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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 vigneron in the several wine countries in Europe, together with directions for propagating and improving, from real practice and experience, all sorts of timber trees
London, Printed for the author and sold by John and Francis Rivington ...
[and 23 others], 1768

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J. Wale inv.

E. Rooker sculp.

*What NATURE sparing gives, or half denies, -
See! healthfull INDUSTRY at large supplies. -
See! in BRITANNIA'S Lap profusely pours, -
While heaven-born SCIENCE swells th'increasing Stores.*

Ecce! ferunt Pueri Calathis Tibi Lilia plenis. VIRG.

There are no binomials
in the 7^d ed. (1759)
this is the first edition
with specific names T H E

A. S. Hitchcock
750

GARDENERS DICTIONARY:

CONTAINING

The BEST and NEWEST METHODS

OF

CULTIVATING and IMPROVING

T H E

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.

T H E E I G H T H E D I T I O N,

Revised and Altered according to the latest SYSTEM of BOTANY; and
Embellished with several COPPER-PLATES, which were not in some former Editions.

BY PHILIP MILLER, F. R. S.

Gardener to the Worshipful Company of APOTHECARIES, at their Botanic Garden
in *Chelsea*, and Member of the Botanic Academy at *Florence*.

. . . . *Digna manet divini gloria ruris.* VIRG. Georg.

L O N D O N,

Printed for the AUTHOR;

And Sold by JOHN and FRANCIS RIVINGTON, at No. 62, *St. Paul's Church-yard*; A MILLAR,
J. WHISTON, W. STRAHAN, J. HINTON, R. BALDWIN, B. WHITE, L. HAWES and
W. CLARKE and R. COLLINS, W. JOHNSTON, T. CASLON, S. CROWDER, T. LONGMAN,
B. LAW, C. RIVINGTON, J. DODSLEY, W. GRIFFIN, T. CADELL, T. LOWNDES,
S. BLADON, G. ROBINSON and J. ROBERTS, and T. PAYNE

M. DCC. LXVIII.

1768

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J. Miller inv. et fecit

To the Most Noble

H U G H,

Duke and Earl of **NORTHUMBERLAND,**

E A R L P E R C Y,

Baron **W A R K W O R T H** of Warkworth Castle,

Lord Lieutenant and Custos Rotulorum of the Counties of
MIDDLESEX and **NORTHUMBERLAND,**

Of the City and Liberty of **W E S T M I N S T E R,**

And of the Town and County of **N E W C A S T L E** upon **T Y N E,**

V I C E A D M I R A L of all **A M E R I C A,**

And of the County of **N O R T H U M B E R L A N D,**

One of his **M A J E S T Y**'s Most Honourable Privy Council,

K n i g h t of the Most Noble Order of the **G A R T E R,**

And Fellow of the **R O Y A L S O C I E T Y.**

with the farina foecundans, which, when ripe, is scattered into those flowers which are female, and consist only of the ovarium, with the style and stigma, which are surrounded with the petals. Other flowers there are, which have both sexes contained in the same flower; these are called hermaphrodite flowers.

A fruit, *Καρπός*, is not that part of a plant which is eatable, but rather the seeds, with their covering, should be called the fruit. This covering cherishes the seeds until they come to maturity, and defends them from the injuries of the weather, as that they are not hurt thereby; and also prepares the juices designed for their nourishment, that it may with ease enter their small bodies in a just proportion.

The motion of the nutritious juices of plants is produced much like that of the blood in animals, by the action of the air; and, in effect, there seems to be something equivalent to respiration throughout the whole plant.

Malpighius was the first who observed, that vegetables consisted of two series, or orders, of vessels.

1. Those which have been treated of before, which receive and convey the alimental juices, and which answer to the arteries, lacteal vessels, veins, &c. of animals; and,

2. The tracheæ, or air-vessels, which are long hollow pipes, in which the air is continually received and expelled, i. e. inspired and expired, within which tracheæ all the former vessels are contained.

