HISTORY

OF

CULTIVATED VEGETABLES.

VOL. II.

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HISTORY

OF

CULTIVATED VEGETABLES;

COMPRISING

THEIR BOTANICAL, MEDICINAL, EDIBLE,

AND CHEMICAL QUALITIES; NATURAL HISTORY;

AND RELATION TO

ART, SCIENCE, AND COMMERCE.

BY HENRY PHILLIPS,

AUTHOR OF THE

HISTORY OF FRUITS KNOWN IN GREAT BRITAIN.

IN TWO VOLUMES.

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HISTORY

OF

CULTIVATED VEGETABLES.

INDIAN CRESS, OR NASTURTIUM.—THOPÆOLUM.

Natural order, Tripelatæ. A genus of the Octandria Monogynia class.

THIS ornamental plant is a native of Peru, from whence it was brought to Europe by the Spaniards in 1580; and it appears to have been soon afterwards cultivated in this country by Gerard, in his celebrated garden at Holborn.

In the first edition of his Herbal he says, "The seedes of this rare and faire plant came first from the Indies into Spain, and those hot regions, and from thence into France and Flanders, from whence I have receiued seede that hath borne with me both flowers and seede, especially those I receiued from my louing friend John Robin of Paris.

This beautifull plant is called in Latin, Nasturtium Indicum."

Gerard observes, "The seede should be sowen vpon a bed of hot horse-dung, and some fine sifted earth." It is now as hardy as any annual plant, and the self-sown seeds generally produce the strongest plants. The major variety of this brilliant plant was not brought to Europe until the year 1684, and two years afterwards it was cultivated in our gardens.

This plant has been named *Acriviola,* of *acer,* sharp, and *viola,* violet, i. e. Sharp Violet.

The blossoms have been observed to emit electric sparks towards evening, which was first noticed by the daughter of the illustrious Linnæus, who could not credit the account until he had seen the phenomenon. It is seen most distinctly with the eye partly closed.

The double-flowered nasturtium has an agreeable perfume, but is not so well tasted as the single, and being only an ornamental greenhouse plant, it does not properly belong to this work.

The French style the flower *La Grande*

Capucine. Its shape is something like that of the violet; and it is succeeded by three berries, or nuts, from each flower. This fruit or seed, if gathered before it becomes ripe and juiceless, makes an agreeable pickle, without the aid of spice; and is an excellent substitute for capers, which it much resembles.

This pickle is esteemed a good antiscorbutic. The whole of the plant, as well as the fruit, abounds with a volatile, oily, acrid salt.

The flowers, as well as the young leaves, are used in salads, being of a warm, spicy, agreeable taste, and an excellent antiscorbutic. The nasturtium blossom is serviceable in a weakness, or pain, of the stomach, proceeding from cold and flatulencies.*

By distillation with water, the flowers impregnate the fluid with their smell and flavour.

The flowers, being of so excellent a colour for candlelight, are often used to garnish dishes. The plant itself is a great ornament to our pleasure-grounds, whether trailing on the ground, or trained to trees or trellis-fences.

* Dale.

OAT.—AVENA.

Natural order, Gramina. A genus of the Triandria Digynia class.

The Romans called this corn *Avena;* the Greeks, Βρῶμος and Βρόμος, which is supposed to be derived from βρώσκω, *comedo.*

We find no mention made of this grain in Scripture, which expressly states that Solomon's horses and dromedaries were fed with barley.* From this we conclude, that oats did not grow either in Egypt or Syria; and it is remarkable that the native place of the *Sativa,* or common cultivated oat, is still unknown. Anson says, he observed it growing spontaneously in the island of Juan Fernandez; but this is much doubted, and we think that the noble circumnavigator must have been deceived in its appearance, or we should have had confirmations of the account before this period.

With all his veneration for the works of

* 1 Kings c. iv. v. 28.

the ancient philosophers and naturalists, and his admiration of the observation of Lord Bacon and more modern writers, the author cannot be brought to a belief that corn will change from one species into another. That it will degenerate, from neglect of cultivation, there can be no doubt; but that it should be entirely transmuted, seems entirely against the great law of nature, as it was first appointed by the Great Creator, who commanded that "the earth bring forth grass, the herb yielding seed, and the fruit-tree yielding fruit after his kind, whose seed is in itself," and not to produce seed of other kinds.

Should it ever be satisfactorily proved that the seed of wheat and barley will produce oats and rye, we may then conclude that all these varieties of grain sprang originally from one and the same species of grass. In the mean time let us turn to the opinions of the old writers on this interesting subject, which cannot fail to amuse, and may be the means of inducing the curious to make such experiments as may fully elucidate the truth or the errors of the authors of antiquity, who believed and state that this species of corn originated from accident, or from change of soil.

Theophrastus affirms, that oats sprang from *zea*, a kind of wheat; and in writing on the faults incidental to corn, Pliny remarks*, that the first and principal defect observed in bread-corn, and wheat especially, is when it degenerates and turns into oats; and not that only, but barley also degenerates into the same kind of grain. This defect or imperfection in corn, says this naturalist, is occasioned chiefly by a moist soil, or too wet a season; he gives likewise as a second cause, its proceeding from the feebleness and weakness of the seed, when it lies too long soaking in the ground, which causes the root to change its nature.

Galen tells us in the last chapter of his first book of the Faculties of Nourishment, that both himself and his aged father, who took great delight in husbandry, sowed wheat and barley that was well cleansed from other seed, for the express purpose of proving whether they would change their natures into darnel and haver-grass. He states that they found much darnel arose among the choice wheat, and but little among the barley, and that much haver-grass rose among the barley; from which he was per-

* Book xviii. c. 17.

suaded that these grains would change into others.

Lord Bacon says, "There is an opinion in the country, that if the same ground be often sown with grain that grew upon it, it will in the end, grow to be a baser kind. It is certain, that in sterile years, corn sown will grow to be another kind.

> Grandia sæpe quibus mandavimus Hordea sulcis,
> Infelix Lolium, et steriles dominantur Avenæ;

and generally it is a rule, that plants that are brought forth by culture, as corn, will sooner change into other species than those that came of themselves; for culture giveth but an adventitious nature, which is more easily put off."

The same author says, in his sixth Century, "The rule is certain, that plants for want of culture degenerate to be baser in the same kind, and sometimes so far as to change into another kind. 1st. The standing long, and not being removed, maketh them degenerate: secondly, Drought, unless the earth of itself be moist, doth the like: thirdly, So doth removing into worse earth, or forbearing to compost the earth; as we see that water-mint turneth into field-mint, and colewort into rape, by neglect, &c."

Dr. Plott mentions a circumstance of barley and rye growing in the same ear alternately.

Tusser, who has left us an interesting picture of the progress agriculture had made in the reigns of Mary and Elizabeth, notices this circumstance in a verse of his Five Hundred Points of good Husbandry.

> " Who soweth his barlie, too soone or in raine,
> of otes and of thistles, shal after complain."

In an edition of this work which was printed in 1744, this phenomenon (as it was then thought) is thus mentioned in a note:

" Wild oats the peeler of the poorest land, and who constantly attends wet seasons, is not easily eradicated, or any good sign at all given. They are not easily weeded when in the blade; and by the time they come into the stalk, they have done their mischief. It is a wonder, not yet accounted for, how they come in such quantities as they do in some lands; pull one up when in blade, and you will find a seed to the root. Mr. Atwell, in his Surveying, says he took up whole yepsonds, (that is, as much as both hands would hold at a time,) and carried them home; one would think they were of the Devil's own sowing."

We often find, in the middle ages, that what could not be accounted for, was either laid to the charge of his infernal majesty, or his supposed agents, the witches. Our forefathers likewise supposed, we may conclude, that the wild oats of our youth were scattered by the same agents, and from this supposition the misdeeds and frolics of thoughtless young men have been called wild oats.

Oats are slightly noticed by Virgil, who says in his Georgics :

" Or change your seed, and for each crop of wheat,
A crop of vetches, peas, or beans repeat.
Flax, oats, and poppies burn the tender soil,
Yet, sown by turns, they 'll recompense your toil."
Lauderdale.

Pliny takes no notice of the cultivation of oats in Italy, but observes, that in some places they are made into bread, particularly in Almaine, where, says this exact and minute observer of husbandry, they are usually sown, and where they seldom have any other pottage than oatmeal gruel, which they call *Abremouz.*

The use of oats as a provender for horses appears to have been known in Rome as early as the Christian era ; as we find that capricious and profligate tyrant Caligula fed

Incitatus, his favourite horse, with gilt oats out of a golden cup.

Whether we look upon oats as a degenerated grain, a natural species of corn, or a grass brought to this state of perfection by the industry and ingenuity of man, we must acknowledge it as a peculiar blessing to this country, and holding a rank next to that of wheat and barley. To the northern parts of these kingdoms its importance is primary, as no soil is found either too rich or too poor, too hot or too cold, for its cultivation; and in these colder parts of our country, where the harvest is often retarded until the wet season sets in, which would entirely spoil other grain, this corn is safely housed without danger of spoiling, the husks and straw being of so dry a nature, that they neither heat nor become mouldy in the mow.

"Oats for their feast the Scottish shepherds grind,"

and it is from this grain that they procure, what their own poet calls, in his Cotter's Saturday's Night,

"The halesome parritch, chief o' Scotia's food."
BURNS.

The oaten cakes and crowdy of Scotland afforded the principal nourishment to the

lower classes of this hardy people, before the potatoe root was so general in the north. Tusser observes, that,

"Each soil hath not liking of euery grain,
nor barlie and wheat for euery vain:
Yet know I no country, so barren of soil,
but some kind of corn may be gotton with toil."

Gerard writes in 1597, that "common otes is called *Vesca, à vescendo,* because it is vsed in many countries to make sundry sorts of bread, as in Lancashire, where it is their chiefest bread-corne, for jannocks, hauer-cakes, tharffe cakes, and those which are called generally oten cakes; and for the most part they call the graine Hauer, whereof they do likewise make drink for want of barley."

Physicians have formerly greatly recommended a diet-drink made of oats, on which Dr. Lower, and the celebrated Hoffman, wrote a treatise about the end of the seventeenth century. The inventor of this drink, Joannes de St. Catherine, is said to have kept himself alive by it to the age of an hundred and twenty years without disease.

The prescriptions of modern physicians are often found to be almost in opposition to those of former times; which we may at-

tribute more to our change of constitution, caused by a change of habit and diet, than to any caprice that we can ascribe to those friends of humanity, who study harder, undergo more, and are generally worse rewarded for their labours, than any other class of persons who rank as gentlemen.

Dr. James says, "The famous remedy for acute distempers, and which has very undeservedly been the subject of much ridicule, I mean water-gruel, is made of oatmeal boiled with water. This is endowed with the same medicinal virtues as the *Ptisan* of Hippocrates; and, as an acescent aliment, is very good when there is tendency to an alkaline putrefaction, which is the case in most acute distempers."

Linnæus enumerates sixteen species of oat-grass, six of which are native plants.

Of the varieties of cultivated oats there are several, that were introduced in earlier days than we have the means to ascertain. Oats are not used in the armorial bearings, either of this, or any other country, although wheat, barley, rye, and beans are common, and even the Guinea wheat was early used in our heraldry, by the family of *Grindgorge*.

