolly, purple spikes of seeds, remaining in autumn and winter.—Native of Virginia. (*Any common soil.*)

3. *Rhus glabrum*, Smooth or Scarlet Sumach.

A small, deciduous tree, ten or twelve feet high, with irregular spreading branches—the leaves (*large*) pinnated, of many pair of spear-shape sawed lobes; naked or smooth on both sides; and large terminal paniculated spikes of a deep-red or scarlet colour.—Native of North America. (*Any common soil.*)

Variety.—Carolina Scarlet Sumach — with large compact panicles of bright-red flower-spikes.

4. *Rhus Copallinum*—(Copallinum) or Lentiscus-leaved Sumach.

A deciduous shrub, six or eight feet high, with spreading branches—the leaves (*middling*) pinnated, of four or five pair of narrow spear-shape intire lobes, with the foot-stalks having membranous borders, and jointed; and terminal loose panicles of yellowish flowers.—Native of North America. (*Any common soil.*)

5. *Rhus Cotinus*—(Cotinus) Venice Sumach, or Cocygia.

A deciduous shrub, ten or twelve feet high, with irregular spreading branches—the leaves (*middling, light-green*) simple, or of one lobe, obverse-oval; and bunches of purple and white flowers at the ends of the branches.—Native of Italy, Spain, &c. (*Any common soil.*)

Toxicodendrons, or Poison Trees.

6. *Rhus Toxicodendron*—(Toxicodendron) or Downy-leaved Poison Tree:

A deciduous shrub of five or six feet growth—the stem radicant or emitting roots; leaves (*large*) ternate or trifoliolate, of three ovalish lobes, foot-stalked, angulated, indented and downy; and short spikes of greenish flowers.—Native of Virginia and Canada; the wood poisonous. (*Any common soil.*)

Varieties.—Indented Downy-leaved Poison Tree.

Intire-leaved Downy Poison Tree.

Greater Rough Downy-leaved Poison Tree.

7. *Rhus radicans*—Radicant Smooth-leaved Poison Tree.

A deciduous shrub, of trailing and upright growth, three or four, to five, six, or eight feet—the stem radicant, or emitting roots; leaves (*middling*) trifoliolate, of three ovate intire lobes, foot-stalk naked or smooth; and loose panicles of greenish flowers.—Native of Virginia and Canada. (*Any common soil.*)

Varieties.—Smaller trailing smooth Poison Tree.

Larger twining-stalked smooth Poison Tree.

Upright smooth Poison Tree.

8. *Rhus Vernix*—(Vernix) Varnish Tree, or Poison Ash.

A middling deciduous tree, growing twenty feet high, or more—the leaves (*large, dark-coloured*) pinnated, of three or four pair of oval-spear-shape intire lobes, with the foot-stalks intire and equal; and panicles of greenish flowers.—Native of North America and Japan; supposed the true Varnish Tree from which the Varnish is obtained. (*Any common soil, warm situation.*)

9. *Rhus succedanum*—Succedanous, or spurious Varnish Tree.

A moderate tree or shrub—the leaves (*middling, shining*) pinnated, of three or four pair of intire lobes, perennial.—Native of Japan and China. (*Any common soil.*)

These eight or nine species of *Rhus* are cultivated principally for ornament and variety, in shrubberies, and other decorative plantations, in pleasure-grounds, in assemblage with other ornamental shrubs and trees, in which they form a conspicuous variety in their pinnated, and trifoliolate, and simple leaves, in summer, when properly contrasted; and several of them also in their long paniculated spikes of flowers; and in some of the Sumach kinds, particularly, they distinguish themselves agreeably at all seasons: their elegant pinnated foliage and large panicles in summer and autumn, display an entertaining diversity, and appear singular in winter, in their large stag-horn-like, brown, velvety shoots, terminated by the continuing large, red panicles of downy seeds: likewise the *Toxicodendrons* serve to encrease the variety in an agreeable manner, in their different growths, foliage, and flowers; though the latter being small and greenish, are not conspicuously ornamental.

All the sorts flower in summer, about May, June, July, &c. continuing, in most of the Sumachs, conspicuous till autumn, in their large red spikes, but are not generally succeeded by plenty of seeds in this country; but these, however, for sowing, of the sorts usually or occasionally raised therefrom, may be obtained at the nurseries and principal seed shops in the spring.

The plants of all the species are hardy to grow in the open ground, in any common soil and situation, in general with other hardy shrubs; and may all be obtained at most of the principal nurseries, of proper growth, of two, three, or four feet, for planting in the proper seasons of autumn or spring; or may be planted any time in open weather, from October till March or April; placing them in shrubberies, clumps, spacious borders, and any decorative plantations of shrubs in pleasure-grounds, in which dispose them in a diversified order, and more or less towards the front, or backward, in their respective compartments, according to their different growths.

They are propagated or raised by seed, some by layers and suckers, and others by their radican or rooting branches.

By seeds, all the sorts may be raised, or of such as the seeds are attainable, and by which, most of the Sumachs in particular, are occasionally propagated; as may also any of the other species: sow the seed generally in the spring, in a bed or border of light earth, or in pots of simlar soil, and covered in with earth, half an inch to an inch deep; or, if sowed in pots, some might be plunged in a moderate tan or dung hot-bed, and the plants will sooner come up, but should be exposed to the full air: give water in summer, and protection from severe frost in winter; and when the plants are a year old, plant them in nursery-rows, to advance in proper growth, two or three years, to an eligible size of two, three, or four feet, for final transplanting where intended, in shrubberies, &c.

By layers, any of the sorts with pliant branches may be propagated in autumn or spring, chusing the lower young wood, slit-lay or gash the under side a little, laying that part in the earth; they will root freely, for planting off from the parent plant, the following autumn.

And by suckers and rooting branches, the Sumachs and some of the others, often send up many suckers from the roots, which may be planted off in the autumn or spring, either in the shrubbery, &c. to remain, or in the nursery for a year or two; and in several of the Toxicodendrons, they propagating both by the rooting stems and branches, and by suckers, may be separated with roots, and planted in nursery-rows, or some at once where they are to remain.

In the above different methods of raising these plants, generally in the tree kinds, run them with a single stem, two or three feet, or more, to branch out above; and the others of more shrubby growth, may branch out below, or quite from the bottom; and, in all of which, when of some advanced growth, two or three feet, are proper for the shrubbery; permit them to branch out in full heads, according to their natural order; only prune occasional rambling or very irregular shoots and branches; and clear off suckers from the roots.

RIBES, CURRANT TREE, and GOOSEBERRY BUSH.

Class and Order.

Pentandria Monogynia,
Five Males, One Female;

Or Plants with Hermaphrodite Flowers, having five Stamina, or Males, and one Pistillum, or Female.

THIS Genus, *Ribes*, by the laws of Botany, comprise the Currants as the original, and the *Grossularia* or Gooseberry as species of that family, consisting of several species of each; mostly valuable for their large production of berries, excellent both as culinary and table fruit; are all of the deciduous shrubby kind, of bushy growth, garnished with middling and small simple tri-lobated leaves, and very small pentapetalous greenish flowers, produced in small clusters along the sides of the branches; having in each flower a monophyllous or one-leaved, bellied, five-lobed calyx; a corolla of five small obtuse petals, attached to the border of the cup; including five short stamina, a roundish germen under the flower, supporting a bifid internal style, and the germens grow globular and oval, umbilicated berries, smaller and larger in different species, of one cell, full of a juicy pulp and many small seeds, by which the plants may be raised, but more generally propagated by cuttings and suckers.

They consist of several species, furnishing many varieties of the fruit.

1. Currant Kinds;

Having smooth or thornless Branches, largest Leaves, and the Flowers and Fruit in longest pendulous Clusters.

1. *RIBES rubrum*, Red-fruited, or Common Currant Tree.

A middling deciduous shrub, of bushy growth, four, five, or six feet high, or more—unarmed or thornless; the leaves (*middling*) tri-lobated or cut in three lobes; and smooth pendulous clusters of plane flowers, succeeded by bunches of small berries.—Native of England

England and other parts of Europe, in woods and hedges. (*Any soil and situation.*)

berries.—Native of England, and most parts of Europe. (*Any soil and situation.*)

Varieties of the Fruit.—Common small Red Currant; June, July, August, &c.

Large Red Dutch Currant; June, July, August, &c.

Long-bunched Red Currant; June, July, August, &c.

Pale-red, or Champaign Currant; June, July, August, &c.

White Currant; June, July, August, &c.

Large Dutch White Currant; June, July, August, &c.

The above different varieties ripen in June, July, and August, continuing to September or October.

Varieties of the Tree.—Yellow-bloached-leaved Currant Tree.

Silver-striped-leaved Currant Tree.

Gold-striped-leaved Currant Tree.

2. *RIBES nigrum*, Black Currant Tree.

A middling or largish deciduous shrub, growing five or six feet high, or more, of bushy growth, with strong brown shoots—unarmed or thornless; the leaves (*larger*) tri-lobated; and hairy clusters of oblong flowers, succeeded by bunches of larger black berries, of a strong flavour; and the whole plant of a strong rank scent.—Native of Sweden, Switzerland, &c. (*Any soil and situation.*)

Variety.—Pennsylvanian Black Currant Tree, with smaller shoots, leaves, and fruit; not so rank-scented.

3. *RIBES alpinum*, Alpine erect-flowered Currant Tree, or Sweet Alpine Currant.

A small deciduous shrub—unarmed or thornless; the leaves lobated; and erect flower-clusters, with the bractea longer than the flower, and small sweet-fruit.—Native of Sweden, Helvetia, and England, in hedges. (*Any soil.*)

GOOSEBERRY TRIBE;

Having prickly Branches, smaller Leaves; and the Flowers and Fruit in smaller Clusters, sitting closer, and the Fruit larger, round, and oval.

4. *RIBES Grossularia*—(*Grossularia*) Grossar or Common Gooseberry.

A deciduous bushy shrub, four or five feet high—the branches prickly; the leaves (*smaller*) tri-lobated, with petioles or foot-stalks ciliated hairy, and large hairy

5. *RIBES (Grossularia) reclinatum*, Reclining-branched Gooseberry.