Hence it follows, that the heat of the year, nay, of a single day, hour, or minute, must have an effect on the air included in these tracheæ, i. e. it must rarefy it, and, of consequence, dilate the tracheæ; and hence also a perpetual spring or source of action must arise, to promote the motion of the sap in plants.

For when the tracheæ are expanded, the vessels which contain the juices, are, by that expansion, pressed; and, by that means, the juice contained is continually propelled and accelerated; and, by this propulsion, the juice is continually comminuted, and rendered more and more subtil, and adapted to enter into vessels still finer and finer; the thickest part of it being at the same time secreted, and deposited into the lateral cells, or loculi of the bark, to defend the plant from cold, and other external injuries.

The vessels, or containing parts of plants, consist of mere earth, bound or connected together by oil, as a gluten, or glue; which being exhausted by fire, air, age, or the like, the plant moulders, or returns again into its earth or dust.

Thus vegetables being burnt by the most intense fire, the matter of the vessels is left entire and indissoluble, notwithstanding its utmost force; and, of consequence, is neither water, nor air, nor salt, nor sulphur, but earth alone.

Juice is a liquid substance, which makes part of the composition of plants, and communicates itself to all the other parts, and serves to feed and increase them; and is that to plants that blood is to animals. These juices are of divers sorts; aqueous, grumous, bituminous, oleaginous, resinous, vinous; of all tastes and colours.

This juice or sap of plants, is a humour furnished by the earth, and changed in the plant; it consists of some fossil, or other parts, which are derived from the air or rain; and others, from putrefied animals, plants, &c. so that, consequently, in vegetables are contained all kinds of salts, oil, water, earth, and, probably, all kinds of metals too, inasmuch as the ashes of vegetables always yield somewhat which is attracted by the load-stone.

The juice enters plants in the form of a fine subtil water, which by how much the nearer it is to the root, so much the more it retains of its proper nature; and the farther it is from the root, the more action it has undergone, and approaches the nearer to the nature of the vegetable; and, of consequence, when the juice enters the root, the bark of which is furnished with excretory vessels, fitted to discharge the excre-

mentitious part, it is earthy, watry, poor, acid, and scarce oily at all.

It is further prepared in the trunk and branches, though it continue acid still; as is perceived by the tapping or perforating of a tree in the month of February, when it distils a watry juice that is sensibly acid.

The juice being carried hence to the germs, or buds, is more connected; and when it has here unfolded the leaves, these come to serve as lungs for the circulation and further preparation of the juice; for when those tender leaves are exposed to the alternate action of heat and cold, moist nights, and hot scorching days, they are expanded and contracted alternately; and the more, by reason of their net-like texture.

By such means, the juice is farther altered and digested, as it is farther yet in the petals, or leaves of the flowers, which transmit the juice now brought to a further subtilty to the stamina; the stamina communicate it to the farina, or that dust which appears on the apices, where it undergoes a further maturation, and sheds into the pistil; and there acquiring its last perfection, it becomes the original of a new fruit or plant.

ANCHUSA. Lin. Gen. 167. Buglossum. Tourn. Inst. R. H. 133. tab. 53.

The CHARACTERS are,

The empalement is oblong, taper, and permanent, cut into five acute segments which are erect. The flower is of one leaf, having a cylindrical tube the length of the empalement; at the brim it is cut into five upright segments, which spread open, but the chaps are closed, and have five prominent little scales. There are five short stamina in the chaps of the flower, which are crowned with oblong summits. In the bottom of the flower are situated four germen, having a slender style, crowned with an obtuse stigma. The germen afterward becomes four oblong blunt seeds shut up in the empalement.

Dr. Linnæus ranges this genus of plants in the first section of his fifth class of plants, entitled Pentandria Monogynia, the flowers having five stamina and a single style.