Turner observes, in 1568, that the naked oat, *nuda*, grew in Sussex: he adds, "it hath no husk abyding upon it after it is threshed, and is like otemele. This kinde groweth in no other countre that euer I could tell of, sauing onelye in England, nether haue I rede in anye newe or olde Autor of this kinde." The bearded oat, *sterilis*, was brought from Barbary, and first cultivated in this country in 1640. The brittle oat, *fragilis*, came from the south of Europe in 1796.

The Spanish oat, *Loeflingiana*, was introduced in 1770; the Siberian, *Siberica*, in 1777; the Pennsylvanian, *Pensylvanica*, in 1785. The fan-leaved, *distichophylla*, came from Switzerland in 1791.

The French call this species of corn, *Avoine*, or *Aveine*, from the Latin *avena*. The old English name Haver we deem to be a corruption of the same word; for what reason it has since been changed into Ote, and then Oat, we are unable to account.

The Muscovites make an ale or drink of oats, which is of so hot a nature, and so strong, that it intoxicates sooner than the richest wine.

The chaff of oats, being tasteless, is an excellent thing to pack grapes, or any tender

fruit, for travelling. The husks, obtained from oatmeal-makers, are used to pack dried hams, tongues, beef, &c. to be exported to hot countries.

Oat straw is very good for cows, and they eat it with pleasure; but it is not so proper for horses.

The platting of oat and rye straw for hats, was a custom of the ancient Britons, as well as the Italians, and has never been entirely out of use. Shakspeare notices it in the Tempest:

"You sun-burn'd sicklemen, of August weary,
Come hither from the furrow, and be merry;
Make holy-day; your rye-straw hats put on,
And these fresh nymphs encounter every one
In country footing."

Towards the end of the last century it was again introduced by fashionable ladies, as a kind of half-dress, or costume of elegant negligence. The simplicity and durability of these head-dresses rapidly brought them into such general use, that they gave rise to a regular manufactory, which employed the females of whole towns and villages, who brought them to such perfection and lightness, that they were often sold for six times their weight in silver.

ONION.—ALLIUM.

Natural order, Spathaceæ. A genus of the Hexandria Monogynia class.

The Greeks called this coated bulb Κρόμμυον, and Κρόμυον, according to the poets, ἀπὸ τῦ μύειν τὰς κόρας, because the ancients shut their eyes when they ate them, to prevent the painful watering which they cause to these susceptible organs.

In Latin it was named *Cepa* and *Cepe*, from *caput*, as is supposed from the largeness of the head. It was also called *Unio*, being a single root, without offsets, which most other bulbs have; and from this word the English name appears to have been derived.

The common onion, *Cepa*, owes its chief qualities to cultivation. Pliny, who mentions all the countries from whence the Greeks, as well as the Romans, procured

different varieties of this root, says he could not discover that they ever grew wild.*

There is no plant that has been so subject to the caprice of fashion, and the disputes of physicians, as the onion. It has been the common seasoning for meats with most nations from the earliest time to the present; from the table of Majesty, to that of the peasant.

It was one of the Egyptian divinities, who used to swear by the onion, solemnly calling it to witness their oath as a god.

Among the complaints which the Israelites made to Moses, when in the wilderness, was that of being deprived of leeks, onions, and garlick, of which, said the murmurers, "we remember we did eat in Egypt freely†."

A friend who has travelled in that country says, we should not condemn the taste of these sons of Abraham, if we knew how superior and sweet the onions of Egypt are in comparison with those of Europe.

Theophrastus, who died in his 107th year, complaining of the shortness of life, wrote on the onion, about 200 years before the birth of Christ; and Palladius, a Greek phy-

* Book xx. chap. 5. † Numb. chap. xi. v. 5.

sician, who also wrote on this acrid root, recommends it to be sown with savory. Pliny follows the same opinion, and says, onions prosper better when savory is sown with them. It appears to have been a study with the ancients to find what plants thrived well together, or, according to their belief, what herbs had a sympathy with, or antipathy to each other. We find that all the plants which they recommended to be sown or planted together, are of very opposite natures; and there may be more reason in the system pursued by the ancients than is generally allowed; for plants drawing the same juice from the earth must naturally weaken each other; whereas those requiring different nutriment may, in some degree, assist each other, each feeding on juices that are prejudicial to plants of the other species. Our husbandmen acknowledge the principle, by changing their crops. Lord Bacon carried this opinion so far as to say, "the rose will be the sweeter, if planted in a bed of onions."

The Greeks and Romans named the different kinds of onions after the countries or cities from whence they procured them; as the Scalions, Sardian, Samothracian, Alsiden, Setanian, Ascasta, African, Tusculan, and

Amiternian. The Candia onion was much esteemed, and those of Samos and Sardis were the whitest; the Cyprus onion drew the most tears, and the Gnidian variety was esteemed the mildest. The ancients observed, that the red onions were the most keen, and that the roundest were always the best. Pliny recommends them to be kept in corn or chaff; and informs us, that the Romans made poultices of onions and barley-meal, for those who had watery eyes. He says, onions clear the sight by the tears they draw: they used them to cure the sting of serpents and other reptiles, and the juice was given to those who suddenly became speechless. He also relates, that the physicians of his day were of opinion, that onions were hurtful to the parts about the heart, and other vital members; that they hinder digestion, cause flatulencies, &c.; whereas Asclepiades, a physician of Bithynia, who wrote about ninety years before the Christian era, and all his followers, affirmed, that onions were wholesome, caused strength, and cleared the complexion. This latter physician relied so much on his skill, that he laid a wager he should never be sick; and won it, as he died of a fall at a very advanced age.

Gerard says, "The onion being eaten, yea, though it be boiled, causeth head-ach; hurteth the eies, and maketh a man dim-sighted, dulleth the sences, engendereth windiness, and prouoketh ouermuch sleepe, especially being eaten rawe." He adds, "being rawe they nourish not at all, and but a little though they be boiled.

Dean Swift says,

> "This is every cook's opinion,
> No savoury dish without an onion:
> But lest your kissing should be spoil'd,
> Your onions must be thoroughly boil'd."

Their property of drawing tears has been noticed by our immortal Bard:

> "If the boy have not a woman's gift,
> To rain a shower of commanded tears,
> An onion will do well."

We learn from Bradley, who wrote in 1718, how much this pungent vegetable was then esteemed. After having stated that the potatoe was thought a root of little note, he says, "I now come to treat of the onion, a root more generally used in the kitchen than any other. Of this there are two kinds worth the gardener's care: the first is the Spanish onion, which affords a large sweet-

tasted root; and the other the Strasburg onion, which is more biting, and lasts good much longer than the former."

Lord Bacon states, in the fifth Century of his Natural History, "It is declared that onions wax greater, if they be taken out of the earth, and laid a-drying twenty days, and then set again; and yet more, if the outermost pill (peel) be taken off all over." This learned naturalist, although he did not, like Culpepper, attribute the virtue of the plants to the stars, yet was of opinion, that their growth was influenced by the state of the moon. "Take," he says, "some seeds or roots of onions, and set some of them immediately after the change, and others of the same kind immediately after the full: let them be as like as can be, the earth also the same as near as may be, &c., and then see how they differ." He adds, "For the increase of moisture, the opinion received is, that seeds will grow soonest, and hedges, and herbs, cut, &c. will also grow soonest, if they be set or cut in the increase of the moon.*

The many domestic purposes to which this strong-scented vegetable is applied at

* Century 9.

the present time, are known to every one: its nature is to attenuate thick viscid juices; consequently, a plentiful use of it in cold phlegmatic constitutions must prove beneficial. Many people shun onions on account of the strong disagreeable smell they communicate to the breath: this may be remedied by eating walnuts, or a few raw parsley-leaves, immediately after, which will effectually overcome the scent, and cause them to sit more easy on the stomach.

The kind which is erroneously called the Welsh onion, *Fistulosum*, is a native of Siberia, and was first cultivated in Britain in 1629.*

GARLIC.

In Botany, garlic stands in the same class and order as the onion.

This plant is the Σκορδον of the Greeks, and is said to have been called Σκορδον, *quasi* σκόριον ῥόδον, *rudis rosa*, on account of its offensive scent. The Latin name *Allium* is thought to have its origin from the Greek word ἄνεσθαι, *exilire*, to leap forth, from the

* Hortus Kewensis.

rapidity of its growth. Garlic has been subject to the same whims of fashion as have attended its near relation the onion. The Egyptians worshipped it; but the Greeks held it in such abhorrence, that those who ate of it were regarded as profane. Persius relates, that they made criminals eat of it for several days, to purify them from crimes. The Romans gave it to their labourers to strengthen them, and to their soldiers, with an idea that it excited courage in warriors. They also fed their game-cocks with garlic, previously to fighting them.

Horace, however, mentions it with execration in his third Epode; and alluding to the mowers who eat garlic, says,

"O dura messorum ilia!"

Olerius observes, that it was much used in his time by the nobles and courtiers. M. Haller notices, that the inhabitants of all hot countries are fond of garlic. It is a native of most of the European countries, varying according to soil and climate. The crow garlic, *Vineale*, the purple striped, *Oleraceum*, and several other varieties, are found wild in this country; and we learn from Tusser, that it was cultivated here in the time of Queen Mary: his twelfth verse for

the month of November says, "Set garlicke and beans, at St. Edmund the king."

Every part of the garlic, but more especially the root, has an acrimonious and almost caustic taste; it abounds in sharp subtle particles, which render its odour so powerful and penetrating, that, if it be applied to the feet, its scent is soon discovered in the breath, and when taken internally, its smell is communicated through the pores of the skin, even to the fingers. Hence in cold and phlegmatic habits it proves a powerful expectorant, diuretic, and emmenagogue, and, if the patient is kept warm, a sudorific.

Coles tells us, that an old man who by lying in the cold during the winter season had almost lost the innate or natural heat of his stomach, and whose appetite was nearly gone, after many hot medicines used in vain, at length was cured with garlic.

This pungent root warms and stimulates the solids, and attenuates tenacious juices, by its penetrating powers. It is said, that if a clove of it be kept in the mouth, it is an effectual preservative against infection. The Hungarians esteem it the most efficacious preventative against pestilential disorders.

It is said to be of great service in humoral

asthmas, and catarrhous disorders of the breast; and in other disorders proceeding from a laxity of the solids, and cold sluggish indispositions of the fluids. It is also frequently of service in the dropsy, in the beginning of which it is particularly recommended by Sydenham, as a warm strengthening medicine: we have even many examples of its acting so powerfully as a diuretic, as to carry off all the water of dropsies. A dram or two may be taken for a dose. There is a syrup and oxymel made with garlic, which may be given for the same purposes; but they are mostly used in pulmonic disorders. Externally applied, it inflames and ulcerates the skin, and is sometimes employed for this use as a sinapism. It has also been recommended by Sydenham as a most powerful resolvent; for which purpose he was led to make use of it in the confluent small-pox. His method was, to cut the root in pieces, and apply it tied in a linen cloth to the soles of the feet, about the eighth day of the disease, after the face began to swell, renewing it once a-day till the danger was over.