A deciduous bushy shrub, four or five feet high—branches somewhat prickly and reclining; the leaves (*broader*) tri-lobated; peduncles or flower-stalks three-leaved, and large fruit.—Native of Germany, Switzerland, &c. (*Any common soil.*)

6. *RIBES (Grossularia) oxyacanthoides*, Hawthorn-like, most prickly Gooseberry Tree.

A larger deciduous shrub, five or six feet high—branches prickly on all sides; leaves (*larger*) tri-lobated.—Native of Canada, Hudson's Bay, &c. (*Any soil.*)

7. *RIBES (Grossularia) Uva crispa*—(*Uva crispa*) or smooth-fruited Gooseberry Bush.

A deciduous bushy shrub, four or five feet high—branches erect, prickly; the leaves (*small*) tri-lobated; smooth berries, with the pedicles one-leaved.—Native of the northern parts of Europe. (*Any soil.*)

8. *RIBES (Grossularia) cynosbati*—Prickly-fruited Gooseberry.

A deciduous shrub, three or four feet high—the branches prickly, mostly at the axillas or angles; leaves (*small*) tri-lobated; berries prickly, growing in clusters.—Native of Canada. (*Any soil.*)

Of the cultivated Gooseberry Trees, are numerous varieties of the fruit, of round and oval berries, smaller and larger; consisting of reds, greens, yellows, and whites, and of smooth and hairy kinds. viz.

Reds.

Small Early-Red Gooseberry; June.

Early Black-Red Gooseberry; June.

Hairy-Red Gooseberry; June and July.

Smooth-Red Gooseberry; June and July.

Deep-Red Gooseberry; June and July.

Large Black-Red Gooseberry; June and July.

Damson Black-Red Gooseberry; June and July.

Red Rasperry Gooseberry; June and July.

Mogul, or Large Tawney Gooseberry; June and July.

Warrington

Warrington Large-Red Gooseberry; *June and July.*
 Red Globe Gooseberry; *June and July.*
 Long-Red Gooseberry; *June and July.*
 Red-Oval Gooseberry; *June and July.*
 Rough-Red Gooseberry; *June and July.*
 Smooth-Scarlet Gooseberry; *June and July.*

Greens.

Early-Green Gooseberry; *June.*
 Hairy-Green Gooseberry; *June.*
 Smooth-Green Gooseberry; *June and July.*
 Green Gascoign Gooseberry; *June and July.*
 Green Walnut Gooseberry; *June and July.*
 Green-Gage Gooseberry; *June and July.*
 Green Globe Gooseberry; *June and July.*
 Green Dorington Gooseberry; *June and July.*

Yellows.

Early-Yellow Gooseberry; *June.*
 Yellow Globe Gooseberry; *June and July.*
 Great Oval-Yellow Gooseberry; *June and July.*
 Long-Yellow Gooseberry; *June and July.*
 Great Amber-Yellow Gooseberry; *June and July.*
 Golden Gooseberry; *June and July.*
 Hairy-Amber Gooseberry; *June and July.*

Whites.

Common White Gooseberry; *June, July, and August.*
 Large Globe-White Gooseberry; *June, July, and August.*
 Large Oval-White Gooseberry; *June, July, and August.*
 Great White Crystal Gooseberry; *June, July, and August.*
 White-Veined Crystal Gooseberry; *June, July, and August.*
 White Alabaster Gooseberry; *June, July, and August.*
 White Walnut Gooseberry; *June, July, and August.*
 White Mogul Gooseberry; *June, July, and August.*

Other varieties of different colours, as above, known by the following names—

Rumbullion Gooseberry; *June, July, and August.*

Great Ironmonger Gooseberry; *June, July, and August.*
 Smooth Ironmonger Gooseberry; *June, July, and August.*
 Hunt's Gooseberry; *June, July, and August.*
 Hairy-Globe Gooseberry; *June, July, and August.*
 Lancashire Gooseberry—(many sorts) *June, July, and August.*
 Large Champaign Gooseberry; *June, July, and August.*

In the different varieties of Gooseberries the early sorts ripen in June and beginning of July; the others from the end of June and beginning of July to the end of August.

The above being the general principal varieties of Gooseberries, there are many others of the same colours, shapes, &c. which of late years have been raised from seed in Lancashire, and other parts, differing only principally in regard to size, and darker and lighter colours, &c. and are encreasing annually, and denominated either by the names of the persons or places where raised, or various fancy names.

The different varieties of Currants and Gooseberries ripen their fruit in June, July, and August; and if, when ripening, some are defended with nets, or garden-matts, from the birds, and shaded from the sun, they will continue longer in perfection; or Currants planted in different situations, and some against walls of different aspects, will be obtained early and late, in succession, for two or three months; or, if protected from birds, and shaded from the sun, as above, they may be continued in good maturity till October or November.

The plants of all the species and varieties of the Currant and Gooseberry, are hardy shrubs, of bushy growth, generally branchy from the bottom, and mostly very productive of suckers advancing from the roots, but which should be cleared away, kept to clean short stems below, and regular bushy heads above; produce their fruit both on the young shoots, and on the older wood upon small natural spurs and snags along the sides of the branches; and the same branches and spurs continue several years in good fruitfulness; and according as they become very old or worn-out, they being pruned out, retaining young wood to supply the place, the bushes may be continued long in plentiful bearing, and the fruit large; keeping the branches moderately-thin and regular, and not too greatly shortened or cut down in a stumpy manner, or only just to prune long rambling shoots, to preserve the head regular, as hereafter more fully explained.

They

They are trained principally in standard-bushes, for the general plantation, with a short stem, six, to twelve or fifteen inches, to shoot out branchy above, in bushy heads, and planted in rows in the open quarters of a kitchen-garden, or where required; and some trained in a spreading growth, against walls, palings, and espaliers, more especially Currants, to produce early, larger, and late fruit; or likewise a few Gooseberries against walls, &c. both to furnish some early green fruit for tarts, and some for early ripening.

These bushes have general merit to cultivate plentifully in every garden, for the great usefulness of their abundant production of berries, proper for use several months in summer, in their young green growth and ripe state together; more especially the Red and White Currants, and the Gooseberries; but not so valuable in the Black Currants, which, on account of its peculiar strong flavour, is not in general esteem as a table fruit; it being more valuable to prepare in a medicinal way, particularly for sore throats or the quinsy, in which they are esteemed of great efficacy; and hence are often called Squinancy Berries.

But the Red and White Currants, and the Gooseberry, aforesaid, are valuable family fruit, excellent both when young and green, especially the Gooseberries, as some of the first useful green fruit for tarts, pies, fauces, &c. in April, May, and June; also in their full-grown and green state, for bottling, to keep for autumn and winter; and when ripe in June, July, and August, are most agreeable and wholesome eating fruit; and the Currants likewise, of the Red and White kinds particularly, are sometimes used occasionally, while green, for tarts, &c. but in their mature ripe growth, are fine and refreshing to eat raw; and the Red kinds, in their ripe state, are also exceedingly useful for tarts, pies, currant jelly, &c. and both Red and White sorts are esteemed for Currant wine; and for which occasions, are in perfection from June to September; or some may be continued, in good maturity, on the trees till October or November, if shaded from the sun in autumn, and defended from the birds.

So that in consideration of the great utility of these fruit, both of the Red and White Currants and Gooseberries, for the service of a family, and profitable to raise for market, great plenty of the bushes should be admitted in every garden, both of large and small extent; having the principal supply in standard-bushes, as before intimated, for the general production, planted in a row round the quarters of a kitchen-garden, six or eight feet asunder; or some in cross rows to divide large quarters of ground into breaks of twenty or thirty, to forty or fifty feet wide; likewise, in extensive grounds, are planted in continued close plantations, in rows, six, eight, or ten feet asunder, by six feet in each row, as commonly practised in many of the

large kitchen-grounds round London, to furnish considerable quantities of fruit for the markets of that metropolis: should likewise allot a portion for training against walls, particularly the Currants, to improve the size and flavour of the fruit; or also a few Gooseberries for early fruit; and likewise may train some in espaliers, both of Currants and Gooseberries.

The Black Currant should also be admitted in the collection, in a smaller portion, or as may be required, either principally in standard-bushes, or some against walls.

Young trees for planting, may be obtained, of all the sorts, at the public nurseries, of proper growth, of two or three feet, furnished with handsome full heads for immediate bearing, plentifully the first year, if planted in the proper season, either in autumn about October or November, or any time in winter in open weather, or in the spring in February or March, before they begin to bud or shoot considerably; or all the sorts may be raised expeditiously and plentiful by the following methods.

They are propagated or raised principally by cuttings of the young shoots; or may also be raised abundantly by suckers rising from the roots; or also by layers of the branches; or by seeds, to obtain new varieties, especially the Gooseberries, which run into different varieties very abundantly, but not in the Currants: however, the principal propagation of both Currants and Gooseberries is generally effected by cuttings and suckers, in the autumn or spring. The cutting, must be young shoots of the last summer; chuse those of middling-strong growth, cut off about ten or twelve, to fifteen or eighteen inches long; prune the weak, bending tops, if any, and plant them by dibble in rows, a foot asunder, inserted about one third or half into the ground; they will emit roots freely below, and shoots at top; and by suckers from the roots, these are proper when of one or two years growth; dig them up any time in open weather, from October to March, with roots to each; cut away side-shoots, and prune weak, long, or crooked tops; or any suckers with full heads may have them continued, or only cut off irregular shoots, thereof; and thus plant them, either in a nursery for training, especially the smaller; or strong suckers may be planted at once where they are intended to remain.

Observe, generally in planting the cuttings and suckers, or particularly the latter, that in those designed for upright standard-bushes particularly, should not cut them very short, but retain some of proper length, to form a stem above ground of six, eight, or ten inches, or more, according to their strength, to branch out at some distance from the ground, to form the head.

Or, in the propagation by suckers, that where any trees have been permitted to run up in suckers from the bottom, in several stems, two, three, or several years growth, advancing quite from the root, and sometimes furnished with branchy heads above; the trees may either be wholly digged up, and divided into as many separate plants as they admit, with roots to each, or only the encreased stems detached from the parent trees, as they stand; and may all be planted at once where they are to continue; and which, being sometimes of advanced branchy growth, forming at once handsome plants, will commence immediate bearers.