The SPECIES are,

1. ANCHUSA (*Officinalis*) foliis lanceolatis spicis imbricatis secundis. Hort. Cliff. 46. *Alkanet with spear-shaped leaves, and fruitful imbricated spikes, or greater Garden Bugloss.* Buglossum angustifolium majus. C. B. P. 256.
2. ANCHUSA (*Angustifolia*) racemis subnudis conjugatis. Prod. Leyd. 408. *Alkanet with conjugated half naked spikes.* Borago sylvestris perennis flore rufo kermefino. Zan. Hist. 49.
3. ANCHUSA (*Undulata*) strigosa foliis linearibus dentatis pedicellis bractea minoribus calycibus fructiferis inflatis. Læfl. Lin. Sp. Plant. 133. *Alkanet with narrow indented leaves, small foot-stalks to the branches, and a swelling empalement over the seeds.* Buglossum Lusitanicum echii folio undulato. Tourn. Inst. 134.
4. ANCHUSA (*Orientalis*) villosa-tomentosa, ramis floribusque alternis axillaribus, bracteis ovatis. Lin. Sp. 191. *Alkanet with branches and flowers growing alternately from the wings of the stalks, and oval bractea or floral leaves.* Buglossum Orientale flore luteo. Tourn. Cor. 6.
5. ANCHUSA (*Virginiana*) floribus sparsis caule glabro. Lin. Sp. Plant. 133. *Alkanet with flowers growing thinly, and a smooth stalk.* Anchusa minor lutea Virginiana Puccoon indigena dicta qua se pingunt Americani. Pluk. Alm. 30. *Called by the inhabitants of Virginia, Puccoon.*
6. ANCHUSA (*Sempervirens*) pedunculis diphylis capitatis. Lin. Sp. Plant. 134. *Alkanet with foot-stalks having two leaves.* Buglossum latifolium sempervirens. C. B. P.
7. ANCHUSA (*Cretica*) foliis lanceolatis verrucosis femi-plexicaulibus, floribus capitatis, caule procumbente. *Alkanet with warted and spear-shaped leaves embracing the stalk half round, flowers growing in a head, and a trailing stalk.* Buglossum Creticum verrucosum perlatum quibusdam. H. R. Par.

O

8. ANCHUSA

8. ANCHUSA (*Tindoria*) tomentosa, foliis lanceolatis obtusis, staminibus corolla brevioribus. Lin. Sp. 192. *Anchusa with woolly, spear-shaped, blunt leaves, and the stamina of the flower shorter than the corolla, or true Alkanet of the shops.*

9. ANCHUSA (*Azurca*) foliis longis hirsutis, floribus capitatis reflexis, pedunculis longissimis. *Alkanet with long hairy leaves, and flowers collected into heads which are reflexed, and very long foot-stalks.* Borago sylvestre Cretica flore azureo. Zan. Hist. 51.

The first sort is the Bugloss, whose flowers are ordered to be used in medicine. This sends up stalks about two feet high, having oblong rough leaves, placed alternately, at the extremity of the shoots. The flowers are produced in clusters, which are of a fine blue colour; these come out with foot-stalks from the wings of the leaves, and are collected into small heads. The flowers are of one leaf, having a long tube, spread open at the top in shape of a funnel. After the flower is past, it is succeeded by four naked seeds, situated at the bottom of the empalement, which drop out as they ripen.

The roots of this sort seldom continue longer than two years, especially in good ground, for they are subject to rot in winter, unless when they happen to grow in rubbish, or out of an old wall, where they will live several years; for in such places the plants are stunted in their growth, so their branches are firmer and not so full of juice as those which grow in better soil. The plants may be easily propagated by seeds, which may be sown in the autumn, upon a bed of light sandy earth; and in the spring, when the plants are strong enough to remove, they should be planted in beds at two feet distance, observing, if the season proves dry, to water them till they have taken root, after which they will require no farther care but to keep them clean from weeds. If the seeds of this plant are permitted to scatter, the plants will rise in plenty, which may be managed in the manner before directed. There is a variety of this with white flowers, but this will not retain its difference from seeds.

The second sort grows to the height of two feet when cultivated in gardens, but in the places where it grows wild, is rarely more than a foot. The leaves of this are narrow, and less hairy than those of the first; the spikes of flowers come out double, and have no leaves about them; the flowers are small, and of a red colour. The roots will continue three or four years in poor land.