When made into an unguent with oils, and applied externally, garlic is said to resolve and discuss cold tumours; and has been by

some greatly recommended in cutaneous disorders. The acrimonious qualities of this root, however, render it manifestly improper on many occasions.

The liberal use of garlic is apt to occasion head-aches, flatulencies, thirst, febrile heats, inflammatory distempers, and sometimes discharges of blood from the hæmorrhoidal vessels. In hot bilious constitutions, where there is a degree of irritation, when the juices are too thin and acrimonious, or the viscera unsound, it never fails to aggravate the distemper. A dose of garlic pounded with honey, and taken two or three nights successively, is good in rheumatic cases. The author has known the pain greatly relieved by simply rubbing the parts affected with cut garlic.

Sir William Temple, in his treatise on Health and long Life, says, "Garlic has, of all plants, the greatest strength, affords most nourishment, and supplies most spirits to those who eat little flesh. It is of great virtue in colics, a great strengthener of the stomach upon decays or indigestion; and I believe, (if there be any such,) a specific remedy in the gout. I have known great testimonies of this kind within my acquaintance, and have never used it myself upon this occasion

without an opinion of some success or advantage."

Hughes, in his History of Barbadoes, gives a receipt for destroying Guinea worms with this root.

It has also been proved by Rosentein and Tissot, that garlic, *Allium sativum*, is capable of expelling worms, especially the *tænia*.

Pliny states, that garlic is a sovereign medicine for many maladies; especially such as are incident to country peasants and labourers. He recommends those who wish to keep garlic and onions from sprouting, to dip the heads of them in warm salt water.

The strong offensive smell of this plant is so powerful, that if it be given to fowls with their food, their eggs will taste of the flavour. The crow garlic, if eaten by the birds, stupifies them so much, that they may be taken by the hand.

Menander states, that if you have taken garlic, and wish to sweeten your breath, the eating of baked beet-root will entirely take off the offensive smell.

Besides the common garlic, *sativum*, the African garlic, *gracile*, is now cultivated by our gardeners. This has been erroneously termed Jamaica garlic, by most botanical writers, from the circumstance of Hinton

East, Esq. having sent the seeds from Jamaica to England in the year 1787. It is not a native of the West Indies, but was brought from Africa to Jamaica*, and is the same described by Pliny†, which, he says, grows larger than the other garlic, and is so much commended in Africa, that it is held the principal dish of which a husbandman in that country can eat: he adds, that being bruised in a mortar with oil and vinegar, it is wonderful to see what a froth will arise and to what a height it will swell: he tells us, that this kind of garlic was never planted in level ground, but on little hillocks like mole-hills, and that as soon as they shewed their leaves, the mould was taken away from them, for the oftener they were laid bare, the larger the heads would grow.

If garlic be boiled, and given to chickens with their food, it will generally prevent that pest of the feathered tribe, the pip.

SHALOT, OR ESHALOT.—ASCALONIUM.

This relative of the onion was formerly called, and more properly named, Scalion, from Ascalon, a town in Syria, near the Medi-

* Lunan. † Book xix. chap. 6.

terranean, from whence the Greeks first procured them. Pliny says, the Ascalonian onions are proper for sauce.

Dr. Hasselquist found the eschalot wild in Palestine. The root of this species of *Allium* is conglobate, consisting of many oblong roots, bound together by thin membranes; it is very pungent, has a strong but not unpleasant smell, and is therefore generally preferred to the onion for making high-flavoured soups and gravies. It is also much used in pickles, particularly in the East Indies.

The eschalot is considered by the epicures in beef-steaks, as the best seasoning for this English dish; and those who are too refined in palate to swallow the biting root, have their plates rubbed with this relishing plant.

It was first brought to England in the year 1548; and we may safely conjecture that it soon found its way to the breakfast-table of Queen Elizabeth.

The eschalot is easily propagated from the small roots or offsets, that afford us another peculiar instance of the mode which Nature has adopted in fulfilling her laws for the renewal of the species. The viviparous plants

deserve more attention than has been generally given to them. The manner in which they produce their progeny proclaims the wisdom of their Maker in a degree not less wonderful to the curious, than mysterious to the uninformed. Nor is the manner in which bulbs are multiplied less beautifully diversified than that by which oviparous plants are produced.

The eschalot, being a native of a warmer country than England, requires more attention than our indigenous plants, for, if it is suffered to remain too long in the cold earth, it decays altogether. The proper time for taking up will be observed by the withering of the leaves, which tells us that the occult treasures are matured.

LEEK.—PORRUM.

This branch of the onion family was called by the Greeks Πράσον, in Latin, *Porrum*.

The Hortus Kewensis states, that the broad-leaved leek is a native of Switzerland, and that it was first cultivated in this country

in 1562. The able compiler of that excellent work has been wrongly informed in this instance; as we learn from Tusser, that it was in common use in farm-houses at an earlier period. His verse for the month of March says,

"Now leckes are in season, for pottage ful good,
and spareth the milck cow, and purgeth the blood:
These hauing with peason, for pottage in Lent,
thou spareth both otemel and bread to be spent."

Gerard, who wrote soon after this time, mentions leeks in such a manner as to induce us to think them indigenous to our soil; he says "leckes are very common euery where in other countries, as well as in England." And they appear to have been used by the Welsh, as far back as we can trace their history.

"March, various, fierce, and wild, with wind-crack'd cheeks,
By wilder Welshmen led, and crown'd with leeks."
CHURCHILL.

The Welshmen still continue to wear leeks on St. David's day in commemoration of a victory which they obtained over the Saxons in the sixth century, and which they attri-

bute to the leeks they wore by the order of St. David, to distinguish themselves in the battle. This Welsh patron, who died about the year 544, governed the see of St. David's sixty-five years, having founded several monasteries, and been the spiritual father of many saints, both British and Irish.

Some authors affirm, that the symbol of the leek, attributed to St. David, originated in the custom of Cymhortha, which is still observed among the farmers of the country; where, in assisting one another in ploughing their land, they bring each their leeks to the common repast.

Pliny states*, that the best leeks were brought from Egypt, and the next to them from Orthe, a town of Asia Minor, about fifteen miles from Ephesus, now called Guzelhizar, a spot made celebrated by the battle which was fought there one hundred and eighty-seven years before the Christian era, between the Romans and Antiochus, King of Syria. Aricia, in Italy, now called Riccia, was also celebrated for leeks in Pliny's time; for he says, " it is not long since leeks were brought into great notice and esteem through the Emperor Nero, who used to eat them for

* Book xix. c. 6.

several days in every month to clear his voice. He took them with oil only, debarring himself even from bread on these days. Thus this depraved sensualist could deprive himself of comfort to gratify folly, and on this account the Romans called him in derision *Porrophagus,*

> "Thus Nero lived amidst his motley court,
> His people's terror and his people's sport."
>
> DELILLE.

Leeks require a richly manured ground, and will not prosper in wet situations: their qualities are nearly the same as those of the onion and garlic, and they are best when used in moderation.

Lord Bacon seems of opinion, that their odour is, in some slight degree, nutritious. He says, "I knew a gentleman that would fast (sometimes) three or four, yea, five days, without meat, bread or drink, but the same man used to have continually a great wisp of herbs that he smelt on, and amongst those herbs, some esculent herbs of strong scent, as onions, garlick, leeks, and the like."*

* Century 10.

CHIVE.—SCHŒNOPRASUM.

This vegetable, which partakes of the flavours both of the onion and the leek, is a native of Britain, and has been thought by some persons to be a wild onion; but we have no instance of its nature being changed by cultivation.

Chives, being once planted, continue for many years, without suffering from the extremest cold of the winter.

The principal use of chives is for soups and spring salads, when young onions are not to be procured: the leaves, which are like short rushes, are often eaten with bread and butter by country-people.

Chives have nearly the same quality as the other species of leeks and onions.

To describe all the varieties of the *Allium* family, we fear, would be over-seasoning the work with onions, as Aiton notices forty different species of these pungent vegetables.

PARSLEY.—APIUM.

Natural order, Umbellatæ. A genus of the Pentandria Digynia class.

The common garden parsley, with curled leaves, is said to grow naturally in Sardinia. Pliny seems to disprove this account, as he mentions the Sardinian parsley as being of a venomous quality. He observes*, that parsley was in great request with all classes of people, who took it in large bunches in their pottage; and that there was not a salad or sauce sent to table without it, and that all persons were pleased to have their meat forced with this herb; and yet, says he, although parsley is so good, there is not a vegetable growing on the face of the earth, respecting which learned men more disagree and vary in opinion; some maintaining that the curled-leaved is the female plant, others insisting that the taller kind is of that sex.

* Book xx. chap. 11.

Thus, we find, the ancients were satisfied of the existence of the sexual system of plants, although they had not clearly distinguished the parts of fructification. The use of the tall parsley at table was forbidden both by Chrysippus and Dionysius, because it was one of the viands ordained to be served at funeral feasts. This variety was thought to be injurious to the eye-sight, while the common parsley was greatly commended for many medical purposes.

The garden parsley was not cultivated in England until the second year of the reign of Edward the Sixth, 1548.

Gerard spells it Parsele, Parsely, and Parsley; and says, "it is delightful to the taste, and agreeable to the stomacke." He adds, "the roots or seedes, boiled in ale, and drank, cast foorth strong venome or poyson; but the seede is the strongest part of the herbe."

Parsley easily resists the cold and the heat, if it be sown on a rich damp soil, or near a spring.

"Green beds of parsley near the river grew."

The seed should be sown in the spring; it remains six weeks in the earth; it never appears in less than forty days, nor does it often

exceed fifty: thus it takes longer to vegetate than any other known seed; but it is observed that old seed comes up earlier than new.

Parsley is still in considerable demand for culinary purposes, and is the common garnish to most cold meats. It should always be brought to table when any dish is introduced that is strongly seasoned with onions, as it both takes off the smell, and prevents the after-taste of that strong root. Parsley-leaves, on account of their agreeable aromatic flavour, are used in seasoning meats; and, when put into broth, render it diuretic. The decoction is a good sudorific. This herb is esteemed opening, attenuating, and diuretic, but liable to produce flatulencies: it is used for obstructions of the liver and spleen: it helps those afflicted with the jaundice, and is of service against the stone, gravel, and strangury; but it is said to inflame the blood, and to cause headaches in those of bilious habits.

The root of parsley is one of the five opening roots. The seeds are said to be carminative, resolvent, and diuretic, and are good for the colic and gravel; they are

commended, in the German Ephemerides, for destroying cutaneous insects in children. The distilled water of parsley partakes of the virtues of the plant, and contains a small portion of essential oil.

Galen recommended parsley against the falling sickness, &c.; and Tragus states, that the seeds steeped in white wine with anise and carraway seeds, and boiled with an equal weight of the roots, are good for the dropsy, the jaundice, and stone. From this latter quality one variety of parsley was called Breakstone, by medical herbalists.

We are told by ancient authors, that when fish became sickly in ponds or stews, it was a common practice to throw in parsley, which greatly revived them.

