The gardeners dictionary: containing the best and newest methods of cultivating and improving the kitchen, fruit, flower garden, and nursery, as also for performing the practical parts of agriculture, including the management of vineyards, with the methods of making and preserving wine, according to the present practice of the most skilful vignerons in the several wine countries in Europe, together with directions for propagating and improving, from real practice and experience, all sorts of timber trees. /by Philip Miller.

London : Printed for the author and sold by John and Francis Rivington ... [and 23 others], 1768.

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The third fort grows upon chalky hills in several parts of England; this hath an oblong, clustered, bulbous root, from which arises a single stalk six inches high, having two oblong leaves at bottom, and rarely any above; the flower, of a distinct colour, is in a looife spike on the top of the stalk; they have a mucuy fent. This flowers in August. This fort grows naturally in moist pastures in the northern parts of England; I have also found it in great plenty about the field close to and far from a cottage. The fourth and fifth forts grow upon the chalk-hills near Northfleet in Kent, and also upon Cauham-hills near Reading; they have roundish bulbous roots, from which come out a few oblong leaves; the flowers rise a foot and a half high, garnished with a narrow lowers leaf; the flowers grow in a loose spike on the top of the stalk; they are in one of a rufy iron colour, and the other hath herbeaceous flowers. The lip of the nectaries is divided into three parts, the middle segment being stretched out much longer than the other, and is divided into two the upper part of the flower being hooded, the whole bears some resemblance to a naked man. They flower in June. The eighth fort grows naturally in dry pastures in several parts of England, and is commonly called the Green Rampion; there are many varieties found wild in England, and several more in Spain and Portugal. This hath a roundish bulbous root; the leaves are like those of the narrow-leaved Plantain. The flake rises six or seven inches high, having three long tapering leaves at the top of it, which are erect; at the top of the falk come our two or three flowers without spurs, having purplish crests and wings. The nectaries is large, shaped like the body of a humble bee, of a dark fogy colour, being three lines running across it of a darker or lighter colour, which appear brighter or duller according to the position of the flower to the sun. It flowers early in June. There are some varieties of this fort, which differ in the colour and size of their flowers.

All these forts may be preferred in gardens, though not propagated there. The best time to remove the roots from the places where they naturally grow, is just before the falks fall, for at that time the roots may be easily discovered, and then they are beginning to set, so that the bulb will be fully formed for flowering the following year, and will not shrivel, but when they are removed at a time of the year when they are in action, the bulbs degenerate for flowering the following year, losing their force, shriveling and frequently withering; or if they survive their removal, do not recover their former strength in left time between two years.

When these are removed into a garden, the soil should be adapted to the soil. Such of their seeds as are naturally in moist pastures should be planted in moist borders; those which are inhabitants of woods may be planted under trees in wildernesses, but such as grow upon chalk-hills should have a bed of chalk prepared for them in an open situation, and when the plants are fixed in their several places, they should not be disturbed after; for if they are kept clean from weeds, the left the ground is disturbed, the better the plants will thrive; and the longer they will continue.

OPUNTIA. Teom. Intr. R. H. 275. tab. 122. Tuna. Hort, Ecl. 255. Cadum. Lin. Gen. Plant. 259. [This plant is called Opuntia, because Theophrastus writes, that it grows about Opuntum.] The Indian Fig, or prickly Pear; in French, Raphante.

The flower is composed of several petals, which are oblong, reniform, and placed in a circular order, forming upon the gumens. It has a great number of oval-shaped ranunculuses, which are inserted in the gumens, are shorter than the petals, and terminated by elongated filaments. The fruit is a long, cylindrical, pendent, and slenderly fleshy, the length of the ranunculus, crowded with a multitude of seeds. The germs afterward turn to a fleshy unblunted fruit with one cell, including many roundish seeds.

This genus of plants is ranged in the second section of Tournefort's sixth class, which includes the herbs with a coarser stem, where the empliment becomes a fruit with one capsule. Dr. Linnaeus places it in the first section of his twelfth class, in which he ranges those plants whose flowers have more than nineteen stamens, which are inferred either into the competing, or parts of the flower.

The Species are:

1. Opuntia (Vulgar) articulus ovatis comprespendis, spinis sectatis. Indian Fig with oval compressed joints, and bristly joints. Opuntia vulgaris herbacearum. J. B. 1. 45. A very common species, and somewhat taller than the others, with a muco rufus iron colour, and the other hath herbeaceous flowers. The lip of the nectaries is divided into three parts, the middle segment being stretched out much longer than the other, and is divided into two the upper part of the flower being hooded, the whole bears some resemblance to a naked man. They flower in June.