But the propagation by suckers, is by some rejected, as supposing the trees raised by that method are apt to run more to suckers, and not form bearers so soon, nor plentiful, as trees from cuttings, though I never observed any very material difference, for raised in any method, all the tribe of Currants and Gooseberries are much disposed to produce many suckers from the roots.

Layers, either of the young wood or bearing branches, in autumn, winter, or spring, will most readily root, to transplant in autumn following, though this method is seldom practised.

To raise new varieties of Gooseberries from seed, this is obtained from the ripe fruits in autumn; sow it either the same season or the spring, in a border or bed of light earth; and when the plants are come up about one year's growth, transplant them in a nursery to advance to a proper size for bearing, when, if any produce fruit of superior property in size, &c. they may be marked for culture, to propagate from by cuttings, suckers, &c. as in the common method.

In the advancing growth of the young trees in general, raised from cuttings, suckers, &c. those designed for standard-bushes, should commonly be trained with a single stem below, of six or eight, to twelve or fifteen inches, by cutting off all collateral under-shoots from the main one, and then permitted to branch out freely above in full heads, cutting out irregular, cross-placed, and superfluous shoots, leaving the others at equal moderate distances; or if these first shoots are not sufficient in number to form the head in the beginning, they may be pruned down low to promote their shooting out full and stocky; but after which, do not shorten the general retained shoots before they advance of some tolerable growth in height, except very long rambling or straggling shoots, which may prune, more or less, equal to the extent of the general branches.

Those intended for walls and espaliers may generally be trained with short stems, of only half a foot, or less, to branch out from or near the bottom, in a spreading expansion, cutting off the projecting shoots, and have the others range in a line to the right and left.

The standard-bushes, trained as before advised, with a single stem, six or eight, to ten or twelve inches, or more, is necessary, that they may branch out above at some distance from the ground, in which they will both appear of handfomer growth, and not incommode any under-crops, as when they branch out immediately from the bottom, and which also renders it troublesome to dig or perform other necessary culture to the ground or crops thereon, near the bushes, as well as more detrimental to the said crops.

When the trees, raised and trained as above, are of two or three feet growth in height, they are proper for final planting, which may be performed any time from October to March, in open weather.

Plant the standard-bushes principally in the kitchen-garden, or round any main quarters or divisions, or in the surrounding borders thereof, in a single row, six or eight asunder feet; or some also planted in cross-rows to divide the large quarters of ground into breaks, as before observed; which will both appear regular, afford some shelter to the ground in winter, and encrease the quantity of fruit; or some may likewise be planted in continued close plantations, where large quantities of the fruit are required, planted in rows eight or ten feet asunder, by five or six feet in the rows, as formerly intimated.

And in all the above different orders of planting the standard-bushes, generally keep them still trained in a single stem below, by clearing away all root-suckers and lateral shoots from the stem; and let them branch above in full heads, but keep the heads regular by requisite pruning, to cut out any disorderly cross-placed growths, and thin others where superfluous or crowded, whereby to have the general principal branches five or six inches asunder; forming the head either concave or hollowed in the middle, by cutting out the central branches, to admit the sun and air more effectually to the fruit; or permitted to run up branchy in the middle, the branches kept thin, as above: and, in either method, they may be permitted to advance in full growth, in large heads; or only shorten any ramblers; or if required to keep the heads down, or within smaller compass, they may be shortened more in proportion, but by no means cut the shoots down stumpy, or shorten them considerably, which would occasion their running into numerous useless shoots in summer, in a disorderly thicket.

But as these bushes generally send out many unnecessary shoots annually, from the sides and ends of the mother branches or main bearers, they will require some pruning every year, to retrench the superfluous growths; performing the principal pruning in winter, or any time from October to March, in which, cut out all the unnecessary and improper lateral shoots close to the main branches, whence they originate; retaining good

good shoots in any vacant parts, and preserving a terminating or leading young shoot to each branch, either naturally placed at the termination thereof, or where any branches and terminating shoots advance considerably too long, the branches may be occasionally pruned down, more or less, to some convenient lateral shoot, situated lower on the branch, to remain for a leader, leaving but one to each branch; the retained shoots but moderately shortened, or not at all, in the Gooseberries particularly, except where any extend too long, or is of a crooked or inclining growth, and which may be shortened discretely.

At the same time, in this pruning, if any old branches assume a bad habit of growth, worn-out state, or are become of a barren nature, or any growing in an irregular manner, prune them out either to their origin, or cut down to some eligible lower-shoot or young branch; or retaining young wood to supply the place of the unserviceable old; where it may seem requisite; or also where the general branches of any tree are too much crowded, prune out some of the worst in a thinning manner, leaving the others at proper distances, in somewhat regular order.

Being also careful, in this pruning, to retain good shoots occasionally below, or where requisite, in casual vacant parts, mostly at their full length, especially those below, till advanced to a proper growth in height or length, consistent with the extent of the general branches; and each main branch terminating generally in a young moderate shoot for a leader, agreeable to the intimations before mentioned; and which, and the retained shoots in general, may either, in some, be shortened moderately, or principally only any extreme shoots that are of longest extension, or the others of less or moderate extent, continuing within regular bounds, may either be generally left entire, or some longest extreme shoots shortened a little, retaining the others at their full length; or in the Gooseberries particularly, I would advise to shorten but very sparingly, or not at all, except only to reduce any rambling extreme shoots that extend beyond the general expansion of the others, or that straggle in any disorderly direction, and such as recline stragglingly downwards, &c. as too severe shortening in these bushes, both of the Currants and Gooseberries, forces out numerous lateral shoots the following summer, filling the trees with a thicket of useless wood, excludes the benefit of the sun and free air, and the consequence is, they produce small ill-nourished fruit, not ripening with a full flavour.

But the general branches being continued moderately thin and somewhat regular, and the shoots not stumped or cut very short, to occasion a thicket of summer wood, but remain open to the action of the sun, air, &c. the fruit will be large and ripen in superior maturity.

Observe, in pruning, that as these shrubs produce

their fruit both on the year-old wood, and branches of several years growth, upon small spurs and snags rising along the sides of the branches, the same branches must be preserved as long as they continue fruitful; or in old trees, where any of the fruit-spurs or bearing snags become of a decayed, worn-out, or cankerous state, cut them off close, new ones will sometimes rise in or near the same places, especially the Currants.

Sometimes Currant and Gooseberry Bushes are trained in fanned dwarf-standards, with the branches ranging only two ways, in a line to the right and left, both that they may take up less room, and to admit the full power of the sun and air to both sides, and the branches being fewer than in the common bushy standards, the fruit will generally be superior; they are trained with short stems branching out near the bottom, cutting off those projecting in front and behind, and make the side-branches extend the way of the row; and they will produce abundance of large fine fruit in a very agreeable manner.

Likewise for the walls should have a good portion of the red and white currants, trained with short stems, to branch out low, and the branches extended in a fanned expansion; planting some against south walls or palings, to produce fruit in succession; and some on north walls to ripen fruit late in the season; and by having them on walls of different aspects will obtain ripe fruit from the beginning or middle of June till September, or of those on north walls, or others defended with nets or mats from the birds and shaded from the sun, when ripening, will continue good on the trees till October or November; they should be planted eight or ten to twelve feet distance, and the branches arranged horizontally, and nailed to the wall four, five, or six inches asunder, extended at their full length, to the extent of the allotted space of walling for each tree; and will require pruning every summer and winter, to keep them in proper regularity, and to have them bear plentifully in superior perfection.

Some may also be trained in espaliers in the same manner as those against walls, and will produce large, fine fruit.

In the culture of those against walls and espaliers train the branches horizontally, or upright, according as the space of walling admits, and generally extend the branches at their whole length, as far as the limited bounds of the wall and espalier allows; and as the branches will send out many superfluous and useless shoots in summer, they must be pruned in that season, in June, July, &c. cutting off the fore-right shoots, and such as appear unnecessary or not wanted for training, retaining only some good, side, lateral shoots, in the most vacant spaces, where further supplies of branches are necessary; and nail them in close, at their

full length, till winter-pruning; when, any time from October to March, examine the general branches, retaining all those of former training that are good, and if more are still wanted to complete the expansion, leave some proper shoots of last summer; or if any old branches appear of a bad growth or decayed, cut them out, leaving young shoots to supply their place; and all shoots which were trained in last summer, not now wanted for the above occasions, or not required in any vacant part, prune off close, generally retaining a leading shoot to each mother branch, and extended in length as far as their extreme bounds, and only shortened when they exceed their allotted limits at sides or top; and having finished the pruning, nail each tree accordingly in regular order to the wall, &c.

Some best Gooseberries are also proper to plant against south walls to obtain early fruit, both to gather green for tarts, and for ripening in early perfection of improved size and flavour: the trees trained and managed as advised for the Currants in the same order of training.

Observe in the general culture of Currants and Gooseberries, in the foregoing different orders of training, it is advisable to keep the trees constantly cleared from all root suckers, which commonly rise every year, eradicating them clean out to the bottom.

In the Red and White Currants, when ripe, in July, August, &c. some trees may be defended with nets or mats from the birds; or those in sunny situations, covered with mats from the full sun, during the hot, dry weather; and the fruit may thus be preserved in good perfection, on the trees, till September, October, and November.

Currants and Gooseberries may be forwarded to early fruiting, by introducing some of the trees in forcing houses; having full bearing plants, either planted in the borders within, in autumn, or some growing in pots, introduced in that season, or in due time for forcing, in January or beginning or middle of February.

ROBINIA, FALSE ACACIA.

Class and Order.

Diadelphia. Decandria,
Two Brotherhoods, Ten Males;

Or Plants with Papilionaceous Flowers, (Herm.) having two Sets of Stamina, or ten Stamina, or Males, in two Sets, or Brotherhoods.