This herb is good for sheep that have eaten a kind of wild ranunculus, which causes a worm to destroy their liver. It is also said to be an excellent remedy to preserve sheep from the rot, provided they are fed twice a week, for two or three hours each time, with this herb. Parsley has been sometimes cultivated in fields for this purpose; but hares and rabbits are so fond of it, that they will come from a great distance to

feed upon it; so that those who wish to draw hares on their estates have only to sow parsley in their parks or fields.

Parsley, when rubbed against a glass goblet or tumbler, will break it; the cause of this phenomenon is not known.

To preserve parsley for the seasoning of meats, &c. let it be gathered on a dry day, and immediately put into a tinned roasting-screen, and placed close to a large fire; it will then soon become brittle, when it may be rubbed fine, and put into glass bottles for use.

CELERI.—APIUM GRAVEOLENS.

Celeri is the Italian name for a species of smallage, or tall strong-scented parsley; the name is adopted in French and English, except that in the latter language, it is sometimes spelt Celery. Ache is the true English name of this vegetable. It grows naturally in marshy ground, but in its wild state both the perfume and taste are very different, this being as obnoxious, as the cultivated is agreeable; and Ray observes, that if neglected, it degenerates into its first unpalatable state. Wild celeri, *Apium antarcticum*,

was found in considerable quantities, by Sir Joseph Banks and Dr. Solander, on the coast of Terra del Fuego. It is like the garden celeri in its flowers, but the leaves are of a darker colour. The taste of this variety is described as being something between the flavour of celeri and that of parsley. It has been found a very useful ingredient in the soup for seamen, because of its antiscorbutic quality.

Cordus observed, that the *Apium sativum*, which is our celeri, did not differ from the smallage any otherwise than by culture. This plant is bitter, acrid, and aromatic; it contains a great deal of oily volatile salt, from which the sal-ammoniac is not quite disengaged, but dissolved in a great quantity of phlegm, and united with a considerable portion of earth. By chemical analysis, it yields, besides several acid liquors, a great deal of sulphur and earth, a considerable quantity of an urinous spirit, and a little concreted volatile salt. Thus, it is observed, the plant must be aperient, diuretic, febrifugous, and vulnerary.

Bartholomæus Zorn, in his Botanologia, says, that celeri grows naturally in moist, marshy, and wild places. Both the roots and

the seeds are used, especially in obstructions of the liver and spleen; they warm and dry; they purify, attenuate, and carry off fevers, jaundice, and dropsies.

The cultivated celeri has come so rapidly into use during these last forty years, that it is now grown at all seasons of the year, and, instead of forming a winter salad only, it is now become a principal vegetable in most soups in which herbs are used. It is also sent to table stewed in white sauce; and an agreeable conserve is made of blanched celeri, which is good for pains in the chest and windy colic.

It appears, that celeri-seed will vegetate after it has remained in the earth for several years: an instance of this occurred in the author's garden, where no celery had been planted for three years or more, when he was surprised to find in a large plot of ground where cabbages had been planted, and which succeeded a crop of potatoes, several hundred of fine celery plants. The following year several plants appeared in the same plot, although no celeri had seeded, and the plants had been removed to a distant situation.

A decoction of celeri drunk as tea, is a diuretic that is said to relieve the gravel.

PARSNIP.—PASTINACA.

Natural order, Umbellatæ. A genus of the Pentandria Digynia class.

The garden parsnip, *Pastinaca sativa*, is thought to be a native plant, and to have been procured by cultivation from the wild parsnip, *Pastinaca sylvestris latifolia*, which is indigenous to our soil, and often found in dry pastures and by road sides; this, it is said, will, by sowing its seed for two or three successive years in rich soil, produce the *sativa* or garden parsnip.

The best parsnips were anciently brought from Germany, as we find the Emperor Tiberius took great pains to have them annually brought from that country, and he would (according to Pliny's account) often call for them at his own table. They were principally brought from the neighbourhood of a castle called Gelduba, which was situated upon the banks of the Rhine: these, says Pliny, were very fine; and from thence it is clear, that parsnips love cold regions.

They were served at the Roman tables with the pith or string taken out after being boiled, when a sauce was made for this dish with mead or honey wine. The ancients attribute wonderful qualities to this root, and it was much esteemed by the worshippers of the spouse of Vulcan.

Ancient authors inform us, that if we rub our teeth with parsnips, after they have been picked, it will cure their aching. Parsnips were eaten both boiled and raw. The seed of the garden parsnip, as well as that of the wild, was much used in medicine by the ancients. Dioches, Cleophantus, Philistio, and Orpheus, as well as Pliny, all wrote on the aphrodisiac quality of the parsnip.

Gerard says, " The herbaristes of our time doe call the garden parsnip *Pastinaca,* and therefore we have surnamed it *Latifolia,* or broad-leaved, that it may differ from the other garden parsnip, with narrow leaves, which is truly and properly called *Staphylinus,* that is, the garden carrote." Parsnips were also called Mypes in the time of this author, who adds, " that parsnips are more nourishing than carrots or turnips.

Parsnips contain a very considerable portion of sugar. In Thuringia, the country

people evaporate the juice until it has the consistency of thick syrup, when they eat it on bread instead of honey, and use it in many cases as a substitute for sugar.

Marmalade made with parsnips and a small quantity of sugar, is thought to excite appetite, and to be a very proper food for convalescents.

Wine made from these roots approaches nearer to the Malmsey of Madeira and the Canaries, than any other wine; it is made with little expense or trouble, and only requires to be kept a few years to make it as agreeable to the palate, as it is wholesome to the body; yet fashion induces us to give pounds for foreign wines, when we can obtain excellent wines of our own country for as many shillings.

In the northern parts of Ireland the poor people obtain a sort of beer from parsnips, by mashing and boiling the roots with hops, and then fermenting the liquor.

Parsnips yield, in distillation, a small portion of essential oil, with the flavour of the root; and the seeds are aromatic.

A good cook will never send salt-fish, and but few salted meats, to table, without parsnips. In Holland they are much used in soup.

Plat says, there is a good bread to be made from these roots. Some authors have observed, that parsnips eaten too old, and in great quantities, cause delirium and insanity, on which account they have been called *fools' parsnips.* They are generally considered diuretic and hysterical. It is said that the leaves of this plant, when eaten after meals, assist digestion. Instinct has taught the deer, when ready to calve, to feed upon the wild parsnip.

Cows will feed freely on parsnip roots, which will cause them to give abundance of milk of a rich quality. In Germany they are sown for this express purpose. Sheep when lambing, if fed with this root, produce much milk.

PEA.—PISUM.

Natural order, Papilionaceæ. A genus of the Diadelphia Decandria class.

This pulse was called by the Greeks Πίσον, from Pisa, (a town of Elis,) where peas anciently grew in great plenty.

The English name is evidently a corruption of the Latin, as Tusser (who wrote in the reign of Queen Mary) calls it Peason, and Gerard spells it in the same manner, in the succeeding reign. In the time of Charles the First, Dr. Philemon Holland spells it Pease, since which it has been abbreviated into Pea.

Linnæus enumerates four species, and Miller six; Tournefort counts twenty-two, and Boerhaave mentions twenty-six species of peas, the varieties of which are now, like most other plants, so greatly increased, that it would be uninteresting to go through a

description of the various kinds, almost every country producing peas suitable to its soil and climate.

The earliest kind of which we have any mention is lentils, *Lens.* This is the species of tare, for a mess of which Esau sold his birthright to his brother Jacob.*

Pliny relates†, that the old writers state that the eating of lentils caused men to be mild and patient, wherefore they were called *Lenti* and *Lenes:* they have (says he) two kinds of them in Egypt. To this day they are much used in that country, as well as the chick-pea: they are parched in a frying-pan, and considered the best food for those who undertake long journeys.

Bellonius assures us, that at Grand Cairo and Damascus, there are abundance of shops where people do nothing else but fry peas, it being a sort of provision with which they furnish travellers.

The ancient Hebrews made use of lentils and chick-peas as their common provision when they took the field. Daniel begged that he might not be defiled by the meat which Nebuchadnezzar had ordered for his

* Gen. c. xxv. 29. 34. † Book xviii. c. 12.

food, and requested of Nebzar that he might be allowed pulse to eat.*

" Daniel ate pulse by choice—example rare!
Heaven bless'd the youth, and made him fresh and fair.
COWPER.

And these small peas are still the principal food of the poor in some of the islands of the Archipelago, and other warm countries, where, from indolence, they can often get no better fare.

The ancients used lentils to thicken pottage instead of barley groats, for those that had weak stomachs; the peas were said to be binding, and the broth made of them laxative. They were thought bad for the lungs, and to cause head-ache, with restless sleep and dreams. The Roman physicians used them boiled in vinegar, to discuss all hard tumors occasioned by scrophula, &c.; and as a cure for the erysipelas, they boiled them in sea water.

Lentils appear to have been brought to this country in 1548.† Gerard says, he had been informed that they were sown in his time, in the neighbourhood of Waterford in Middlesex, and other places in England, for

* Chap. i. 5 to 17. † Aiton.

the cattle, in the same manner as other tares. The seeds were used in meagre soups, and are said to be the best food for pigeons. Lentils make excellent sweet fodder, and are therefore to be preferred to all other kinds for calves and other young cattle.

Coles says the people of Hampshire leave out the first syllable and call them Tills, and in Oxfordshire they were called Dills, in his time (1657).

The French Lentil, which is the *Lens major* of Caspar Bauhine, being twice the size of the common lentil, has been more cultivated. These are called Tills in many parts of England.

Chick pea, or, according to early English writers, Ciche pease, is called in Latin *Cicer arietinum*, on account of the pods resembling a ram's head.

Theophrastus says, this pea takes the deepest root of all the pulse kind. Galen says, it is more nutritious than the bean, but that, if eaten too freely, it breeds the leprosy.

The ancients gave them to stallion horses, on account of a particular virtue which they were thought to possess.

Dioscorides, who was physician to Antony and Cleopatra, recommended a decoction of

chick peas and rosemary for the jaundice and the dropsy.

There is but one variety of this pea which is said to be a native of Spain, where it is much cultivated, being one of the ingredients in the olios of the natives. We conclude that it originally grew there spontaneously, as well as in Italy, since we find the Romans used the meal of this pea to lighten their barley bread, previously to wheat being cultivated in their country. It is but little known in Britain, although it was introduced as early as the lentil.

The chick pea, when roasted, approaches nearest to coffee, and is often used as a substitute for that berry, both in Italy and the south of France.

Peas were formerly as much cultivated as corn, but since the introduction of the potatoe root, and the more general use of rice, that of dried peas has gradually diminished, and they are at present seldom seen at table, except with boiled pork, or as an ingredient in winter soup.

Valmont Bomare says, the garden pea was originally of France: which seems probable, as it cannot endure extreme heat or cold.

Coles informs us in his History of Plants, that "the Fulham pease, which came first out of France, is so called, because the grounds about Fulham neere London doe bring them forward soonest."

At what exact period the garden pea was first cultivated in England is left to conjecture, but it was most probably in the reign of Henry the Eighth; as Tusser has the following passages in his Five Hundred points of good Husbandry, which was written in the time of Queen Mary. For the month of January he says:

"Dig garden, stroy mallow, now may ye at ease,
and set (as a daintie) thy runcival pease:"

and in the following month he thus advises the farmer:

"Go plow in the stubble, for now is the season
for sowing of fitches, of beanes, and of peason:
Sowe runcivals timely, and al that be gray,
but sowe not the white til S. Gregorie's day.