The third sort is a biennial plant, which perishes soon after the seeds are ripe. This grows two feet high, and sends out many lateral branches, which are garnished with long, narrow, rough leaves, which are waved on their edges: the flowers are of a bright blue colour, and grow in an imbricated spike; and after these fall, the empalement turns to a swollen vessel inclosing the seeds.

The fourth sort is a perennial plant, with long trailing branches which lie on the ground; the under leaves are long, broad, and hairy, but these diminish as they are nearer the top, and those which come out on the spikes between the flowers are short and roundish. The flowers are yellow, and about the size of those of the common Bugloss; there is a succession of these on the same plants great part of the year, which renders them more valuable. This, though a native of the Levant, is hardy enough to live in the open air in England, if it hath a dry sandy soil. It may be propagated by seeds in the same manner as the first sort, and if the seeds are permitted to scatter, the plants will rise without care.

The fifth sort is a native of North America, where it grows naturally in the woods, and being an early plant, generally flowers before the new leaves come out on the trees; so that in some of the woods, where this plant abounds, the surface of the ground seems covered with bright yellow flowers. It is known in that country by the title Puccoon. It is a perennial plant which seldom rises a foot high in good ground, but not above half that height, where the soil is poor; the

flowers grow in loose spikes, upon a smooth stalk. This is propagated by seeds, which, if sown in the spring, seldom grow the first year.

The sixth sort is a very hardy perennial plant, with weak trailing branches, garnished with broad, rough, deep green leaves; the flowers are blue, and come out between the leaves on the spike, like the fourth sort; the plants frequently grow out of the joints of old walls, in those places where any of the plants have been near; for when the seeds are permitted to scatter, there will be an abundant supply of the plants. These flower great part of the year.

The seventh sort is a low, trailing, annual plant, whose branches seldom extend more than six inches; these lie on the surface of the ground, and are thinly set with spear-shaped, small, warted leaves, which half surround the stalk at their base. The flowers are small, of a bright blue colour, and are collected into small bunches at the extremity of the branches. The plants perish soon after their seeds are ripe, which if permitted to scatter, the plants will come up better than when they are sown. These do not bear transplanting, so should remain in the places where they come up.

The eighth sort rises near as high as the first, to which it bears great resemblance in its leaves and branches; but the leaves and branches are more woolly, and the stamina of the flowers are shorter than the corolla; the root also is red. This plant grows naturally in the south of France and Spain, but is equally hardy with the first species, and may be cultivated in the same manner.

The ninth sort is a perennial plant, with broad rough leaves, like those of the sixth; the branches grow more erect, and the flowers which are of a bright azure colour, are collected into spikes, coming out singly from between the leaves. This is a hardy plant, and may be propagated in the same manner as the former.

ANDRACHNE, Bastard Orpine.

The CHARACTERS are,

It hath male and female flowers on the same plant. The male flower hath a five-leaved empalement, which is equal and withers. The flower is composed of five slender leaves indented at the top, which are shorter than the empalement. At the bottom of each petal is situated an herbaceous nectarium, to which the five slender stamina are joined; these are crowned with single summits. The female flowers come out from the wings of the stalk near the male. These have a permanent five-leaved empalement, but no petals; there are five nectariums as in the male, and a globular germen supporting three slender styles which are bifid, crowned with a round stigma. The germen afterward turns to a three cornered globular capsule, having three cells, in each of which are lodged two triangular obtuse seeds.

The SPECIES are,

1. ANDRACHNE (*Telephoides*) procumbens herbacea. Lin. Sp. Plant. 1014. *Herbaceous trailing Andrachne.* Telephoides Græcum humifusum flore albo. Tourn. Cor. 50.