THE Robinias consist of several species of hardy, deciduous, ornamental tree and shrub kinds, for adorning the shrubbery and other decorative plantations; are of large, middling, and small growth; some thirty or

forty feet high, or more, others half or quarter that height, and some not exceeding three or four feet; garnished mostly with long, winged, or pinnated leaves, of many pairs of folioles; and some with quaternate or fourfold leaves, or placed four together; and papilionaceous or butterfly-shape white, red, and yellow flowers, in long, pendulous bunches, of ornamental appearance in June; having monophyllous, four-lobed calyxes or cups; a corolla of four unequal petals, consisting of a spreading vexillum or standard, two oval wings, and a roundish carina below; ten diadelphous stamina, an oblong, cylindric germen, supporting a bent style, and is succeeded by oblong, compressed pods, containing kidney-shape seeds, ripe in autumn; and by which the plants are raised; also by suckers, layers, and cuttings.

The hardy Species of ROBINIA are,

1. Robinia *Pseud-Acacia*—(Pseud-Acacia) False or Bastard-Acacia, or Locust Tree.

A large, deciduous tree, growing thirty or forty feet, or more, making strong shoots—the branches thorny; leaves (*large, light-green*) complete pinnated, of nine or ten pairs of oval lobes, terminated by an odd one; and long clusters of papilionaceous, white flowers, in June, one flower on each pedicle; and prickly stipula.—Native of Virginia. (*Light or any common soil.*)

Varieties.—Common False-Acacia, as above, with oblong compressed pods.
(*Pseud-Acacia echinata*) or Prickly, Short-podded, False Acacia.

(*Pseud-Acacia hispida; flora rosea*) hispid-stalked, or Rose Acacia.

A smaller tree, of shrub-like growth, ten to fifteen feet high—the branches and flower-stalks hispid, in small, bristly spines; large, pinnated leaves; and bunches of large, most-beautiful, deep, rose-coloured or scarlet flowers; in June or July.—Native of North America. (*Light or any common soil.*)

2. ROBINIA *Caragana*—(*Caragana fiberica*) Siberian Caragana.

A deciduous shrub, growing eight or ten feet high, or more—the leaves (*middling, dark-green*) abrupt-pinnated, of five or six pair of oblong lobes, not terminated by an odd one; and simple peduncles or flower-stalks, with yellow flowers, in May or June.—Native of Siberia and Tartary. (*Any soil.*)

3. ROBINIA *frutescens*—Shrubby, Four-leaved, Siberian Robinia.

A deciduous shrub, eight or ten feet high, with erect branches and golden-coloured bark—the leaves (*middling,*

(*middling, deeper-green*) quaternate, or placed by fours, on very short foot-stalks; and most simple peduncles, with yellow flowers, May or June.—Native of Siberia and Tartary. (*Any soil.*)

4. *ROBINIA pygmaea*—Dwarf, Four-leaved Shrubby Robinia.

A small, deciduous shrub, three or four feet high—the leaves (*smaller*) quaternate, or placed by fours, sitting close, narrow wedge shape; and most simple peduncles, or flower-stalks, with yellow flowers, May or June.—Native of Siberia. (*Any soil.*)

These four species of Robinia are desirable furniture to assist in decorating shrubberies and other plantations in pleasure-grounds, as ornamental flowering-trees and shrubs: they appear conspicuously beautiful in summer in their elegant long, pinnated, and singular quaternate leaves, in the different species; and produce their flowers in May and June very agreeably; which in the Rose Acacia in particular, is of superior beauty in their scarlet or rose colour, and for which the shrubs merit a place in the principal shrubby clumps or spacious borders, especially as they generally begin flowering when but of small young growth, very ornamentally; however, all the others also deserve admittance, and will effect a pleasing variety, in assemblage with other decorative trees and shrubs, disposed in a diversified order.

All the sorts are cultivated for sale in the nurseries, and may be obtained of proper growth for planting in autumn or spring.

They are propagated by seed, suckers, layers, and cuttings; or some varieties occasionally by grafting.

The seeds may be sowed in the spring, any time in March or beginning of April, in a bed or borders of light earth, the plants will mostly come up the same spring: keep them clean from weeds till the autumn or spring following, then transplanted in the nursery in rows, to encrease in growth, two or three years, and then will be of proper sizes for final transplanting into the shrubbery or where they are to remain in the intended plantations.

By suckers, layers and cuttings, the Common False Acacia, and some others, send up suckers from the roots occasionally, which may be taken up in autumn or spring with roots to each, and planted as above; and layers and cuttings of young shoots, in the spring or autumn, will be rooted by autumn following, or of the Common False Acacias, cuttings of roots in the spring are sometimes planted in pots, plunged in an open hot-bed, will put out shoots above and form plants.

Or any particular variety, such as the Rose Acacia, &c. may be propagated by grafting it in the spring upon stocks of any of the other kinds.

When the plants, raised by the different methods, are two or three to four or five feet growth, according to that of the different species, they are of proper sizes for the several plantations in which they may be intended; may be transplanted in the autumn or spring or any time in mild weather, from October to March or April; and in performing which dispose them according to their respective sizes they attain in full growth; the larger kinds place towards the back part, those of lower growth plant more or less forward; and being thus finally planted, let them advance in full growth, or only prune casual, strolling, disorderly shoots, to preserve the heads a little regular.

ROSA, ROSE TREE.

Class and Order:

Icosandria, Polygynia,
Twenty or more Males, Many Females;

Or Plants with Hermaphrodite Flowers, having twenty, or more, Stamina, or Males, and numerous Pistillums, or Females.

THIS Genus comprizes many species, and numerous varieties, of the Rose tribe, forming a grand collection of those most eminent ornamental flowering-shrubs, mostly of the deciduous kind, and one evergreen; all of great merit for adorning the pleasure-ground in shrubberies, flower-borders, &c. in their most beautiful, large, odoriferous flowers, several months in summer; are generally of bushy growth, two or three to six or eight feet high; mostly armed, more or less, with thorny prickles, and garnished with middling and small, pinnated or winged leaves, of two or three pair of oblong-oval folioles, terminated by an odd lobe; and many large, delightful flowers, of five petals, in the common single kinds, but numerous in the doubles; consisting of reds, whites, yellows, &c. in vast variety; having to each flower a monophyllous or one-leaved bellied, fleshy, calyx, divided into five long narrow segments above, but globular and fleshy at the base and permanent; a corolla, of five overbeart-shaped petals, increasing numerously in the double varieties, in many series, one within another to the centre; twenty or more hair-like stamina, and many small germina in the bottom of the calyx, supporting numerous styles; the continuing fleshy base of the calyx becomes a turbinated-oval fleshy, unilocular red berry, filled with many oblong, hairy seeds, ripe in autumn, and by which the plants may be raised, for new varieties; but most of the sorts propagate abundantly by suckers rising plentifully from the roots every year

year; and some curious sorts, not very productive of suckers, are propagated by layers, budding, &c.

Many species, mostly furnishing varieties, more or less.

1. *ROSA canina*—Canine or Dog-Rose; or Wild Rose of the Hedges.

A deciduous shrub, six or eight feet growth—the stems armed with thorny prickles; leaves (*middling*) pinnated, with prickly foot-stalks; and ovate germina, and smooth peduncles or flower-stalks; and small single flower.—Native of England and most parts of Europe, in hedges, &c. (*Any soil.*)

Varieties.—White-flowered Dog Rose.
Red-flowered Dog Rose.

2. *ROSA arvensis*, Field or Corn Rose.

A deciduous shrub, five or six feet—the stem and leaf petioles prickly; pinnated leaves, globose germina, smooth peduncles, with small flowers in a corymbus.—Native of England, &c. (*Any soil.*)

Varieties.—White Field Rose.
Red Field Rose.

3. *ROSA alba*—White Rose Tree.

A deciduous shrub, of strong, branchy growth, six or seven feet high—prickly stems and petioles; leaves (*middling, light-green*) pinnated; and ovate smooth germina; hispid peduncles, with a large white flower; June and July.—Native of Europe. (*Any soil.*)

Varieties.—Double White Rose.
Large double White Rose.
Semi-double White Rose.
Dwarf single White Rose.
Maidens-blush White Rose.

4. *ROSA gallica*—Gallican, or Common Red Rose.

A various deciduous shrub, three or four to five or six feet high, or more, in the different varieties—the stems, and petioles or leaf foot-stalks, hispid-prickly; leaves (*largish and middling*) pinnated, of three to five oval lobes; and oval, hispid germina, and hispid peduncles, with large, red flowers.—Native of the south of Europe. (*Any common soil.*)

Varieties.—Supposed to consist of the following—
Common deep Red Rose.

Double-flowered Red Rose.
Semi-double Red Rose,
Rosa Mundi, or striped Red Rose.
York and Lancaster, or variegated Red Rose.
Belgic Red Rose.
Blush Belgic Red Rose.
Red Monthly Rose.
Striped Monthly Rose.
White Monthly Rose.
Red Damask Rose (*pale red.*)
White Damask Rose.
Velvet Red Rose.
Marbled Red Rose.
Double Virgin Rose.
Red and Yellow Austrian Rose; *red or copper colour, on the outside, yellow within.*
Yellow Rose (Common single.)
Double Yellow Rose.
Frankfort Rose—of large, strong growth; with red flowers, but often irregular, and not so odorous as most of the others.

5. *ROSA centifolia*—Hundred-leaved Rose.

A various deciduous shrub, three to four or five feet high—the stems hispid-prickly; smooth petioles or leaf-stalks; the leaves (*middling, dark-green*) pinnated of three or five ovate lobes; oval hispid germina, and hispid peduncles, with large, very double red flowers.—Native of Europe. (*Any common soil.*)

Varieties—supposed the following—

Dutch Hundred-leaved Rose—(*deep red.*)
Blush Hundred-leaved Rose.
Provence Rose—very large, deep red.
Cabbage Provence Rose—large, full double; the petals involving one another like a cabbage.
Pale Provence Rose.
Childing Provence Rose; smaller Roses, growing from the side of the larger.
Blush Provence Rose.
Moss Provence Rose—most curious in the peduncles or flower-stalks and calyx; being covered with a shaggy-like kind of moss; the stems brown and very closely armed with spines.
Singleton's Blush Hundred-leaved Rose.
Pompone Rose; delicately beautiful.

6. *ROSA cinnamomea*—Cinnamon Rose.