Sowe peason and beans in the wane of the moone,
who soweth them sooner, he soweth too soone;
That they with the planet may rest and rise,
and flourish with bearing, most plentiful wise.

Both peason and beans sowe afore ye do plow,
the sooner ye harrow, the better for you:
White peason so good, for the purse and the pot,
let them be wel used, else wel do ye not.

Stike plentie of bowes, among runcival pease,
to clamber thereon, and to branch at their ease:
So doing more tender and greater they wex,
if peacocke and turkey, leave jobbing their bex."

Yet garden peas appear to have been rare in the early part of Elizabeth's reign, as Fuller observes they were seldom seen, except those which were brought from Holland, and "these," says he, "were dainties for ladies, they came so far and cost so dear;" but in the latter part of her reign, gardening had made considerable progress, and, taking into consideration how little it had been previously studied, her days produced the most complete Herbalist (take him on the whole) that has ever written in these kingdoms. Gerard's work is as excellent as it is voluminous, being free from those astrological absurdities that disgrace the Herbals of Culpepper, and others who wrote about the time of the Commonwealth. A mind like Gerard's would be above such ridiculous superstition, and would know that a knowledge of herbs would be sooner gained by looking down to examine the plants, than by looking up to observe the planets. This latter author informs us, that one variety of the pea is indigenous to this country: he says, "the wilde

pease do growe in pastures and earable fields in diuers places, especially about the fields belonging vnto Bishops Hatfielde in Hartfordshire." He adds, "there be diuers sorts of peason, differing very notably in many respects, some of the garden, and others of the fielde, and yet both counted tame, some with tough skins or membrances in the cods, and others haue none at all, whose cods are to be eaten with the peas when they be yoong, as those of the yoong kidney beane; others carying their fruit in the tops of the branches are esteemed and taken for Scottish peason, which is not very common." At that time (1597) he describes the rownciuall, the garden and field peas, the tufted or Scottish, the peas without skin in the pods, the wild pea, and the everlasting pea.

The garden peas have been greatly improved in this country, by what is called *rouging;* which is done by looking carefully over such as are designed for seed at the time when they begin to flower, and drawing out all bad plants, to prevent their *farina* from impregnating with the good; to effect which this is always done before the flowers open. By thus diligently drawing out the bad, and reserving those which come earliest

to flower, peas may be kept two years, but after that time they become very uncertain. Some peas love a light soil, others a rich ground. Peas are a vegetable that requires much nourishment: they thrive best in new earth, but do not prosper so well on manured ground, and will not bear planting successively in the same place, for they will be observed to turn yellow and yield but little seed.

We find the Greeks sowed their peas in November, but the Romans did not plant theirs until the spring, and then, says Pliny, only in warm places lying well to the sun, for of all things (says this author) peas cannot endure cold. What would he have thought of the English, who in this cold climate eat green peas soon after Christmas? these bear an enormous price, and may justly be deemed a delicacy, fit only for ladies whose lords can afford to feed them with vegetable pearls. Notwithstanding the immense size to which the metropolis has extended itself, and crowded streets now occupying the gardens of the last century, yet have the art of horticulture and the industry of the gardener more than kept pace with the increased inhabitants, and furnished this luxury so plenti-

fully, that green peas are now often cried through the streets at four-pence and six-pence the peck.

The most profitable pea for a family, is the kind that is eaten with the pod, yet it is nearly out of use, and seldom seen in the markets.

The following method of keeping green peas, and French beans, is given in Sonnini's Bibliothéque Phisico-economique. Into a middling size stew-pan, filled with young green peas, put two or three table-spoonfuls of sugar, and place the pan over a brisk charcoal fire. As soon as the peas begin to feel the heat, stir them twice or three times, and when they yield water, pour them out on a dish to drain; when drained, spread them out on paper in an airy room, out of the sun, and turn them frequently that they may be dry the sooner. It is necessary for their keeping, that they should not retain any moisture, for if they do, they will soon grow mouldy. French beans may be managed in the same way, and will thus keep good till the next season, as well flavoured as when first gathered. Peas may be dried when gathered green, and are much better for soup than those gathered quite ripe.

Ray assures us that green peas eaten raw are good for those who have caught the scurvy by eating salt meat or fish.

Peas, when green, are a pleasant, grateful, nourishing food, but somewhat flatulent and windy, as well as when dry. They are good to sweeten the blood, and correct salt scorbutic humours, either eaten raw or boiled.*

They produce the greatest part of their good effects by the help of their oily balsamatic parts, which, sheathing up sharp humours of the breast, stop coughs; and by easily condensing in the vacuities of the solid parts, repair and nourish them. The first porridge or boiling of peas, is softening and laxative, because it is filled with the more dissoluble salts of this pulse; these salts, irritating and pricking the internal glands, cause them to let pass through their pores a greater quantity of serous matter. Peas contain a viscous and thick juice, which causes wind, and produces gross humours; and, therefore, they are not good for those that are troubled with gravel.†

Broth of peas, not only renders the body soluble, but it is also beneficial in nephritic

* Miller's Bot. Off. † Lemery on Foods.

pains, according to Simon Paulli, in his *Quadripartitum Botanicum*. Some, also, use with success a decoction of peas, in order to cure cutaneous disorders and pimples.*

The principal varieties of the pea now cultivated for the table, are the Early Frame, Early Charlton, Dwarf Imperial, Dwarf Spanish, Blue Prussian, White Prussian, Sugar Pea, Green Rouncival, White Rouncival, Egg or Bean Pea, Rose or Crown, Dwarf Marrowfat, Tall Marrowfat, Knight's Superb, the Field Pea, &c. &c.

* Hoffman, Præst. Remed. Domest.

POPPY.—PAPAVER.

Natural order, Rhœdæ. A genus of the Polyandria Monogynia class.

In mythological language, we may style this somniferous plant Morpheus's Laboratory, or an Alembic whose tubes and retorts are formed of the branches, to convey the opiate which he there distils into the drooping and receiving bud, for the use of Somnus his sire, whose palace is said to be a cave,

> "Around whose entry nodding poppies grow,
> And all cool simples that sweet rest bestow;
> Night from the plants their sleepy virtue drains,
> And passing, sheds it on the silent plains."

Thus Ovid describes it, and he also tells us, that when Iris visited the cavern of the drowsy god to ask the aid of Morpheus,

> —— "She scarce awake her eyes could keep,
> Unable to support the fumes of sleep."

The ancient statuaries, with propriety,

selected black marble to represent the god of sleep and of dreams, from the relation which the colour bears to night. He was generally depicted with a bunch of poppies in his hand.

The field-poppy was named by the Greeks *Rhœas,* or Corn-rose, from its growing among grain; and on this account it was considered sacred to Ceres, whose garland was formed of ears of corn and the red poppy. It was offered to her in her sacred rites, and she was sometimes represented, also, as holding poppies in her hand; and so acceptable was this plant believed to be to that goddess, that she was named *Mecone,* from Μήκων, the name of this plant.

The ancients had not proceeded in the art of botany so far as to learn what has since been styled the loves of the plants, but they believed that certain herbs grew best when planted together, and on this account, they sowed poppy seed with cabbage, rockets, and lettuce, &c. for the good fellowship they were thought to have for each other.* Virgil says, in the first book of the Georgics,

> "Poppy and linseed, when the glebe is dry,
> Be sure to sow, and watch an iron sky."

* Pliny, book xix. chap. 8.

The cultivated, or garden poppy, *Somniferum*, is stated by modern botanists to be a native of England; but of this we must be allowed to doubt, until we find it growing naturally. Gerard says, "These kindes of poppies are sowen in gardens, which do afterwarde come of the fallings of the seede." Dodoens makes the same remark, and says, "In Apulia and Spain, and other hot countries, they gather the juice, which is the opium." We are disposed to consider it a plant of still warmer countries than either Italy or Greece. The Egyptians were the first who practised the adulteration of opium. This would cause us to suspect that they were the earliest gatherers of this somniferous sap.

We shall forbear farther arguing a point that cannot be proved, and return to history, which informs us, that poppies were cultivated in the royal gardens of Rome as far back as the period when Tarquin the Proud sat on the throne. This last king of Rome became master of the city of the Gabii by a stratagem that reflects disgrace both on himself and his son, who was a principal in it. We relate it from its allusion to the plant in question. Sextus, the eldest of Tarquin's

sons, declared to the citizens of Gabii, whom his father was then besieging, that he was at variance with their imperious enemy, and coming before them with his body all mangled and bloody with stripes, he was easily believed and admitted to their councils, where he was considered as oppressed by the tyranny of his father, and soon gained the command of their armies. Having so far succeeded, he sent a messenger to Tarquin, who returned no answer to his son, but, having drawn the messenger into the royal garden, he there cut off the heads of all the tallest poppies with his stick. On the return of his emissary, Sextus demanded the success of the interview, and on learning what his father had done in the garden, he followed the example, by putting to death all the most noble and powerful Gabians; and thus did the town fall into the hands of the Romans, who afterwards drove this odious family of the Tarquins from the throne and the city.

Pliny says, the seeds of the white garden poppy were served up with honey at banquets, and made into biscuits and comfits, and that the country-people glazed their bread with the yolk of eggs, and then strewed

these poppy seeds over it, which gave the bread an agreeable taste when baked. Galen also notices, that the seed is good to flavour bread. The Romans likewise bruised the heads of these poppies with the seeds in them, which they drank in their wine to procure sleep. The narcotic quality of this plant was known to the Greeks, at least 416 years before the birth of Christ; as Diagoras, at that time advised the stem of the black poppy to be cut off about the time of its flowering, as the best season to procure the milky juice that forms the opium.

Erasistratus, who was grandson to Aristotle, condemned the use of opium in any case. This celebrated physician was an enemy to all violent medicines. Andreas observes, that if it were not for the Alexandrians' adulterating it, those who use it would be blind.

Pliny informs us, that the Romans made incisions in the head of the poppy, after it had done flowering, and caught the liquid on wool, unless it ran in small quantities and became a gum, in which case it was gathered by the thumb-nail, in the same manner as the juice of lettuce was collected. The Romans appear to have made considerable use

of opium in this author's time, who says, he has known many die in their sleep from taking this medicine, and he names some who purposely shortened their days by taking opium; but observes, that physicians had found out many valuable properties in this medicine. The best opium, he says, was procured from poppies which grew in dry situations where it seldom rained, and good opium is mentioned by him as being so powerful, that it could not be smelt with impunity. This author also states, that it may be proved by fire, as the true opium will burn clear like a candle, whereas the adulterated will not so easily take a light, and often goes nearly out. He tells us likewise, that it may be tried in water, where it emits a misty cloud that floats on the surface, while the impure opium gathers into bubbles and bladders; but the surest method to prove it, is to place it in the sun, when, if it be pure, it will dissolve into a liquid, similar to that which oozes from the plant.

Opium is so called after the Greek word *Opon*, or *Opion*, which signifies juice.