2. ANDRACHNE (*Fruticosa*) erecta arborea. Osb. It. 228. *Shrubby tree-like Bastard Orpine.*

3. ANDRACHNE (*Arborea*) foliis ovatis obtusis, subtus incanis, caule arboreo. *Bastard Orpine with oval blunt leaves, hoary on their under side, and a tree-like stalk.*

The first sort is a low plant, whose branches trail upon the ground. The leaves are small, of an oval shape, smooth, and of a sea-green colour. It is found wild in some parts of Italy, and in the Archipelago, from whence Dr. Tournefort sent the seeds to the royal garden at Paris: but being a plant of no great beauty, it is seldom cultivated, except in botanic gardens for variety. If the seeds of this plant are sown on a moderate hot-bed in March, the plants will arise in about a month after, when they may be transplanted each into a small pot, and plunged into another very moderate hot-bed to bring the plants forward, but in mild weather they should have plenty of air admitted to them, and often refreshed with water: in June they will produce flowers, and the seeds will ripen in

August

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By P H I L I P MILLER, F. R. S.
Gardener to the Worlhipful Company of Apothecaries, at their Botanic Garden
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J. Whiston, W. Strahan, J. Hinton, R. Baldwin, B. White, L. Hawes and
W. Clarke and R. Collins, W. Johnston, T. Caslon, S. CrowDer, T. Longman,
B. Law, C. Rivington, J. Dodsley, W. Griffin, T. Cadell, T. Lowndes,
S. Bladon, G. Robinfon and J. Roberts, and T. Payne\

M. DCC. LXVIII

[Begin Page: Text]

To the Most Noble
Duke and Earl of NORTHUMBERLAND,
E a r l P E R C Y,
Baron Warkworth of Warkworth Castle,
Lord Lieutenant and Custos Rotulorum of the Counties of
Middlesex and Northumberland,
Of the City and Liberty of Westminster,
Anu of the Town and County of Newcastle upon Tyne,
Vice Admiral of all AMERICA,
And of the County of Northumberland, '
One of his M A J E S T Y's Most Honourable Privy Council,
Knight of the Most Noble Order of the G A R T E R,
And Fellow of the R O Y A L SOCIETY.

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with the farina fecundans, which, when ripe, is scattered into those flowers which are female, and conflict only of the ovarium, with the style and stigma, which are surrounded with the petals, Other flowers there are, which have both sexes contained in the same flower ; these are called hermaphrodite flowers. A fruit, K xpirog, is not that part of a plant which is eatable, but rather the seeds, with their covering, should be called the fruit. This covering cherishes the seeds until they come to maturity, and defends them from the injuries of the weather, as that they are not hurt thereby •, and also prepares the juices designed for their nourishment, that it may with ease enter their small bodies in a just proportion.

The motion of the nutritious juices of plants is produced much like that of the blood in animals, by the action of the air and, in effect, there seems to be something equivalent to respiration throughout the whole plant.

Malpighius was the first who observed, that vegetables consist of two series, or orders, of vessels.

1 . Those which have been treated of before, which receive and convey the alimental juices, and which answer to the arteries, lacteal vessels, veins, &c. of animals and,

2. The tracheae, or air-vessels, which are long hollow pipes, in which the air is continually received and expelled, i. e. inspired and expired, within which tracheae all the former vessels are contained.

Hence it follows, that the heat of the year, nay, of a single day, hour, or minute, must have an effect on the air included in these tracheae, i. e. it must ra-

refy it, and, of confequence, dilate the tracheae •, and hence alfo a perpetual fpring or fource of action muft arife, to promote the motion of the lap in plants.

For when the tracheae are expanded, the vefels which contain the juices, are, by that expanfion, prefled ; and, by that means, the juice contained is continually propelled and accelerated ; and, by this propulsion, the juice is continually comminuted, and rendered more and more fubtil, and adapted to enter into vefels ftill finer and finer ; the thickeft part of it being at the fame time lecre'ted, and deposited into the lateral cells, or loculi of the bark, to defend the plant from cold, and other external injuries.

The vefels, or containing parts of plants, confift of mere earth, bound or connected together by oil, as a gluten, or glue •, which being exhaufted by fire, air, age, or the like, the plant moulders, or returns again into its earth or duft.