A deciduous shrub, three or four feet high—the stems

stems having spines only principally at the joints and stipula, under the leaves; the leaves (*middling*) pinnated, of five or seven folioles, petioles almost smooth; globose, smooth germina, and smooth peduncles with small, double, reddish flowers, imparting an odour like Cinnamon.—Native of the south of Europe. (*Any common soil.*)

7. *ROSA carolina*—Carolina Rose Tree.

A larger deciduous shrub, five to six or seven feet high—the stems smooth, purple, prickles, in pairs, at the stipula of the leaves; the leaves (*middling*) pinnated, of seven oval folioles, smooth shining, sawed, the petioles prickly; globose, hispid germina, and peduncles somewhat hispid; with small, livid-red flowers, mostly in clusters.—Native of Carolina. (*Any common soil.*)

Varieties.—Common Single-flowered Carolina Rose.

Pennsylvania Rose; Double-flowered; very beautiful.

Pale-red-flowered Pennsylvania Rose.

8. *ROSA villosa*—Villose-leaved, or Apple-bearing Rose.

A larger deciduous shrub, seven or eight feet high, with strong stems—the stems armed with scattered spines; leaves pinnated (*large, woolly*) of five or seven folioles, downy on both sides, petioles prickly; globose, prickly germina, peduncles hispid, and large red flowers, succeeded by large, roundish, apple-shaped, eatable hips; sometimes used for sweetmeats, &c.—Native of England, in hedges. (*Any soil.*)

Varieties.—Common single-flowered Apple Rose.
Double-flowered Apple Rose.
Semi-double-flowered Apple Rose.

9. *ROSA pimpinellifolia*—Pimpinella-leaved, or Burnet-leaved Rose.

A small deciduous shrub, three or four feet high—the stems slender, closely armed with short scattered spines; leaves (*small*) pinnated, of seven small, roundish folioles, petioles rough; globose, smooth germina, and smooth peduncles, with small, single flowers.—Native of England, &c. (*Any soil.*)

Varieties.—White-flowered Burnet-leaved Rose.
Red-flowered Burnet-leaved Rose.

10. *ROSA alpina*—Alpine Thornless Rose.

A small deciduous shrub, three or four feet high—the stems unarmed or without prickles; leaves (*mid-*

dling) pinnated smooth; ovate germina, and peduncles somewhat hispid, with deep-red single flowers. Native of the Helvetian Alps. (*Any soil.*)

11. *ROSA spinosissima*—Most-spinous, or Dwarf Scotch Rose.

A dwarf deciduous under-shrub, one, two, or three feet high—the stems very closely armed with spines; leaves (*most small*) pinnated, petioles very prickly; ovate smooth germina, and prickly peduncles with small white odorous flowers.—Native of Scotland and some other parts of Europe. (*Any soil.*)

Varieties.—Common White-flowered Scotch Rose.
Red-flowered Scotch Rose.
Yellow-flowered Scotch Rose.
Stripe-flowered Scotch Rose.
Marble-flowered Scotch Rose.

12. *ROSA pendula*—Pendulous-fruited Rose.

A deciduous shrub, four feet high—the stems hispid; leaves (*middling*) pinnated, of five or seven folioles; ovate smooth germina, peduncles hispid, red flowers, and long pendulous or hanging fruit.—Native of Europe. (*Any soil.*)

13. *ROSA rubiginosa*—Rubiginous, or Rusty-leaved Rose.

14. *ROSA sempervirens*—Ever-green Musk Rose.

A middling, ever-green, shrubby plant, of slender, somewhat inclining or trailing growth, five or six feet—the stems armed with spines; leaves (*middling shining-green*) pinnated of five or seven oval acute-pointed folioles, petioles prickly; ovate hispid germina, and hispid peduncles, with white musky flowers in clusters.—Native of Germany. (*Any soil.*)

Varieties.—Single-flowered Musk Rose.
Double-flowered Musk Rose.
Deciduous Musk Rose.

15. *ROSA eglanteria*—Eglantine Rose, or Sweet-Briar.

A deciduous shrub, six or seven feet high, of strong growth—the stems armed with strong, erect, scattered spines; leaves (*small*) pinnated, of five or seven small acute folioles, of a sweet odour, petioles rough; globose smooth germina, and smooth peduncles with small flowers.—Native of England, Switzerland, &c. (*Any soil.*)

Varieties.

Varieties.—Common single-flowered Sweet-briar.
 Double Red-flowered Sweet-briar.
 Semi-double-flowered Sweet-briar.
 Blush-red double Sweet-briar.
 Yellow-flowered double Sweet-briar.

16. *Rosa indica*—Indian, or Smooth China Rose.

A small deciduous shrub—the stems almost with thorns; leaves (*middling*) pinnated, of five folioles, the end one largest, petioles prickly; ovate smooth germina, and smooth peduncles.—Native of China. (*Any soil, warm situation.*)

Other varieties of different species, viz.

Burgundy Dwarf Rose.
 Thornless Rose.
 Rose de Meux—a delicate Blush-red Rose.
 Stepney Rose.
 Portland Rose.
 St. Francis's Rose.
 Double Velvet Rose.
 Blush Velvet Rose.

In the numerous different varieties of Roses, it is rather difficult, in many of them, to determine exactly to which species they belong, especially as many of them which are ranged under some of the respective species, as in the Gallican Rose, differ very considerably in the appearance of their general growth, and the sizes of the plants, as also in the appearance of their flowers in size and colour; they, however, agreeable to the specific distinction, are ranged as near as could be possibly judged, under their proper species.

They are all most desirable flowering-shrubs, eminent as general ornaments in every garden, in their numerous beautiful flowers, large, elegant, and odorous, and singularly ornamental in flower-borders, shrubberies, &c. and the plants most hardy to grow in any soil and situation; and peculiarly adapted to all gardens, both of large and small extent, and any exposure, as most of the sorts will grow freely any where without trouble, or require but little culture, flower abundantly every summer, and multiply exceedingly by suckers rising from the roots; and the suckers being planted off in autumn, will flower the first or second year, and continue increasing many years in a floriferous growth.

Most of the Roses growing in a bushy order, branching out low, often advancing with several stems from near the bottom, and many suckers from the root, they may either accordingly, on some occasions, be permitted to grow in their natural bushy manner, or all suckers rising immediately from the root cleared off, leaving only one, or more, principal stems to shoot out in a natural branchy growth; and some may also be

trained with only a single stem, and this pruned up below, from all lateral branches, to a clean straight growth, one, two, to three or four feet high; and to branch out above at these heights, and form bushy heads; or some may be trained spreading with several bottom stems, against walls, palings, or rails; and also to form Rose hedges along the front or back part of particular borders, or other compartments, to produce large quantities of flowers, where required.

Roses, in their mode of flowering, produce the flowers principally upon the young shoots of the same year, in May, June, July, &c. arising at the ends and sides of the shoots, often several together, in different stages of growth, full flowers, and buds advancing in succession.

The principal season of Roses flowering, is June, July, and August, in the different species and varieties; or some, as the monthly Roses, in a warm situation, or against a south wall, sometimes flower in May; and which, and some other sorts, as the Musk Roses, likewise flower late in the season, or till the end of summer and autumn; the last-mentioned sorts in particular, generally flower principally in the autumn, after most of the other kinds are done flowering.

Or when required to have some of any sorts of Roses flower late, to obtain a longer succession of flowers, it may be effected occasionally, either by transplanting some late in the spring, about April or beginning of May, well watered, and by checking their first growth, by the late transplanting, they will shoot later in the season, and flower in the latter-part of summer; or in others, not transplanted as above, but by pruning the tops of the young shoots of the same year, in May and beginning of June, it retards the first flowering, and they emitting fresh shoots the same season, will produce Roses late in summer and autumn.

Sweet-briar is esteemed for planting principally for the odorous scent of its leaves; and occasionally, in the different sorts, to effect variety, in assemblage with any of the Rose tribe.

Roses for planting, may be had in collections, or as required, at the common nurseries, in proper plants for immediate flowering the first year; and, in the greater part, may be propagated plentifully by suckers, rising from the roots annually in summer, to plant off the autumn, winter, or spring following; the larger ones planted at once where they are to remain; or the smaller plants, if wanted, set in a nursery for a year or two.

The season for planting Roses is any time in open weather, from October or November, to March or April.

All the different species and varieties of *Roses* may be planted any where as principal summer ornaments to every garden, proper to adorn borders, shrubberies, and other compartments, where thought eligible, in almost any soil, situation, and exposure, planted either in single stems, cutting or clearing away all lateral and bottom shoots and branches therefrom, and shorten long, straggling tops and rambling shoots; or others, growing branchy from the bottom, cutting out any very irregular growths, may be planted in that order, to grow at once more bushy, if required; and, in planting, dispose them generally in some front or conspicuous situations next the walks, lawns, &c. where they may appear ornamental when flowering.

In their advancing growth, either trained some with single stems, as above intimated, of one or two feet, or more, by clearing away all side-shoots and suckers from the roots, in which they will form the handsomest plants, with regular heads, and produce larger flowers; or others may be permitted to branch out from the bottom in a more full and bushy manner; and in all of which, as they will sometimes run out in rambling shoots, they should have occasional pruning, either sometimes in summer, in very rude shoots, or principally in autumn, winter, or spring, to regulate general disorderly growths, and to cut out decayed wood, also to eradicate suckers from the roots.

As some sorts have slender, straggling branches, as in the ever-green and Musk *Roses*, and some others, it is proper to give them support of stakes, to keep them in an upright growth; or some of these sorts trained to walls.

Likewise, *Roses* are sometimes planted and trained in low hedges, two or three feet high, both for ornament and to produce large quantities of flowers, to gather either for bouquets or æconomical occasions; and, for which purpose, having a quantity of suckers or full plants, they may be planted in a single row, either along the back or front of a border, a foot asunder; and when all are planted, cut the tops even to an equal height, of half a yard or two or three feet; and as they will annually shoot out strongly at sides and tops, they should be cut in regular with a knife or garden shears, either in autumn, when done flowering, or in winter or spring.