The principal part of the opium sold at Constantinople, is brought from that part of Anatolia called by the Turks Aphium Ca-

rahissat, signifying, *Black Caule of Opium.* It is also produced in the territory of Thebes, in Egypt, whence the best opium was formerly called Thebaic opium; but this distinction has long ceased to exist. The true opium is that which oozes naturally from the plant, or flows from incisions made in the poppy-heads by a peculiar kind of knife, or instrument which has five edges. This opium is exceedingly rare; for the Turks who produce it, never allow it to be exported. The opium which we obtain from them is drawn by expression from the poppy, and ought rather to be called *meconium.* The difference between the qualities and virtues of the two juices is said to be very considerable.

Of the manner of procuring this drug, Kœmpfer relates, that the heads of the poppy, when almost ripe, are wounded with a five-edged instrument, by which as many parallel incisions are made at once from top to bottom; that the juice is afterwards worked with a little water, till it acquires the consistence, tenacity, and brightness of the finest pitch. Some of the opium-makers, to shorten their labours, and to have the more juice, draw it equally from the heads

and the leaves of poppies, by expression, and then reduce it to the thickness of an extract by fire: others draw the milky juice by decoction, and which is afterwards inspissated.

Mr. Young, who has successfully and lucratively cultivated British opium, says, in a communication to the Society of Arts, "Last summer (1820) I produced 19½ pounds of opium, 25 gallons of poppy-oil, and at the rate of 40 bolls of early potatoes, from 129 falls 18 yards, being 30 falls less than one acre of ground, by the mode of cultivating communicated to the Society of Arts, and afterwards more particularly detailed in the second and third numbers of the Edinburgh Philosophical Journal, with this difference, that the gatherers collected the milky juice with their thumbs instead of brushes, which I consider to be a material improvement in the mode of gathering; and although I had from twelve to twenty boys, from twelve to fourteen years of age, employed during the season, only two were affected with drowsiness, and I could not be certain whether this was the effect of the absorption of the opium, or of the extreme heat of the weather. By this new mode of gathering

the milky juice of the poppy, one of the boys, more than once during the season of gathering, filled his flask in one day of ten hours' work; the flask contained fourteen ounces, which, when evaporated, gave three ounces and two drams of solid opium. I may observe, that owing to the extreme heat, and want of rain, during the last opium harvest, my plants came so rapidly to maturity, that I did not get so much opium, as I probably should have done, had there been occasional showers."

Opium is imported in flat cakes or irregular masses, from about four to sixteen ounces in weight, covered with leaves; and it is generally very impure. It should be chosen dry, the smoothest and blackest possible, of a disagreeable smell, a bitterish, somewhat hot, biting taste, and neither rugged nor sticky, nor all in a mass.

As the quantity of opium used in medicine in these kingdoms is very considerable, the cultivation of the poppy must be a national benefit; for, exclusive of the advantage of having no longer to depend on the importation of an adulterated drug, it will employ many women and children in the planting, weeding, gathering, &c. and for which

the country will be greatly indebted to the projectors; for no country can be rich and happy while the lower classes want employ.

Opium is acrid, bitter, and strongly odoriferous. On attentively tasting it, a nauseous bitterness is first perceived, then a pungent heat affects the tongue, next the palate, and last of all the lips. The heat continues some time, the bitterness longer, provoking a plentiful discharge of saliva. It also heats the nose, and produces an inclination to sneeze.

Opium consists of five parts of gum, four of resin, and three of earth, or other impurities, not dissolvable either in watery or spiritous menstrua.

Upon a chemical analysis, opium yields phlegm, urinous spirit, oil, a volatile and fixed salt, and some earth; but little of the virtues of opium can be investigated or explained from its analysis, since simples extremely different as to their effects on human bodies, afford the same principles on distillation, as Homberg has shewn by the analysis of the deadly nightshade and cabbage.

From the experiments of Hoffman and Neumann, it seems that the activity of opium resides neither in the gummy nor

resinous parts; but in a certain subtle part of the resinous matter, somewhat analogous to essential oil, but of a much less volatile kind; and they relate, that, on boiling the opium in water, there arises to the surface a frothy, viscid, unctuous, strong-scented substance, to the quantity of two or three drams from sixteen ounces; that this substance, in the dose of a few grains, has killed dogs that could bear above a dram of crude opium.

Neumann says, he knew a preparation of opium by which a whole room-full of men may be presently stupified, deprived of their senses, and even of their lives, without swallowing a single grain; and he thinks opium operates much in the same manner as the vapours of burning charcoal, or as the exhalations of fermenting liquors.

> "From the poppy I have ta'en
> Mortal's balm, and mortal's bane!
> Juice that, creeping through the heart,
> Deadens ev'ry sense of smart;
> Doom'd to heal, or doom'd to kill,
> Fraught with good, or fraught with ill."
>
> MRS. MARY ROBERTSON.

In describing the qualities of this equally valuable and dangerous drug, we do not presume to write for the information of the

learned physician; our intention is to warn the incautious against the use of a medicine as deadly poisonous when ignorantly applied, as it is superior to all opiates when administered by the skilful in physic. Its powers are too effective to be left to the discretion of careless nurses, and it should be as rarely as possible taken, except from the hands of those who have made medicine their study. Persons who have accustomed themselves to use it as a stimulus to sleep, we would strongly advise to lessen their daily portion by such gradations as will enable them to do it more effectually than by a sudden change.

> For is there aught in sleep can charm the wise,
> To lie in dead oblivion, losing half
> The fleeting moments of too short a life—
> Total extinction of the enlightened soul ?
>
> THOMSON.

To such as have accustomed themselves to abuse their minds and constitutions by the stimulating and intoxicating powers of opium, we would recommend a similar course to what was prescribed to, and followed with success by a gentleman who had so habituated himself to the drinking of spirits, that it seemed equally dangerous to abstain from or

continue the draught that undermined his health. He was advised to continue taking his quart of rum daily; but, upon emptying the decanter, a horse-bean was as regularly to be added, as it was to be replenished with spirits. Notwithstanding the unperceived diminution in the daily quantity, it was not long before the vessel became so full of beans, as not to allow room for a draught of rum; and he is now living in health, and often laughs at his former industry in rinsing the beans to procure a single glass of grog.

The action of opium is said to be very analogous to that of wine or vinous spirits; the good and ill effects of both differ little, and it is as common a remark in the Turkish dominions, that "he has eaten opium," as with us, "he has drunk too much wine."

We do not deny that the Turks and other inhabitants of the Eastern nations, from habit, can take great quantities of opium without instantaneous ill effects; whereas a few grains will destroy a person unaccustomed to it.

Tournefort says, the Turks eat the green heads of poppies, *Papaver orientale*, although excessively acrid.

Dr. Smith, while at Smyrna, took great

pains to observe what quantity of opium was taken by the Turks in general; and he found that from three to six drams a day was the common dose of the larger takers of it. A Turk ate this quantity before him, three drams in the morning and three in the evening, with no other effect than its giving him great cheerfulness. But this habit greatly impairs the constitution: the persons who accustom themselves to opium, can by no means live without it, and they are generally feeble and weak; their legs are usually thin, and their gums eaten away, so that the teeth stand bare to the roots; they are also often of a yellow complexion, and look much older than they really are. The Turkish messengers, when sent upon business of haste, always carry opium with them, and take largely of it when tired; they say it immediately gives them strength and spirits to proceed, taken with proper precaution.

The Turks are likewise said to take large quantities of this drug when they go to battle, which gives them a kind of infuriated strength for a time.

Dr. James tells us of a Turkish messenger, who coming from Constantinople to Mr. Samuel Barnardiston, a merchant at Smyrna,

on entering a gentleman's house, fell down for dead, at which when the whole house was surprised and concerned, one of the servants rightly judging, that this fainting away was occasioned by the stock of opium laid in for his journey being exhausted, forced a little of this drug into his mouth; and by this means he recovered presently, and acknowledged that the servant had been his physician.

The Turks use opium, made up with palatable ingredients, at their feast called *Biram*, to make them cheerful, which may be one reason of its prevailing so much; for, finding it then entertains them with pleasing fancies, they are tempted to continue it: and so the use of it becomes necessary, and grows upon them.

During the Turkish fast of the *Ramadan*, which lasts twenty-eight days, the Mahometans are not allowed to eat, drink, or smoke, while the sun is above the horizon; but, in order to alleviate this suffering, they swallow after their breakfast, a certain number of opium pills, wrapped up in thin paper, folded in different proportions, so as to resist the powers of the stomach for different lengths of time, and which, being dissolved in due

rotation, in some measure corresponds with their accustomed allowance. Thornton notices this practice (doubtingly) in his History of Turkey; but a friend, who has resided several years in Constantinople, assures us of the correctness of the statement, but observes, that this practice is principally confined to those Turks who are denominated *Teriaki,* on account of their indulging in luxurious gratifications.

The Chinese in Batavia, as well as the Indians of Bantam, prepare a stimulating electuary of opium, with which the *debauchés* abuse themselves.

Dr. Russell, in his History of Aleppo, (p. 84) informs us, that the greatest quantity he knew to be taken, was three drams in twenty-four hours; and the immediate effects which he observed it to have on such as were addicted to it, were, that their spirits were exhilarated, and, from a dozing, depressed state, into which they sank after passing the usual time of taking their dose, they became quite alert. The consequences of a long use of it are, that they soon look old and besotted, like such as in Europe have ruined their constitutions by hard drinking. And it may be considered as a certain fact,

that they seldom live to a good old age: though they are rarely carried off by dropsies, or such other diseases as are the usual consequences of hard drinking amongst us; but, having lost their memory, and most of their intellectual faculties, they decline, in all appearance, in the same way as those who sink under the weight of years.

Daily experience assures us, that those who habituate themselves to opium, find it as necessary as spiritous liquors to tipplers, and they have often been found able to take from fifty to sixty grains. In the *Phil. Trans.* we have an instance of a Mr. Lovelock, who, in a fever, in the space of three days, took one hundred and two grains. Garcias mentions a woman who took ten drams every day, and though she appeared stupid and sleepy, yet she disputed very readily and learnedly on any subject.

Dr. Richard Mead, in his "Mechanical Account of Poisons," 1702, says, "Those who take a moderate dose of opium, especially if not long accustomed to it, are so transported with the pleasing sense it induces, that they are, as they often express themselves, in heaven; and, though they do not always sleep, yet they enjoy so perfect an indolence

and quiet, that no happiness in the world can surpass the charms of this agreeable ecstasy." But if the dose be immoderate, or excessive, and the impression exceeds the bounds prescribed by nature, as in drunkenness, these transports of joy degenerate into ridiculous mirth, deliriousness, &c. or end in profound sleep and lethargy; or a palsy, apoplexy, or sudden death, finish the tragedy, according to circumstances.

Willis* observes, that some, by taking a small pill of laudanum, have been thrown into so profound a sleep, that they could never afterwards be roused out of it; and though from their pulse, respiration, and heat, they seemed to be alive, and in a due state, for three or four days, yet they could never, either by internal remedies, or external applications, be recalled to sensation and waking. The same author tells us, that he has known a small dose of opium take so contrary an effect upon other constitutions, that they could hardly sleep at all, but that they immediately became worse with respect to their pulse, respiration, and heat; they became more breathless, and could

* Pharmacop. Ration. Part i.

not be restored by cordials, but gradually languished, till they died.