Thus vegetables being burnt by the moft intenfe fire, the matter of the vefels is left entire and indifoluble, notwithstanding its utmoft force ; and, of confequence, is neither water, nor air, nor fait, nor lulphur, but earth alone.

Juice is a liquid fubftance, which makes part of the compofition of plants, and communicates itfelf to all the other parts, and ferves to feed and increafe them •, and is that to plants that blood is to animals. Thefe juices are of divers forts •, aqueous, grumous, bituminous, oleaginous, refinous, vinous ; of all taftes and colours.

This juice or fap of plants, is a humour furnifhed by the earth, and changed in the plant ; it confifts of feme foffil, or other parts, which are derived from the air or rain ; and others, from putrefied animals, plants, &c. fo that, confequently, in vegetables are contained all kinds of falts, oil, water, earth, and, probably, all kinds of metals too, inafmuch as the allies of vegetables always yield fomewhat which is attracted by the load-ftone.

The juice enters plants in the form of a fine fubtil water, which by how much the nearer it is to the root, fo much the .more it retains of its proper nature ; and the farther it is from the root, the more adtion it has undergone, and approaches the nearer to the nature of the vegetable ; and, of confequence, when the juice enters the root, the bark of which is furnifhed with excretory vefels, fitted to difcharge the excre-

A N C

mentitious part, it is earthy, watry, poor, acid, and fcarce oily at all.

It is further prepared in the trunk and branches, though it continue acid ftill ; as is perceived by the tapping or perforating of a tree in the month of February, when it diftills a watry juice that is fenfibly acid.

The juice being carried hence to the germs, or buds,

is more connected ; and when it has here unfolded the leaves, these come to serve as lungs for the circulation and further preparation of the juice; for when those tender leaves are exposed to the alternate addition of heat and cold, moist nights, and hot scorching days, they are expanded and contracted alternately ; and the more, by reason of their net-like texture.

By such means, the juice is farther altered and digested, as it is farther yet in the petals, or leaves of the flowers, which transmit the juice now brought to a further subtilty to the stamens ; the stamens communicate it to the stigma, or that dust which appears on the apices, where it undergoes a further maturation, and falls into the pistil ; and there acquiring its last perfection, it becomes the original of a new fruit or plant.

AN C HUS A. Lin. Gen. 167. Buglossum. Tourn.

Inf. R. H. 133. tab. 53.

The Characters are,

The corolla is oblong, tapering, and permanent, cut into five acute segments which are erect. The calyx is of one leaf having a cylindrical tube the length of the corolla at the brim it is cut into five upright segments, which spread open, but the lobes are closed, and have five prominent little scales. There are five short stamens in the lobes of the flower, which are crowned with oblong anthers. In the bottom of the flower are situated four germs, having a slender style, crowned with an obtuse stigma. The germ afterward becomes four oblong blunt seeds fluted in the corolla.

Dr. Linnæus ranges this genus of plants in the first section of his fifth class of plants, entitled Pentandria Monogynia, the flowers having five stamens and a single style.

The Species are,

1. *Anchusa (Officinalis)* foliis lanceolatis pinnatis imbricatis fecundis. Flort. Cliff. 46. Alkanet with pear-shaped leaves, and fruitful imbricated pinnules, or greater Garden Bugloss. *Buglossum angustifolium* majus. C. B. P. 256.

2. *Anchusa (Angustifolia)* racemis subnudis conjugatis. Prod. Leyd. '408. Alkanet with conjugated half naked pinnules. *Borago fylvestris perennis flore rufo kernefino*. Zan. Hill. 49.

3. *Anchusa (Undulata)* fruticosa foliis linearibus dentatis pedicellis bracteata minoribus calycibus fructiferis inflatis. Laefl. Lin. Sp. Plant. 133. Alkanet with narrow indented leaves, small foot-stalks to the branches, and a swelling corolla over the seeds. *Buglossum Lufitanicum echii folio undulato*. Tourn. Inf. 134.