2. Opuntia (Ficus indica) articulus ovato-oblongis, spinis sectatis. Indian Fig with oblong oval joints, and bristly joints. Opuntia folio oblongo media. Tourn. Intr. R. H. 235. Pubilia Indica Fig with oblong leaves. Opuntia (Ficus) articulus ovato-oblongis, spinis fuscolata. Indian Fig with oblong oval joints, and eek chained. Opuntia major, validissima spinis murata. Tourn. Intr. R. H. 239. Greater Indian Fig with very strong joints.

3. Opuntia (Elatia) articulus ovato-oblongis, spinis longitudinalis arcuatisus. Indian Fig with oblong oval, and very long gray joints. Tuna elatior spinis validis falcis. Hort. Etch. tab. 194. Taller Indian Fig with strong falcate joints.

4. Opuntia (Maxima) articulus ovato-oblongis orificiis rotundatis, spinae ovali oblonge ovati, ovata, spinis ovatis, rotundis, et unguiculatis. Indian Fig with oval, oval thick joints, and unguiculate joints. Opuntia maxima, foliis pinnatis, latifolium et longifolium. Tourn. Intr. R. H. 240. Greatest Indian Fig, with the length and broadest pinnate leaves.

5. Opuntia (Cactusfons) articulus ovato-oblongis subincarnatis. Indian Fig with oval oblong joints, albus without spines. Opuntia maxima, foliis oblongo-rotundatis, spinulis mollibus et innocuosis oblongo, rotundis, spinis robusto viridagmus. St. Bent. Jum. 141. Greatest Indian Fig, with a large, oblong round leaf, armed with soft falt, innocuous small joints, and a flower variegated with red stripes, commonly called the Cactus

6. Opuntia (Cactusfons) articulus ovato-oblongis. Indian Fig with compressed, cylindrical, beaked joints, and bristly joints. Ficus indica, feu Opuntia Cactiavica magna. Hort. April. 1507. Indian Fig, or the large Opuntia of Corsica, frequently sown Pimpinella.

7. Opuntia (Cactusfons) articulus cylindrico-ventricosis, compressis, spinis laterratis. Indian Fig with compressed, cylindrical, beaked joints, and bristly joints. Ficus indica, feu Opuntia Cactiavica magna. Hort. April. 1507. Indian Fig, or the large Opuntia of Corsica, frequently sown Pimpinella.

8. Opuntia (Cactusfons) articulus ovato-oblongis tuberculatis compressis, spinis laterratis, tuberculatis, gracilis albacinatis armatis. Hort. Miss. S. Scybe Indian Fig, with long, narrow, compressed beaks, armed with the long, rough edges, white joints, growing in clumps; or in the same as Opuntia Cactiavica. Conserv. Incol. portorico, folio bracteato. Hort. Etch. tab. 64. Portorico Fig with a branching tubercular leaf.

These plants are all of their natives of America, though the first fort is found growing wild on the banks of the roads to Naples, in Sicily, and Spain. It is probable that the plants may have been brought from America thicker at first. This fort hath a large, oval whole joint; the joints or branches of this are oval, or roundish, compressed on their sides, with small leaves coming out in knots on their surface, and also on their upper edges, which fall off in a short time; and at the same time the lower part of the seed, or fruit, which are bristly joints, which do not appear unless they are closely viewed, but on being binned, they enter the fifth, and separate from the plant, so that they are trite and common, and very difficult to get out of the fifth. The branches of this fort spread near the ground, and frequently branch several times, so that our new roots, if they are extended to a considerable distance, and never rise in height, they are stiff and herbaceous; while they are young, but
but as they grow old become drier, of a tough texture, and have ligneous fibres. The flowers come out on the upper edges of the branches, generally, thin filaments, and the stigmas are produced in a series, these lie upon the embryo of the fruit, and are composed of several roundish concave petals, which spread open; they are of a pale yellow colour, and within are a great number of stamens, thickened to the embryo of the fruit, which are terminated in long filaments; the flowers are oblong, light blue, covered with a many-pigmented stigma; after the flowers are pale, the embryo swells to an oblong fruit, whose skin, or cover, is with small spines in clusters, and the inside is filthy, of a purple or red colour, in which are many thick black seeds. These flowers stay here from July and August, and unless the season is very warm, the fruit will not ripe in England.

I received some branches of this fruit from Mr. Peter Collinson, F. R. S. who assured me they were sent him from Newfoundland, where the plant grows naturally, which is much farther to the north than it was before known to grow; and how it endures the cold of that country is inconceivable, for though the plants will live abroad in England, in a warm situation and a dry soil, yet, in severe winters, they are generally destroyed, if they are not protected from the frost.