That the unskilful use of opiates greatly injures the brains, senses, and mental powers, is generally acknowledged; and we have a particular case in *Miscell. Nat. Curios. Decad.* 1. *a* 5, where we are informed that a person, upon ignorantly taking a large quantity of opium, was first afflicted with terrible dreams, and then deprived, in some measure, of the use of his tongue; an hour after which he was seized with a vertigo, a disturbance and gyratory kind of motion in his head. The patient, also, afterwards told, that he and the bed seemed not only to be suspended in the air, but also to fly. Thus he remained, as it were, in an apoplexy, and unconscious of his own existence. In the beginning of his disorder, he said, he neither perceived the taste of the strongest vinegar, nor the smell of the spirit of sal-ammoniac. His pulse was low; and when he shut his eyes, he had the appearance of a distracted person. During this condition, spiritous apoplectic water was given to him, by which his spirits seemed to be forthwith recruited, after which he perceived an itching all over his body.

Willis* tells us, that by means of opium, he knew several persons who contracted slowness of genius and stupidity, and others confirmed folly. And one man in particular, who, by taking a large dose of laudanum when he was feverish, lost his memory totally.

Nurses, and women who have the charge of infants, should not be allowed to administer somniferous medicines, when any pain or uneasiness seizes the children; for though they do not always prove fatal, yet, if often used, they frequently weaken the brain and nervous system of infants, and have often been found to induce a tremor of the joints, a palsy, and stupor. The author recollects a melancholy instance of this nature happening to a family of rank, who intrusted their children, then at Worthing, in Sussex, to the care of a nurse, whose age and experience ought to have made her more cautious; but on one of the children being fretful and restless, she gave it too large a quantity of the common poppy syrup, which threw the infant into a lethargy, from which it could not be revived.

* Pharmacop. Ration. Part i.

Opium in the crude state is rarely to be trusted to; but, when prepared and corrected and administered with judgment, it proves a medicine of singular efficacy. Galen convinces us that he was very cautious in the use of opium; as he tells us, that opium used by itself was fatal, but, when prepared with other substances, a salutary and beneficial medicine.*

Were we to relate all the fatal effects that have happened to the human species by the improper application of opiates, we should have to give melancholy extracts from the works of every medical writer of eminence; and as our object is to please as well as to caution, we shall close the drowsy subject by referring our readers to their separate medical friends for an account of the good qualities of a drug, which we deem too dangerous to recommend the tampering with.

The *Oeillette*, or the small poppy, yields a very fine oil, in many instances of so good a quality as to be used for salads.

* De Theriaca ad Pisonem, chap. xiii.

POTATOE.—SOLANUM TUBEROSUM.

Natural order, Luridæ. A genus of the Pentandria Monogynia class.

Potatoe is the English name of the tuberose-rooted esculent Lycopersicon, or Solanum, of botanical writers. It was evidently so called on account of its similarity to the batata, the Indian name of the sweet potatoe, which was known in Europe at least thirty-three years before this country was blessed with the potatoe, which now forms alike the rich man's luxury and the poor man's bread!

Peter Cicca, in his Cronical*, printed in 1553, tells us, that the inhabitants of Quito and its vicinity have, besides maize, a tuberous root which they eat and call Papas.

C. Clusius guesses this to be the root he received from Flanders in 1598, during his residence at Vienna. It was sent to him by the Governor of Mons, in Hainault, who pro-

* Chap. xi. p. 49.

cured it the year before from the attendants of the Pope's legate, under the name of Taratoufli. In Italy, where it was then in use, no one knew whether it originally came from Spain or from America; but as the Spaniards were at that period sole possessors of South America, there can be little doubt but that they procured it from the mountainous parts of that country, and particularly in the neighbourhood of Quito, and from thence sent it to Spain.

It is said to have been first introduced into this country by Sir Francis Drake, who brought it from the South Sea; others give the credit to Sir John Hawkins: but this kind of potatoe requiring a warm climate, could never have been cultivated in this country, except by the curious.

The potatoe now in use was brought to England by the colonists sent out by Sir Walter Raleigh, under the authority of his patent granted by Queen Elizabeth for discovering and planting new countries not possessed by Christians, which passed the Great Seal in 1584. Some of Sir Walter's ships sailed in the same year, and returned in July 1586; but it seems uncertain whether Sir Walter brought the potatoe root to England,

or whether it was afterwards sent him by Sir Thomas Grenville or by Mr. Lane who was the first Governor of Virginia. Mr. Thomas Herrist, who went out with them, wrote an account which will be found in De Bry's Collection of Voyages. In vol. i. under the title "Roots," he describes a plant called Openawk, thus: "These roots are round, some large as a walnut, others much larger; they grow in damp soils, many hanging together as if fixed on ropes; they are good food either boiled or roasted."

By the manuscript minutes of the Royal Society, December 13, 1693, it appears, that the then President (Sir Robert Southwell) informed the fellows, that his grandfather brought potatoes into Ireland, and that he first had them from Sir Walter Raleigh.

Some writers state, that the potatoe was introduced into Ireland as early as the year 1566. If this was the case, it evidently must have been the *batata*, procured either from Spain or Italy, as we have no account of the Virginia potatoe having been known in Europe at that period. It was certainly used as food by the Irish long before its utility was generally known in England; and we are informed that it was accidentally thrown on our

shore by a vessel wrecked on the coast called North Meols, in Lancashire; a place and soil even now famous for producing this vegetable in great perfection.

Sir Walter Raleigh is said to have given some potatoes to his gardener in Ireland as a fine fruit from America, and ordered them to be planted in his kitchen-garden. In August the plants flowered, and in September produced the fruit; but the berries were so different to what the gardener expected, that in an ill humour he carried the potatoe-apples to his master. "Is this (said he) the fine fruit from America you praised so highly?" Sir Walter either was, or pretended to be ignorant of the matter; and desired the gardener, since that was the case, to dig up the weed and throw it away. The gardener, however, soon returned with a good parcel of potatoes.*

Gerard describes two kinds of potatoes in his Herbal, and, as the account is highly interesting, I shall copy it *verbatim*. "This plant," says he, "which is called *Sisarum Peruvianum*, or Skyrrists of Peru, is generally of vs called Potatus or Potatoes. There is

*Appendix to the Report of the Committee of the Board of Agriculture, on the Culture of the Potatoe.

not any that hath written of this plant, or said any thing of the flowers, therefore I refer the description thereof vnto those that shall heereafter haue further knowledge of the same; yet haue I had in my garden diuers roots that haue flourished vnto the first approach of winter, and haue grown vnto a great length of branches, but they brought not foorth any flowers at all. The roots are many, thick and knobbie, like vnto the roots of peionies, or rather of the asphodill, ioined togither at the top into one head, in manner of the skyrrit, which being diuided into diuers parts and planted, do make great increase, especially if the greatest rootes be cut into diuers gobbets, and planted in good fertill ground. The potatoes grow in India, Barbarie, Spaine, and other hotte regions, of which I planted diuers rootes (that I bought at the Exchange in London) in my garden, where they flourished vntil winter, at which time they perished and rotted.

"The potatoe-roots are among the Spaniards, Italians, and many other nations, common and ordinary meate; which, no doubt, are of mightie nourishing parts, and do strengthen and comfort nature; whose nutriment is, as it were, a meane betweene flesh

and fruit, though somewhat windie; but being rosted in the embers, they do lose much of their windiness, especially being eaten sopped in wine. Of these rootes may be made conserues no less toothsome, wholesome, and daintie, than of the flesh of quinces. And likewise these comfortable and delicate meates, called in shops Morselli Placentulæ, and diuers other such like. These rootes may serue as a ground or foundation whereon the cunning confectioner or sugar-baker may worke and frame many comfortable, delicate conserues and restoratiue sweet-meates. They are vsed to be eaten rosted in the ashes; some, when they be so rosted, infuse them and sop them in wine: and others, to give them the greater grace in eating, do boile them with prunes, and so eate them. And likewise, others dress them being first rosted) with oile, vinegar, and salt, euery man according to his owne taste and liking: notwithstanding, howeuer they be dressed, they comfort, nourish, and strengthen the bodie, &c."

This was evidently the sweet potatoe, which was supposed to possess an invigorating property. Kissing comfits were made of them in Shakspeare's time. Falstaff says, in the

Merry Wives of Windsor, (Act 5, scene 5.)

"Let it rain Potatoes, and hail kissing comfits!"

Gerard commences his next chapter with the description of the common potatoe now in use, and says, "*Battata Virginiana, sive Virginianorum, & Pappus,* Potatoes of Virginia." After an accurate description of the plant and flower, he adds, "The roote is thicke, fat, and tuberous; not much differing either in shape, colour, or taste, from the common potatoes, sauing that the rootes hereof are not so great nor long; some of them round as a ball, some ouall or egge fashion, some longer and others shorter. It groweth naturally in America, where it was discovered, as reporteth C. Clusius (who was born at Arras in French Flanders, 1526); since which time I haue received rootes hereof from Virginia, otherwise called Noremberga, which grow and prosper in my garden as in their owne natiue countrie. The Indians do call this plant *Papus* (meaning the rootes), by which name also the common potatoes are called in those Indian countries. We haue the name proper vnto it mentioned in the title, bicause it hath not only the shape and proportion of potatoes, but also the pleasant

taste and virtues of the same. We may call it in English, Potatoes of America or Virginia. They are a foode, as also a meate for pleasure, equal in goodnesse and wholesomness vnto the common potato, being either rosted in the embers or boiled and eaten with oile, vinegar, and pepper, or dressed any other way by the hand of some cunning in cookerie."

Lord Bacon, whose Natural History was written soon after Gerard's Herbal, calls them Potado-roots, and says, "If potado-roots be set in a pot filled with earth, and then the pot with earth be set likewise within the ground some two or three inches, the rootes will grow greater than ordinary. The cause may be, for that having earth enough within the pot to nourish them, and then being stopped by the bottome of the pot from putting strings downward, they must needs grow greater in breadth and thicknesse. And it may be that all seed roots, potted and so set into the earth, will prosper the better."

Early in the 17th century this root was planted in the gardens of the nobility as a curious exotic.

The potatoe appears to have been esteemed a great delicacy in the time of James the First; for in the year 1619 it is noticed

among the different articles provided for the Queen's household. The quantity supplied was extremely small, and the price high, being at that time one shilling per pound.

The success which now attends the rearing of this root could not have been anticipated by the most sanguine planters among our forefathers, when it was first introduced to our northern clime, from a country so many degrees nearer the Equator. We should not therefore despair of being able to rear to perfection, in these kingdoms, many annual plants that are natives of much warmer countries; for the potatoe still continues as impatient of cold as almost any vegetable in the garden, yet experience has taught us that our summer is sufficiently long to bring this root to perfection.

It was long, however, before potatoes were brought into general use; for by some they were reckoned not good for food, others deemed them poisonous. The lower classes, to whom this vegetable is now the greatest blessing that the soil produces—forming flour without a mill, and bread without an oven—and at all seasons of the year an agreeable and wholesome dish, unaided by expensive or injurious condiments—were the last to

become acquainted with this valuable root. So difficult is it to overcome prejudices in ignorant minds!