4. *Anchusa (Orientalis)* villosa-tomentosa, ramis floribusque alternis axillaribus, bracteis ovatis. Lin. Sp. 191. Alkanet with branches and flowers growing alternately from the wings of the stalks, and oval bractea or floral leaves. *Buglossum Orientale flore iuteo*. Tourn. Cor. 6.

5. *Anchusa (Virginiana)* fruticosa pinnatis caule glabro.

Lin, Sp. Plant. 133. Alkanet with flowers growing thinly, and a smooth stalk. Anchufa minor in the Virginia Puccoon indigena dicta qua se pingunt Anterici. Pluk. Aim. 30. Called by the inhabitants of Virginia, Puccoon.

6. Anchusa (Sempervirens) pedunculis diphyllis capitatis. Lin. Sp. Plant. 134. Alkanet with foot-stalks having two leaves. Bugloflum latifolium sempervirens* C. B. P.

7. Anchusa (Cretica) foliis lanceolatis verrucosis ferni-amplexicaulibus, floribus capitatis, caule procumbente. Alkanet with warty and pear-shaped leaves embracing the stalk half round, flowers growing in a head, and a trailing stalk. Bugloflum Creticum verrucosum perlatum quibusdam. Fl. R. Pan

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v.

8. Anchusa

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% Anchusa (Tiniforia) tomentosa, foliis lanceolatis obtusis, faminibus corolla brevioribus. Lin. Sp. 192.

Anchufa with woolly, pear-shaped, blunt leaves, and the flamina of the flower higher than the corolla, or true Alkanel of the Jhops.

g. Anchusa (Azurea) foliis longishirtutis, floribus capitatis reflexis, pedunculis longifoliosis. Alkanet with long hairy leaves, and flowers collected into heads which are reflexed, and very long foot-stalks. Borago fylvestre Cretica flore azureo. Zan. Hilt. 51.

The first sort is the Buglofs, whose flowers are ordered to be used in medicine. This feeds up (talks about two feet high, having oblong rough leaves, placed alternately, at the extremity of the stalks. The flowers are produced in clusters, which are of a fine blue colour; these come out with foot-stalks from the wings of the leaves, and are collected into small heads. The flowers are of one leaf, having a long tube, spread open at the top in the shape of a funnel. After the flower is past, it is succeeded by four naked seeds, situated at the bottom of the empalement, which drop out as they ripen.

The roots of this sort seldom continue longer than two years, especially in good ground, for they are subject to rot in winter, unless when they happen to grow in rubbish, or out of an old wall, where they will live several years; for in such places the plants are (tinted in their growth, for their branches are firmer and not so full of juice as those which grow in better soil.

The plants may be easily propagated by seeds, which may be sown in the autumn, upon a bed of light sandy earth; and in the spring, when the plants are strong enough to remove, they should be planted in beds at

two feet distance, observing, if the season proves dry, to water them till they have taken root, after which they will require no farther care but to keep them clean from weeds. If the seeds of this plant are permitted to scatter, the plants will rife in plenty, which may be managed in the manner before directed. There is a variety of this with white flowers, but this will not retain its difference from seeds.

The second sort grows to the height of two feet when cultivated in gardens, but in the places where it grows wild, is rarely more than a foot. The leaves of this are narrow, and less hairy than those of the first; the spikes of flowers come out double, and have no leaves about them; the flowers are small, and of a red colour. The roots will continue three or four years in poor land.

The third sort is a biennial plant, which perishes soon after the seeds are ripe. This grows two feet high, and sends out many lateral branches, which are garnished with long, narrow, rough leaves, which are waved on their edges: the flowers are of a bright blue colour, and grow in an imbricated spike; and after these fall, the empalement turns to a swollen vessel inclosing the seeds.

The fourth sort is a perennial plant, with long trailing branches which lie on the ground; the under leaves are long, broad, and hairy, but these diminish as they are nearer the top, and those which come out on the spikes between the flowers are (short and roundish. The flowers are yellow, and about the size of those of the common Bugloss •, there is a succession of these on the same plants great part of the year, which renders them more valuable. This, though a native of the Levant, is hardy enough to live in the open air in England, if it hath a dry sandy soil. It may be propagated by seeds in the same manner as the first sort, and if the seeds are permitted to scatter, the plants will rife without care.