The second fort hath oblong, oval, compressed braches, which grow more erect than those of the first, armed with long bristly spines, which come out in clusters from a point on each of the compressed branches, for adding open like the rays of a wheel. The flowers grow upon the embryo of the fruit, which come out from the upper edges of the leaves like the first, but are larger, and of a brighter yellow colour. The fruit is also larger, and of a deeper purple colour: the outer shell armed with longer spines; this is the most common fort in Jamaica, and upon the fruit of this is wild fort of cochineal feeds, which is called Sylvester. I had some of the plants sent me with the live insects upon them from Jamaica, by the late Dr. Houtoum, who was writing a history of these insects, at the time when he was taken ill and died; these insects kept alive upon the plants here for three or four months, but afterward perished. If the fruit of this plant is eaten, it will dye the urine of a bloody colour.

The third fort hath stronger branches than the second, which are armed with larger thorns, of an oval shape, they are whitish, and come out in clusters like those of the other fort. The flowers are large, of a bright yellow colour, and the fruit is shaped like that of the second fort.

This fort grows taller than either of the former; the branches are larger, thicker, and of a deeper green, and are armed with long black spines, which come out in clusters like those of the other forts, but the clusters are farther apart. The flowers are produced from the upper edges of the branches, they are smaller than those of the other forts, and are of a purplish colour, as are also the stamens; the fruit is of the same form as those of the first, but do not ripen here.

The fifth fort is the largest of all the forts yet known. The points of these are more than a foot long, and the thorns are very thick, sharp, and of a green colour, and armed with a few short bristly spines; the older branches of this often become aloof, very tapering, and very strong. The flowers of this fort I have never yet seen, for although I have had many of the plants more than ten feet high, none of them have flowered; the seeds are very large.

The sixth fort has been always supposed to be the plant, upon which the cochineals feed, this hath oblong, smooth, green branches, which grow erect, and rise to the height of eight or ten feet, having no spines on them and those few which are can be cut off with a pair of scissors, and are far too large to be troublesome when handled. The flowers of this fort are small, and of a purple colour, standing upon the embryo of the fruit, in the same manner as those of the other fort, but do not expand like them. The flowers of this appear late in the season, about the first of June, and the fruit ripened at a distance, but without coming to any perfection here; this fort is found in the fields of New Spain, for the increase of the insects, but it grows naturally in Jamaica, where it is probable the true cochineal might be discovered, if persons could trouble to search after the insect.

The seventh fort is found at Crofa, this hath cylindrical swelling joints, which are closely armed with flender white spines. The branches spread out on every side, and where they have no support, fall to the ground, very often separating at the joints, and breaking off, but as they rest upon the ground, put out roots, so form new plants; this fort very rarely produces flowers in England. In the West-Indies it is called Pinipoll, from the appearance which the branches have to a pin cushion flesh ball.

The eighth fort was sent me from Jamaica by the late Dr. Houtoum, who found it growing naturally there in great plenty, but could never observe either fruit or flower upon any of the plants, nor have any of them produced either in England. The branches of this plant are armed with spines and in great joints or sets of the other; they are narrow, and more compressed. The spines of this are very long, slender, and of a yellow or brown colour, coming out in clusters all over the surface of the branches, croffing each other, so as to render it dangerous to handle, for upon being touched the spines fall off and grow naturally to the branches, and penetrate into the flesh, to become very troublesome.

The ninth fort grows naturally in the Brazil; this hath very thin branches, which are indented regularly on their edges, like a spore, they are of a light green, and have a broad sword, there are smooth, having no spines. The flowers come out from the sides, and at the end of the branches, sitting upon the embryos in the same way as the other forts; they are of a pale yellow colour. The fruit is shaped like those of the first fort, but rarely ripe in England.

All these forts (except the first) are too tender to thrive in the open air in England; nor can many of them be preferred through the winter here, unless they have artificial heat; for when they are placed in a green house, they turn pale yellow color, and their branches shrink, and frequently rot on the first approach of warm weather in the spring. These plants may be all propagated by cutting off their branches at the joints, during any of the months, which should be laid in a warm place for a fortnight, when they would be readily be healed over, otherwise they will rot with the moisture which they imbibe at that part, as is the case with most other succulent plants. The soil in which these plants must be planted, should be composed after the following manner: one third of light earth, one third of a pattern, one third part sea sand, and the other part should be one half rotten tan, and the other half lime rubbish; these should be well mixed, and laid in a heap three or four months before it is used, observing to turn it over at least once a month, that the plants may be well united; then you should put it through a rough screen, in order to separate the largest stones and clods, but by no means fit it too fine, which is a very common fault; then you should reserve some of the smaller stones and rubbish to lay at the bottom of the pots, in order to keep the roots of the plants from being drowned; this is what must be observed for all succulent plants, for if the moisture be detained in the pots, it will rot their roots and destroy the plants.

When you plant any of the branches of these plants (except the first fort) you should place them into a pot, and previously facilitate their taking root; you should also refresh them now and then with a little water, but be very careful not to let them
should plant large growing timber-trees at some distance from the Orchard, to answer this purpose.