The *Eglanteria* or Sweet-briar, for its sweet scent, is also formed into small hedges occasionally, either by sowing the seed in a drill where the hedge is intended, and the plants to remain; or by planting young seedling plants from a nursery, when of one or two years old, as they do not succeed well when transplanted of large growth; the roots are apt to be woody and naked of fibres, that will not strike freely, like young plants.

Or *Roses* may also be planted against walls or paintings, and the branches nailed thereto in regular order, in which they will flower very agreeably; or some monthly roses, or any principal or more desirable sorts planted against south walls, it will promote their early flowering; and as some sorts are of straggling growth, as in the ever-green and Musk *Roses*, &c. it would be eligible to plant some against walls or rails, in which to train the branches regularly.

Some principal sorts may also be planted in pots, for moving therein, when in flower, to adorn any particular parts.

Also, where any are required for forcing, they should be planted in pots, ready to introduce in hot-houses or forcing-frames, &c. of artificial heat, in the proper season, winter or early in the spring; and in which they may be forwarded to an early bloom, in February, March, and April, two or three months before their natural season in the open ground.

The general propagation or method of increasing and raising most of the different kinds of *Roses*, is principally by suckers from the root, sent up very abundantly every summer, fit to plant off next autumn or winter, &c. or also occasionally by layers, or especially where any do not furnish suckers freely, such as in the *Moss Provence Rose*, which is generally sparing in suckers; and, in default thereof, this and any other curious sorts of similar nature are either raised by layers of the young branches, or by budding them upon any common *Rose* stocks.

However, the propagation by suckers obtain more or less in all the sorts; they being produced in spring and summer, may be separated or digged up, when of one or two years growth, in autumn, winter, or spring, with roots to each; prune long, straggling parts of the root, and shorten the weak tops; and may be planted, either some in a nursery for training to a proper growth, or strong ones may be planted at once where they are to continue for flowering.

As *Roses* often, in their natural state, run up with several suckers, which, permitted to remain, become so many stems in a large, bushy growth, in which case the whole plant may occasionally be taken up, and the increased parts divided into separate stems, with roots to each, and planted, each forming a distinct plant.

Layers, where intended, must be of the young shoots, laying them in the autumn or spring, and they will be rooted in one summer for planting in the autumn following.

Or may raise *Roses* from the seed to obtain new varieties; and may be sowed in the autumn or spring, in

a bed or border of light earth; and the seedling-plants, when a year old, transplanted in a nursery.

But the Sweet-briars are generally raised or propagated from seed in the common sort; or the different varieties of double kinds, &c. by suckers and layers, though the Briars are very reluctant in suckers: sow the seed in autumn or spring, either broad-cast and raked in, or covered in with earth half an inch to an inch deep, or sowed in drills that depth, both in drills a foot asunder, for occasional transplanting; and some may be sowed in a single drill, along the edge of a border in the fore or back part, or of any other compartment, to form a sort of hedge, if required, either to remain, or some transplanted while of young growth, for they will not transplant successfully when large.

Or the double and other varieties of the Sweet-briars, if they do not afford suckers for propagation, they may be raised by layers of the young wood in the spring or autumn, or budded, in summer, upon any of the Briar or Rose stocks.

RUBUS, BRAMBLE and RASPBERRY.

Class and Order.

Icosandria, Polygynia,
Twenty, or more, Males, Many Females;

Or Plants with Hermaphrodite Flowers, having twenty, or more, Stamina, or Male Frustrifications, and many Pistillums or Females.

THIS Genus, *Rubus*, furnishes six or seven species, and many varieties of under-shrubby, trailing, and upright, shrubby plants, cultivated for variety, ornament, and some for their production of fruit; all of slender growth, with trailing and upright stalks in the different species, garnished with pinnate and ternate, digitated leaves, composed of five and three lobes; and pentapetalous, white and purple flowers, in clusters, at the sides and ends of the shoots, in June and July, having, to each flower, a one-leaved, five-parted, permanent cup; five roundish petals, containing twenty, or more, short stamina, and numerous germina and styles; succeeded by clusters of compound, roundish, succulent berries, of many small acini, furnished each with one seed; the berries and seed ripening in autumn, in August and September, some for eating, others not; and the seeds are seldom used for sowing, as the plants propagate abundantly by cuttings, layers, and suckers.

Several Species, viz.

Consisting of trailing kinds, with long, trailing

stalks, of several years duration, and upright kinds, with the stems of but one year's continuance, but renewed annually every spring or summer from the root.

BRAMBLE KINDS.

Having mostly long, trailing, durable Stems.

1. RUBUS *fruticosus*—(Shrubby Rubus) Common Bramble or Black-berry Plant.

A trailing, deciduous, shrubby plant, with long, slender, trailing stems, extending ten or twelve feet—the stems armed with prickly spines; leaves quinate and ternate, hand-shape, (*middling, dark-green*) of five and three lobes; and white and purple flowers, succeeded by black-berries.—Native of England and all parts of Europe, in hedges.—(*Any soil and situation.*)

Varieties.—Common Black-fruited Bramble.
White-fruited Bramble.
Double-blossom Bramble.
Unarmed or smooth Bramble.
Cut-leaved Bramble.
Striped-leaved Bramble.

2. RUBUS *cæsius*, Blue-berried Bramble or Dew-berry.

A smaller, weak, trailing, deciduous, under-shrub, with trailing stalks, extending four or five feet—the stem round and prickly; leaves ternate, (*middling*) of three larger, almost naked, lobes; the lateral ones bilobated; and smaller, bluish-black fruit.—Native of England, &c. among bushes. (*Any soil.*)

3. RUBUS *hispidus*—Hispid Canada Bramble.

A trailing, deciduous, under-shrub—the stems long, trailing, hispid or bristly; leaves ternate, (*middling*) of three naked, smooth lobes, petioles hispid; and small berries.—Native of Canada. (*Any soil.*)

RASPBERRY KINDS.

Having the Stems upright, several rising from each root, some lasting but one year, and renewed every spring.

4. RUBUS *idaeus*—(Rubus of Mount Ida) or Common Raspberry Plant.

An upright, under-shrubby, deciduous plant, rising with several stems, four or five, to six or eight feet high—

high—the stems prickly; leaves quinate-pinnated and ternate, (*middling*, *light-green*) of five and three folioles; petioles or foot-stalks channelled; purple and white flowers, succeeded by clusters of fine, large, eatable berries; July, August, and September.—Native of England, &c. in woods. (*Any common, fertile soil.*)

Varieties.—Purple-flowered Raspberry.

White-flowered Raspberry.

Red-fruited Raspberry.

White-fruited Raspberry.

Twice-bearing White and Red Raspberry, producing two crops of fruit annually; the first in July and August, the second in September.

Black-fruited Raspberry.

Prickly-stalked Raspberry.

Smooth-stalked or Cane Raspberry, of stronger and taller growth.

Great, Yellow, Antwerp Raspberry, growing with very tall, strong, stems; and large, yellowish fruit.

This species, *Rubus idæus*, and different varieties, are the principal sorts of the *Rubus* family, to cultivate for their fruit; and for which, they demand culture in every garden, the berries being large and agreeable to eat both in their natural growth, and for tarts, Raspberry-jam, and for making the distilled liquor, called Raspberry, &c.

5. *RUBUS odoratus*—Odoriferous or Virginia Flowering Raspberry.

An upright, larger, deciduous, shrubby plant, with strong stems, five, to six or seven feet high—the stem unarmed or smooth, with numerous, simple leaves, (*large*, *light-green*) palmated or hand-shape; and many large, purple, ornamental flowers, and smaller, black fruit, of but little flavour.—Native of Virginia and Canada. (*Any common soil.*)

6. *RUBUS occidentalis*—Occidental or Western American Raspberry.

An upright, deciduous, shrubby plant—the stems prickly, with ternate leaves, (*middling*) of three, or sometimes five lobes, downy on the under side; petioles or foot-stalks round; and small, black fruit.—Native of America. (*Any soil.*)

7. *RUBUS canadensis*—Canada, smooth Raspberry.

An upright, deciduous, shrubby plant, with purple stems—the stems unarmed or smooth, digitated or fin-

gered leaves, (*middling*) of ten, five, and three small, spear-shape lobes.—Native of Canada. (*Any common soil.*)

All these species of *Rubus* are hardy, shrubby plants, that will grow in any common soil and situation; are cultivated in gardens, some, or all the sorts, for variety and ornament in shrubberies, borders, &c. and one sort, Common Raspberry, and its several varieties, is in the most general esteem and cultivation for their production of fine eatable fruit, being larger and more agreeably-flavoured than that of any of the other species; though the fruit of all the species of *Rubus*, both of the Bramble and Raspberry kinds, is also eatable, even the Common Wild Bramble, or Black-berries of the hedges; but all greatly inferior to the Common Raspberries, so that the other sorts are principally admitted for variety, to diversify shrubberies, &c. as also some varieties, or all the sorts of the Common Raspberry occasionally.

But the *RUBUS idæus*, or Common Raspberry, and most of its varieties, are the most valuable in culture for their abundant crops of excellent berries, both of the Red and White sorts; ripening in July and August; and the twice-bearing sort produces both in that season and a second small crop in September; and the great Yellow Antwerp Raspberry, introduced within these few years in the English gardens, grows much stronger and taller than any of the other varieties of the same species, and the fruit most large and fine, ripening about the same time as the others; all of which are hardy to grow in any common, fertile soil of a garden: should have an open situation in the full sun; are commonly planted in rows, four and a half or five feet asunder, for full plantations, and occasionally planted singly in borders, &c.

All the Raspberry kinds grow with upright stems; generally several from each root, rising annually in the spring or summer, produce fruit the following summer, and decay the ensuing winter, for the same individual stems never bear but once, and always die in the winter after, being previously succeeded by a production of fresh stems in the preceding summer, for successional bearers the ensuing year; as they always bear the fruit on the young or year-old shoots of the former summer's production, which, rising abundantly in suckers immediately from the continuing roots, in the spring, attain full growth the same year, bear fruit the summer following, principally upon small, lateral shoots of the same year, arising from the sides of the main stems; and the whole decaying down to the root in winter, as before observed, a proper succession of young stems being produced in summer, the old ones must be cut out to the bottom, in winter or spring, to make room for young supply,

leaving three, four, or five of the strongest upon each stool, cutting the others away close to the ground, together with the decayed stems aforesaid; and the remaining succession shoots pruned at top, or shortened about one-third or fourth of their length.