The fifth sort is a native of North America, where it grows naturally in the woods, and being an early plant, generally flowers before the new leaves come out on the trees; so that in some of the woods, where this plant abounds, the surface of the ground seems covered with bright yellow flowers. It is known in that country by the title Puccoon. It is a perennial plant which seldom rises a foot high in good ground, but not above half that height, where the soil is poor; the flowers grow in loose spikes, upon a smooth stalk. This is propagated by seeds, which, if sown in the spring, seldom grow the first year.

The sixth sort is a very hardy perennial plant, with weak trailing branches, garnished with broad, rough, deep green leaves •, the flowers are blue, and come out between the leaves on the spike, like the fourth sort; the plants frequently grow out of the joints of old walls, in those places where any of the plants have been near; for when the seeds are permitted to scatter,

there will be an abundant supply of the plants. The flower great part of the year.

The seventh sort is a low, trailing, annual plant, whose branches seldom extend more than six inches; these lie on the surface of the ground, and are thinly set with spear-shaped, small, warty leaves, which half surround the stalk at their base. The flowers are small, of a bright blue colour, and are collected into small bunches at the extremity of the branches. The plants perish soon after their seeds are ripe, which if permitted to scatter, the plants will come up better than when they are sown. These do not bear transplanting, so should remain in the places where they come up.

The eighth sort rises near as high as the first, to which it bears great resemblance in its leaves and branches; but the leaves and branches are more woolly, and the lamina of the flowers are shorter than the corolla; the root also is red. This plant grows naturally in the south of France and Spain, but is equally hardy with the first species, and may be cultivated in the same manner.

The ninth sort is a perennial plant, with broad rough leaves, like those of the sixth; the branches grow more erect, and the flowers which are of a bright azure colour, are collected into spikes, coming out singly from between the leaves. This is a hardy plant, and may be propagated in the same manner as the former.

ANDRACHNE, Bastard Orpine.

The Characters are.

It hath male and female flowers on the same plant. The male flower hath a five-leaved calyx, which is equal and withers. The flower is composed of five slender leaves indented at the top, which are shorter than the calyx. At the bottom of each petal is situated an herbaceous nectarium, to which the five slender laminae are joined; these are crowned with single stamens. The female flowers come out from the wings of the stalk near the male. These have a permanent five-leaved calyx, but no petals; there are five stamens as in the male, and a globular germen supporting three slender styles which are bifid, crowned with a round stigma. The germen afterward turns to a three-cornered globular capsule, having three cells, in each of which are lodged two triangular obtuse seeds.

The Species are,

1. *Andrachne* (*Telephioides*) *procumbens* herbacea. Lin, Sp. Plant. 1014. Herbaceous trailing *Andrachne*. *Telephioides* Græcum humiflora flore albo. Tournef. Cor. 50.

2. *Andrachne* (*Fruticosa*) *erecta* arborea. Oef. It. 228, Shrubby tree-like Bastard Orpine.

3. *Andrachne* (*Arborea*) *foliis ovatis obtusis, subtus incanis, caule arboreo*. Bastard Orpine with oval blunt leaves, hoary on their under side, and a tree-like stalk. The first sort is a low plant, whose branches trail upon the ground. The leaves are small, of an oval shape,

smooth, and of a leaf-green colour. It is found wild in some parts of Italy," and in the Archipelago, from whence Dr. Tournefort sent the seeds to the royal garden at Paris: but being a plant of no great beauty, it is seldom cultivated, except in botanic gardens for variety. If the seeds of this plant are sown on a moderate hot-bed in March, the plants will arise in about a month after, when they may be transplanted each into a small pot, and plunged into another very moderate hot-bed to bring the plants forward, but in mild weather they should have plenty of air admitted to them, and often refreshed with water: in June they will produce flowers, and the seeds will ripen in 7 or 8 August