You should also have a great regard to the distance of planting the trees, which is what few people have rightly considered. For if you plant them too close, the trees will be unable to breathe, and this being kept pent in amongst them, will also cause the fruit to be ill tinted, having a great quantity of damp vapours from the perspiration of the trees, and the exhalations from the earth mixed with it, which will be imbibed by the fruit, and render their juices crude and unwholesome.

Wherefore I cannot but recommend the method which has been lately practised by some particular gentlemen with very good success, and that is, to plant the trees four rods apart in regular rows on the ground between the trees they plough and low with Wheat and other crops, in the same manner as if they were clear from trees, and they observe their crops to be full as good as those quite exposed, except just under each tree, until they are grown large, and afford a great shade; and by thus ploughing and tilling the ground, the trees are rendered more vigorous and healthy, scarcely ever having any Mois, or other marks of poverty, and will abide much longer and produce much fruit.

If the ground in which you intend to plant an Orchard has been ploughed for some years, then you should plough in the greenward the spring before you plant the trees; and if you will permit it to lie a summer fallow it will greatly mend it, provided you fit it two or three times, to rot the earth of Gras, and prevent weeds growing thereon.

At Michaelmas you should plough it pretty deep, in order to make it holie for the roots of the trees, which should be planted therein in October, provided the soil is very dry, but if it is moist, the beginning of March will be a better season. The distance, if designed for a clove Orchard, must not be less than forty feet, but the trees planted twice that distance will flourish much better.

When you have finished planting the trees, you should provide some flakes to support them, otherwise the wind will blow them out of the ground; which will do them much injury, especially after they have been planted some time; for the ground in the autumn being warm, and for the most part moist, the trees will very soon put out a great number of young fibres; which, if broken off by their being displaced, will greatly retard the growth of the trees.

In the spring following, if the season should prove dry, it will be a great benefit to the trees if one or two inches of manure must be laid upon the surface of the ground about their roots, turning the Gras downward, which will prevent the sun and wind from drying the ground, whereby a great expense of watering will be saved; and after the first year they will be out of danger, provided they have taken well.

Whenever you plough the ground, between these trees, you must be careful not to go too deep amongst their roots, lest you should cut them off, which would greatly damage them; but if it is moist, the beginning of the fattening the surface of the ground will be of great benefit to them; though you should observe, never to go too near the trees, nor suffer any great rooting weeds to grow about them, which would exhaust the goodness of the soil, and starve them.

If after the turf which was laid round the trees are rooted, you dig it in gently about the roots, it will greatly encourage them.

There are some persons who plant many sorts of fruit together in the same Orchard, using their manure for their advantage; but this is a method which should always be avoided, for hereby there will be a great difference in the growth of the trees, which will not only render them unlighty, but also the fruit upon the lower trees ill tinted, by the tall ones overshadowing them; so that it is much better not to plant all sorts of fruit on the same spot, you should observe to place
may be some fragile rows of trees planted to surround fields, &c. which will fully answer the same purpose, and be left liable to the fire-blights before-mentioned.

**ORCHIS.**

*Infl. R. H. 431.* tab. 248, 249.

Lin. Gen. Plant. 900. [see note, a tellifice, because there is a much greater number of orchids of the type of a man, or of *lepido* to have an appetizing affect; after, on account of its being a provocative to venery: it is also called *mucilaginosus*, of such, a dog, and *hippos*, a tellifice.]

Syvion, or Foot-flavos.

**The Characteristic.**

It is a bulbous, hardy, flabby, and a vague flower; it has an empanicipation. The flower hath five petals, three white, and two red, white-ribbed, and join in a flattened. The nectaries is of one leaf, fixed to the side of the receptacles, between the division of the petals. The upper lip is short and erect, the under long and broad, and spreading; the tube is pinched, born-bent, and with a short neck. It hath two short slender, flaminca fitting upon the petal, with oval crest and jumfires fixed to the upper lip of the nectarium. It hath an oblong centostem germin under the flower, with a short style fleshy to the upper lip of the nectarium. (Bifidus bulbis indivisus, corni cernulato, cornu oblongo.)

**Flore succ.** 795. Orchis bicornis, Mercurialis, with the lip of the nectarium bearing four lips and no tongue, born, and the backs of the petals reflexed. Orchis morio mas, foliis maculatis. C. B. P. 81. The *Mercurialis* with fimbriated leaves.

**Flore succ.** 796. Orchis bicornis, Mercurialis, with the lip of the nectarium bearing four lips and no tongue, born, and the backs of the petals reflexed. Orchis morio mas, foliis maculatis. C. B. P. 81. The *Mercurialis* with fimbriated leaves.

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