The other species of *Rubus* are valued principally to introduce as flowering-shrubs and for variety, in diversifying shrubby plantations or any decorative compartments in pleasure-grounds, flower-gardens, borders, &c. or, likewise, may introduce all or any desirable varieties of the Common Raspberry for the same occasion, in assemblage with the others, or any principal sorts thereof, such as the *Rubus odoratus*, or Odorous, Virginia Flowering-Raspberry, and the occidental kind, or any curious sorts of the Bramble tribe; though the Common Bramble is rarely admitted, or only sometimes a plant or two in thickets or any rough plantations, for observation; but the White-fruited, Double-flowered, and other varieties thereof, together with the other two Bramble species, are proper to admit in curious shrubby collections.

For the above occasions of planting in decorative compartments, shrubberies, spacious borders, &c. all or any desirable species and varieties of the *Rubus* family, being eligible, and if disposed in a varied order, they will display a very agreeable variety in their general growth, flowering and fruiting in summer and autumn.

But the Flowering Raspberry in particular, being very multifolious in its large, palmated, simple leaves, and producing numerous, large, conspicuous flowers, make a very ornamental appearance.

All the principal sorts may be procured at the general nurseries, for planting, which may be performed in the autumn or spring, or any time, when settled, open, weather, from October to March; and will multiply or encrease plentifully in their different or respective ways of propagation.

The propagation of the Brambles is effected abundantly by layers at any season of the year, and by cuttings in the spring or autumn.

But the Raspberries are propagated mostly by suckers, rising annually from the roots in many strong, upright stems, in the spring and summer, of proper growth for transplanting in autumn, &c. or spring following, with roots to each, and either generally planted at once where they are to remain, or some in a nursery, till wanted for future occasions; and will all flower and fruit the ensuing summer; or may likewise be propagated by layers and cuttings of the shoots

in the autumn or spring season; but suckers, forming immediate rooted plants, of proper growth, are most eligible for general planting.

The Common Raspberries, when cultivated for their fruit, should have an open situation to the full sun, in any good soil of a garden; are generally planted in kitchen gardens, but may be planted where thought convenient, either in full plantations, in continual, wide rows, a yard and a half, or five feet asunder, to admit of proper room for their full growth in summer, and free access of the sun and air between the rows, to promote the growth and flavour of the fruit in full perfection; or some may also be planted in a single row, along the back part or front of a border, or on the sides or along the edges of any large quarters, and in single, cross rows, in the divisions of the latter; or, likewise, may dispose some in single plants, or two or three together, in borders, &c. to grow in distinct, single branches.

Likewise, some may be occasionally planted against south and other walls, and in espaliers, and the stems trained thereto, whereby to obtain the fruit of superior growth and flavour.

In all the above methods have the ground prepared for their reception, by proper digging or trenching.

Provide for planting, as above, proper supplies of young suckers, of some good bearing plants, in autumn, or any time from September or October, to March or beginning of April, in open weather, digging them up with good roots to each plant; and, of which, prefer those of strong, straight growth, with the most fibrous roots, as the roots of some are apt to be woody and naked; and observing, that where sometimes small, advancing, buds appear on the roots, near or at a small distance from the stem, the plants are desirably eligible, as the buds are rudiments of future shoots for the following summer; prune any long, very fraggling, and naked, woody part of the roots, and shorten the weak, bending tops; and then, the ground where they are to be planted being dugged, plant those designed for a full plantation, in wide rows, four feet and a half, or five feet asunder, and two or three feet distance in each row; or, for the larger kinds, five or six feet, or more, between the rows, would be eligible, to allow sufficient room for their spreading growth in summer, and to admit the free air and sun, in that season, to the fruit, as also to have good room to pass between the rows, to gather the produce.

Others may be planted in single rows, in particular parts, as before intimated, or some disposed in patches, in borders, &c. singly, or two or three plants together,

ther, in a sort of clump, and some against walls, palings, rails, and espaliers.

They will mostly or all produce fruit the first year, but more abundantly and in full perfection the second summer, and continue several years in a plentiful, bearing state; though, as sometimes after four or five years production, the fruit will be smaller and less abundant, it would be adviseable to make a new plantation of young plants, once in three, four or five years.

The Raspberry fruit, attaining maturity in July and August, in the principal production, when ripe, it will not continue good on the plants above two or three days, and should be gathered accordingly, in small baskets, to contain only a small quantity together, that they may not bruise; and, likewise, after being gathered, they require to be almost immediately used for the purposes intended, as they soon spoil, or in a day or two become mouldy, and full of maggots, peculiar to this sort of fruit.

With regard to general culture of the plantations of fruiting Raspberries, they will require an annual dressing of pruning and digging the ground between, &c. every autumn, winter, or spring; generally keep them clear from large weeds all summer, by occasional hoeing, and, at the same time, clear out all strolling suckers arising in the spaces between the main plants, which permit to advance in full growth during the summer; and must have a general pruning, &c. in autumn, or any time from October or November, to March; and in which operation, it must be remembered, that as these plants always bear only on the young stems or suckers of a year old, and as the same stems or shoots never bear but once, they decaying in the winter following, young ones having been produced from the roots in the preceding summer, to succeed them in bearing, the old stems must therefore be cut away in autumn or winter, &c. aforesaid, close down to the ground, and, at the same time, selecting three or four of the strongest, young stems, of the last summer, on each stool, cut away the weak or superabundant clean to the bottom; and, in those retained, prune or shorten the tops, or only cutting off the weak, bending part thereof; and when thus pruned, clearing away the cuttings, &c. dig the ground between the rows, eradicating any straggling suckers that are produced between or at a distance from the main stools, stirring and levelling the ground close about the bottom of the continuing plants, and in the intervals.

After pruning, if, where the stems are long, they straggle much asunder, they may either be tied or plaited two or three together, to preserve them in upright growth, or occasionally those of the same or of different stools may be fastened archways together, above.

In old plantations of two or three years growth, or more, it would be of advantage to manure the ground with rotten dung, applied and digged in any time in winter, &c. after pruning the plants, as above; it will revive and give fresh vigour to the roots, promote a strong, free growth in the stems, and the fruit will be large and full-flavoured accordingly.

SAMBUCUS, ELDER TREE.

Class and Order.

Pentandria, Trigynia,
Five Males, Three Females;

Or Plants with Hermaphrodite Flowers, having five Stamina or Male Parts, and three Pistillums or Females.

THIS GENUS, *SAMBUCUS*, furnishes three hardy species of deciduous tree and shrub kinds, of the berry-bearing tribe, to cultivate for use and variety, and the berries for Elder Wine; are of moderate growth in regard to general size, producing strong shoots, full of a white pith, garnished with large, pinnated, or winged leaves, of two or three pair of oblong lobes, terminated by an odd or end foliole; and small, monopetalous, wheel-shape, white flowers, in large, cymose-umbellate bunches, having, to each plant, a small, five-parted, permanent calyx, a corolla of one small, rotated petal, cut into five obtuse segments, containing five awl-shape stamina, terminated by roundish anthera; an oval germen, crowned with three obtuse stigmas; and the germen grows a small, roundish, unilocular berry, many together in a bunch, each furnished with three seeds; ripe in autumn; and by which the trees may be raised; but are more generally propagated by cuttings.

The Species are—

I. *SAMBUCUS nigra*—Black-berried or Common Elder Tree.

A small, deciduous tree, eighteen or twenty feet high, with jointed, strong shoots, full of pith—the stem tree like; leaves (*largish, dark-green*) pinnated, of two pair of lobes and an odd one; and large, five-parted, cymose umbels of white flowers, succeeded by large, umbellate bunches of black-berries, valuable for making Elder Wine.—Native of England, Germany, &c. in hedges, banks, old walls. &c. (*Any soil and situation.*)

Varieties.—Common Black-berried Elder.

White-berried Elder.

Green-berried Elder.

(*Laciniata*) Lacinated or Jagged-leaved, called Parsley-leaved Elder—the leaves cut into narrow segments.

Gold-

Gold-striped-leaved Elder.
Silver-striped-leaved Elder.
Silver-dusted-leaved Elder.

2. *SAMBUCUS racemosa*—Racemose-flowering, or Red-berried Elder.

A smaller, deciduous tree, of shrub-like growth, ten to fifteen feet high—the stems arboreous; leaves (*smaller, dark-green*) pinnated, of two and one pair of lobes, terminated by an odd one; flowers in compound, oval clusters, succeeded by bunches of red berries.—Native of the southern parts of Europe. (*Any soil.*)

3. *SAMBUCUS canadensis*—Canada, under-shrubby Elder.

A deciduous, under-shrubby plant—the stem shrubby; leaves (*middle*) sub-bipinnated, or doubly-winged, and ternate; and cymose, five-parted umbellate bunches of flowers.—Native of Canada. (*Any soil.*)

Of these three species of *Sambucus*, the Common Elder is that the most generally known and cultivated; planted principally in out-parts, both in standards for their berries, and in hedges for outward fences, either to run up rough to afford plenty of berries for Elder Wine, or the hedge kept down low and close, by annual clipping, &c. though this, and its varieties, are also admitted in large ornamental tree plantations, to diversify the collection; as likewise the other two species are introduced for the same occasion; all of which, however, are admitted in such plantations more for variety than ornament; and as Elders in general, when in flower, impart a strong, disagreeable, unwholesome scent, they are not proper to plant near habitations, or much-frequented walks, &c.

They are all very hardy to grow in any soil and situation; and the Common Black Elder grows any where, in shady or open exposures, moist or dry places, sides of ditches, or tops of dry banks, and often grow out of crevices of old walls, from scattered seeds; and which, and all the other sorts, are raised plentifully by cuttings of the young shoots, thrust into the ground in autumn or spring, which will readily strike root below, and shoot above.

But in regard to the Common Elder, when designed to cultivate the trees, either in standards or hedges, the black-berried sort should be principally used, and is the proper sort to cultivate for its berries for Elder Wine; and which may be trained, both in detached single standards, in hedge-rows, or along the sides of ditches and banks, or in any bye or waste grounds, or planted for hedges for outward fences; and, if in which it is re-

quired for a production of berries, should be permitted to run up rough at sides and top: and in all of which, the trees will produce abundant annual crops of berries, ripening in August and September, and are then valuable to gather, with which to make that most excellent cordial called Elder Wine, being a very agreeable beverage in winter and cold weather, when made warm and properly sweetened.

Or Elder Trees may also be admitted in timber or forest-tree plantations, or places by themselves, to grow large for that purpose; as, when old, the wood is hard, and is sometimes substituted instead of box-wood, for some occasions.

The Common Elder is also employed occasionally, in forming fencible hedges expeditiously in outward boundaries, along the tops or sides of banks, or sides of ditches, &c. is effected by planting cuttings of the strong young shoots in the autumn or spring, planted in the place where the hedge is intended; either in short cuttings, half a yard or two feet length, thrust down or introduced into the earth half-way, a foot asunder; or, if larger strong sets of a yard or two long, insert them either into the top or side of a bank, slanting or upright, or on level ground, as may be required, planted the distance as above; or also strong cuttings of three, four, or five feet, may be planted slanting, the way of the row, across one another, chequer ways, to form an immediate fence; they will all readily strike root, and shoot strongly at top; observing, as these hedges will shoot vigorously, they should be kept regular by clipping them every year, that they may grow close and thick from the bottom upward, to render them effectual fences.

The propagation of Elders for general uses, is principally by cuttings of the strong shoots, as already intimated; and occasionally by the seed or berries; but as cuttings is considerably the most expeditious, that method of propagation should be generally practised; and they may be planted any time in open weather, from September to March.

Chuse always cuttings of the young shoots of last summer, one, two, or three feet, of straight, clean growth, or occasionally longer sets of four or five feet length, or more; all planted either in the places where they are to remain, or small ones in a nursery, to raise rooted plants of a year or two old, for particular occasions, inserting the cuttings in general, six or eight to ten or twelve inches, or more, according to their length: may either be planted with a dibble, or the ends sharpened and thrust into the ground; they will all root freely and shoot at top in strong growth in the spring and summer.

Likewise by seed or berries, these ripening in autumn,

turn, bruise them to separate the seeds, and may be sowed in any bed or border, raked or covered in with earth, half an inch deep; and when the plants are of three or four, to five or six inches growth, in the end of summer, or in autumn or spring, transplant them in a nursery to obtain strength.

VITIS, VINE, or GRAPE VINE.

Class and Order.

Pentandria Monogynia,
Five Males, One Female;

Or Plants with Herm. Flowers, having five Stamina, or Male Fructifications, and one Pistillum, or Female.

THE VITIS affords several hardy species, mostly of long, trailing, climbing, shrubby growth, some most valuable for their fruit, others for variety; but for the former, one species in particular, the Common Vine, furnishing many fine varieties, is of great estimation and value to rank in the collection of fruit-trees, for the production of their most excellent fruit the Grape; are all of the deciduous tribe, grow with very long flexible branches and shoots, requiring support of walls, &c. by which they ascend or extend to a considerable height or length; producing numerous long, trailing, jointed shoots, annually, extending many feet in one summer; garnished at the joints with large, simple, lobated leaves, divided into three or five lobes, and in some pinnated; attended by opposite climbing tendrils or clasps, and small clusters of minute, greenish, quinquepetalous flowers at the eyes of the same year's shoots; having to each flower a small quinque-dentate cup, five small deciduous petals, containing five short stamina, an oval germen, no style, only an obtuse stigma; and each germen grows a roundish and oval, unilocular, five-seeded berry; many together in oblong clustered bunches, black, white, red, &c. ripening in autumn, from July to October, rich and delicious; the seed seldom used for sowing, as the plants propagate plentifully by layers and cuttings.

The principal Species are—

I. VITIS *vinifera*—(Wine-bearing Vitis) or Common Vine, or Grape-Vine.

A trailing-climbing deciduous tree, extending twenty feet length, or more—the leaves (*large*) lobated, of three or five lobes, sinuated, naked; and flowers succeeded by large bunches of roundish and oval berries, or Grapes, black, white, red, &c. rich and delicious for eating and making wine.—Native of the four quarters of the world, in warm, temperate parts. (*Dry, rich, or any common fertile soil.*)

Varieties of the Fruit.

- Early Black July Grape—small, roundish, black berries, in close short bunches; *ripe sometimes in the end of July, or mostly in the beginning or middle of August.*
- Early Black Sweet-water Grape—small, roundish black berries, in close short bunches; sweet juice; *ripe the beginning or middle, to the end of August, &c.*
- Early White Sweet-water Grape—larger, round, whitish-green berries; often irregular in size, growing in oblongish bunches; sweet juice; *beginning and middle, to the end of August.*
- Black Muscadine Grape—middle-size, round, blackish berries in longish bunches; rich juice; *September.*
- White Muscadine Grape—middle-size, round, whitish berries, in long loose bunches; sweet and rich flavoured; *end of August and September.*
- Royal White Muscadine—larger round berries, whitish-amber-coloured, growing in large oblong bunches, dividing above into side-shoulders; most rich and excellent; *ripening in September.*
- Black Cluster Grape—small, roundish-oval, black berries, growing in very close, short, roundish bunches; juicy and rich; the tree remarkable in its hoary downy leaves; *fruit ripe in September.*
- Frankindal Grape—large, round whitish berries, in large oblong bunches; rich and somewhat musky-flowered; *ripe in September.*
- Red Chasselas Grape—largish round berries, growing in oblong bunches, of a dark-red colour; *middle of September.*
- White Chasselas Grape; *September and October.*
- Black Burgundy Grape—largish oval berries, black-red colour, growing in roundish-oblong bunches, more valuable for making wine than for the table; *ripe in September.*
- Black Corinth Grape—smaller, roundish, deep-black berries, in short bunches; sweet juice; *end of September and in October.*
- Black Frontignac Grape—largish, round, black berries, in shortish bunches; very rich sweet juice; *end of September and in October.*
- Grisy, or Red Frontignac Grape—large round berries, of a brick-red colour, in longer bunches; *September and October.*
- White Frontignac Grape—large, round, whitish

- whitish berries, in large close bunches; *September and October.*
- Black Hamburg Grape—middling, roundish-oval berries, in large oblong bunches; *October.*
- Red Hamburg Grape—roundish, tawney-berried, in large bunches; *October.*
- Alexandrian White Muscat Grape—large oval white berries in long bunches; most rich; ripens the most effectually by artificial heat, or under glasses; *October, or, by forcing, June, July, and August.*
- Red Alexandrian Muscat—large, oval, red berries, in long loose bunches; ripens, more fully, by artificial heat, or under glasses, &c.—*October, or, by forcing, June, July, and August.*
- Violet Muscat Grape—large berries, in long bunches; *October, or earlier, by forcing, or under glasses.*
- St. Peter's Grape—largest oval berries, of a deep-black colour, in remarkably large long bunches; ripens, more effectually, under glasses, &c.—*October, or, by forcing, June, July, or August, &c.*
- Red Raisin Grape—large blackish-red berries, in large long bunches; ripening in best perfection, by artificial heat, &c.—*October, or, by forcing, July, August, September, &c.*
- White Raisin Grape—large white berries, in large loose bunches; *September or October, or, by forcing, July and August.*
- Syrian Grape—large roundish-oval white berries, in exceeding large bunches; ripening, by artificial heat, under glasses, &c. in *July, August, or September.*
- Tokay Grape—large white berries, in oblong bunches; *October, or, by forcing, July, August, &c. (Most rich.)*
- Red Tokay Grape—large bunches and red berries.
- Gibraltar Grape—large berries and bunches, tawney or blackish-red; *September or October, or earlier, by forcing.*
- Passé Musque Grape—large white berries, very rich; *October, or earlier, by forcing.*
- Red Musque Grape; *September or October.*
- Chasselas d'Ore—large yellow berries, in oblong bunches; *September or October.*
- Chasselas Violet Grape; *September and October.*
- Chasselat de Fontainbleau; *end of September, &c.*

The foregoing being the principal varieties of the fruit of the Common Grape-Vine; the trees of which are hardy to grow in any common soil and situation; but

should generally have a dry, warm sunny exposure, against south walls, to have the fruit ripen in good perfection; and some require assistance of artificial heat, or protection of glasses, &c. in order to obtain the fruit in full maturity, as intimated under the names, &c. of the respective sorts.

All the varieties of Vines bear on the young shoots of the same year, arising from the last year's wood; so that a general supply of the young shoots must be preserved every year, in summer and winter-pruning, for successional bearers.

They are propagated or raised by layers and cuttings of the young shoots and branches, in autumn or spring, which will be well rooted in one season.

Vines, being of long extending, trailing, or climbing growth, require the support of walls, &c. on which to train their branches; and allotted some best south walls, or of a southerly aspect, to enjoy all possible benefit of the sun to forward the growth and ripening of the fruit, in good perfection; may be planted in autumn or spring, or any time from October to March, or beginning of April, set ten to twelve or fifteen feet distance; and the branches trained to the wall, either horizontally, or more or less upright, according as the allotted space of walling admits, arranged six or eight, to ten or twelve inches asunder.

The Vines require a dressing or pruning every year in summer and winter.

The summer-pruning consists of a general regulation of the young shoots of the same year only, commencing it in the latter end of April, or in May or beginning of June; and displace all weakly shoots advancing from the old wood, except in vacancies, being careful to preserve all the immediate fruit shoots, and others as are strong and well-placed in all parts, for future mother bearers or supply of branches; and nail the whole regular to the wall all summer, and, when considerably extended, may be shortened discretionally.

The winter-pruning comprises a general operation both among the old branches and young wood, any time from October till March, observing, in which, to select a general supply of the best shoots of last summer, in all parts, for next year's mother bearers, &c. six or eight to ten or twelve inches distance, cutting out the super-abundant, with part of the last year's bearers naked, old wood, to make room for the successional young, which shorten, more or less, by cutting each to three, four, five, or six eyes, or joints, according to their strength; then nail the whole, both young and old branches, regularly to the wall, eight, ten, or twelve inches distance.