Many persons were prejudiced against the potatoe, on account of its being a species of *Solanum*, or Nightshade, alleging it was narcotic. In Burgundy, the culture or use of the potatoe was interdicted, and it was deemed a poisonous and mischievous root. Amongst other evils, it was accused of occasioning the leprosy and dysentery!

The potatoe first became an object of national importance in 1662-3, as appears by the record of a meeting of the Royal Society held March 18th in that year; when a letter was read from Mr. Buckland, a Somerset gentleman, recommending the planting of potatoes in all parts of the kingdom, to prevent famine. This was referred to a committee, and, in consequence of their report, Mr. Buckland had the thanks of the Society: such members as had lands were intreated to plant them; and Mr. Evelyn was desired to mention the proposals at the close of his Sylva. Notwithstanding, it was not till within the last twenty years that they were used as a substitute for corn-bread in England; when the apprehension of a scarcity induced all

prudent families to adopt the use of potatoes at their dinner-tables, in lieu of bread or puddings: the making of starch from wheat was also prohibited at the same time, as well as that of hair-powder, which brought potatoes into such general esteem, that the cultivation of them has continued to increase amazingly from that period.

Bradley, in his book entitled New Improvements of Planting and Gardening, (published in 1718,) says, after having described parsnips, carrots, onions, &c. "Potatoes and Jerusalem artichokes are roots of less note than any I have yet mentioned; but as they are not without their admirers, so I shall not pass by the method of their culture in silence. The potatoe rather loves a sandy than a strong soil: I have seen them do well in both; but have observed that the roots knot much better, and are sweeter in the sand."

This shews us, that, though the culture of the potatoe was perfectly understood in the beginning of the last century, the root, nevertheless, was not appreciated according to its merits.

Notwithstanding the indefatigable industry of Linnæus to introduce the culture of potatoes in Sweden, they were but little regarded

until 1764, when a Royal edict was published to encourage their general cultivation: and yet we find their value was fully known in that country at an earlier period; for in the Memoirs of the Royal Academy of Sciences in Sweden, in 1747, Mr. Charles Skytes proposed to distil brandy from them, in order to save corn, which in that country is often very dear. This person states, that an acre of potatoes compared to an acre of barley, will yield a spirit in the proportion of 566 to 156, even admitting the potatoe to be planted on the worst kind of ground, and the barley on the best.

Dr. Anderson distilled from 72 pounds of potatoes that had been properly fermented, (with no addition except yeast) an English gallon of pure spirit, considerably above proof; and about a quart more, below proof. It was the finest and most agreeably vinous spirit he ever tasted.*

The consumption of potatoes, even at the present time, on the Continent, is but small, when compared to that of England and Ireland.

In the Highlands of Scotland, (where fa-

* Bath Society, vol. iv. page 50.

mine was unhappily but too frequent before the introduction of the potatoe-root,) it is supposed that many persons would have perished for want in the year 1783, had it not been for this root. It should be observed also, that potatoes afford food in June and July whereas food from corn cannot be obtained until a much later period.

This *palladium* against famine was not cultivated in Scotland until 1683. In 1728 Thomas Prentice, a day-labourer, first planted potatoes in open fields, in Kilsyth: the success was such, that every farmer and cottager followed his example.

In Shropshire, Lord Clive found it an excellent practice to permit the planting of potatoes in his young plantations, the season after the young trees are put into the ground. The potatoes were continued for three years.

Mr. Coke, of Holkham in Norfolk, permitted the poor to plant potatoes in his young plantations, and found the cultivation beneficial to the trees. In all cases where the benefit to the planter, and to the poor, seems to be so reciprocal as in this practice, it is much to be wished that the same system may be adopted. Mr. Abdy, of Essex, grubbed a wood, and planted potatoes,

which answered well. It would be highly profitable to allow the poor to plant baulks and headlands in corn fields with potatoes.

The greatest enemies to potatoes are the rooks, who by an exquisite sense of smelling find them out, and make great depredations.

We conclude that all the varieties of the potatoe which we now enjoy, have originated from one kind, and that they have in a great measure changed their nature by cultivation. From the seed, there is a great chance of procuring a new variety; but that produced from the *eyes* of the root seldom changes from the kind planted; yet it would appear by Gerard's description, that he had a variety of kinds from the original plant.

Samuel Bate, Esq. informed the author of this Work, that when he went with the first settlers to Van Diemen's Land, he took with him about half a bushel of potatoes for seed, which were all of one kind; but to his great surprise, when they were all dug up, he had five distinct varieties: viz. the White Champion, the Round Red, the Kidney, a small round potatoe, and a variety commonly called the Miller's Thumb. A sample of each of these was afterwards sent into a warmer

climate, where, on being planted, they all degenerated into one, the original variety!

Our common potatoes soon degenerate, when planted in the West India islands: they grow waxy, and acquire a more saccharine taste than those of Europe or America. They are not therefore much cultivated, although, in favourable situations, very good potatoes have been produced from English plants.

SWEET POTATOE.—CONVOLVULUS.

Natural order, Campanaceæ. Class, Pentandria Monogynia. Battata, Potato.

Lunan gives us the following account of the sweet potatoe, in his Hortus Jamaicensis:

The sweet potatoe is raised from slips, and is cultivated by laying a few short junks of the stem, or the larger branches, in shallow trenches, with inter-spaces, and covering them with mould from the banks. The roots come to maturity in three or four months, and the propagation is continued by covering the stems, bits, and small protuberances with mould, as they dig up the more perfect roots for use. The leaves are good fodder for horses, sheep, goats, or rabbits. There are

several varieties in colour and shape of these, as well as of the common potatoe. They are much cultivated by the negroes in the West Indies. The roots pounded are often made into a kind of pudding called a *Pone*, which is baked or boiled; mashed or fermented, they make a pleasant and cool drink called *Mobby;* when distilled, they afford an excellent spirit; and mixed with an equal quantity of flour, they make excellent bread, retaining the moisture several days longer than wheaten bread—a circumstance by no means unimportant in that warm climate. The bread is also said to be very nourishing, and easy of digestion.

Hughes says, in his Natural History of Barbadoes (published 1750), that potatoes are there looked upon as so beneficial, that there is scarce an estate where there is not a considerable quantity of land planted with them; for these, with the yams and plantains, serve instead of bread to most of the middling classes, and almost entirely to the poorer sort: they make a kind of bread or cake of these roots. The potatoes being first grated, and the juice pressed out, the meal is mixed with sugar and spice, and made into paste, which being baked in the oven in the form

of a plum-cake, its taste is far from being disagreeable;—this they call Pone. With the expressed liquor of the potatoe is made what we call Mobby, a sort of cool drink, answering to small beer in England. The method of making this is, to mix the raw expressed juice of the potatoes with a certain quantity of water; this will soon ferment in a seasoned vessel, and in about twenty-four hours be ready for use: its taste is cool and sharp, and it is generally esteemed a healthy liquor. The juice likewise of potatoes, if fermented, will by distillation yield good spirits.

The potatoes of Barbadoes differ from the English potatoe, by being propagated by a slip of the vine; this vine trailing close to the ground takes root with its numerous joints, and these, burrowing in the ground, bear a great number of potatoes, which have all a sweetish taste. Mr. Hughes does not notice the Virginia potatoe.

Potatoes were scarcely known in the East Indies thirty years ago; but they are now produced in such abundance, that the natives in some places make considerable use of them. Bombay is supplied chiefly with this excellent root from Guzerat.

The lower classes of Irish subsist almost entirely on this nutritious root, and I do not know a stronger or more healthy people in the world. Dean Swift says, "The families of farmers in Ireland live in filth and nastiness, upon buttermilk and potatoes."

Gay notices their attachment to this vegetable, a century back:

"Leek to the Welsh, to Dutchmen butter 's dear,
Of Irish swains potatoe is the cheer."

The cultivation of this root is now become almost of equal importance to that of corn; and we have not only potatoe shops, but potatoe merchants, who trade to a great extent in the metropolis. Arthur Young observes, in his account of Essex, so far back as 1807, that Mr. Pittman, of Barking in that county, was one of the greatest growers of potatoes in this kingdom, having in general three hundred acres annually planted with this useful root, and sending to market three thousand tons of potatoes, all washed ready for sale!

An extraordinary instance of the produce of a potatoe is mentioned by Doctor Roulston, of Raphoe in Ireland, who lately dug in his garden a single potatoe-top, which produced 568 evenly sized potatoes.

Potatoes, when forced, meet with a ready sale, at prices that well reward the attentive gardener: they form one of the side-dish luxuries of the wealthy; and perhaps are the most wholesome of all their dainties! The idea that forced potatoes are always of a watery nature is erroneous; they are of an early and small variety, which have been obtained from seed that is planted in hot-beds, and these, when ripe, are as mealy as the potatoes of natural growth. Mr. H. Kirkpatrick, in 1796, published a work on the culture of potatoes, wherein he recommends his seedling potatoe as a good kind for forcing, and adds, "No gentleman who wishes for early sorts, will think the price (5*s* per pound) too high." This author states, that he has known potatoes succeed for fourteen years successively on the same ground.

The author of this Work was for many years supplied with potatoes from Mitchelgrove, near Arundel, which were not only the largest of the kidney kind, but the most floury and best flavoured he had met with. Mr. Whyatt, the grower, informed him, that they had attained this size and quality from his mode of culture; which was, by digging trenches and filling them entirely with leaves,

(which he procured in the autumn from the plantations in the park), and then slightly covering them over with earth.

It is well known that most vegetables consist of nitrous particles, as well as mucilaginous and resinous matter; some possess a proportion of oil, or matter analogous to that of animals, and which, while decaying, must afford the best possible nourishment to plants of most kinds, without giving the roots a strong taste, which coarser manures might impart.

Stable-dung should on no account be used, as the powerful saline quality it possesses not only affects the taste of the root, but also causes it to canker, while any undecayed litter lightens the soil, and gives free scope to the lateral shoots of the plant.

——— Each plant, from all its branching roots,
Amid the glebe small hollow fibres shoots,
Which drink with thirsty mouths the vital juice,
And to the limbs and leaves their food diffuse:
Peculiar pores peculiar juice receive,
To this deny, to that admittance give.

BLACKMORE.

The *farina*, or flour, of which starch is made, is easily procured from potatoes, by simply grating them into clear spring water, when it separates from the other particles,

and sinks to the bottom. When potatoes are frozen, it will be observed, that it is only the water which the frost affects, and not the starch, which may be extracted as white and good, as if not frozen.

In 1807, Mrs. Morris of Union-street, near the Middlesex Hospital, discovered, that the liquor obtained in the process of making potatoe-starch would clean silk, woollen, or cotton goods, without damage to the texture or colour. It is also good for cleaning painted wainscots; and the white *fecula*, the substance of which potatoe-starch is made, she says, will answer the purpose of tapioca, and will make an useful nourishing food with soup or milk. It is known to make the best *soufflés*, and has within these last few months been introduced at the foreign oil-shops as a new article, under the name of *Fécule de Pomme de Terre*, for which they modestly charge four shillings per pound.

Potatoes boiled down to a pulp, and passed through a sieve, form a strong nutritious gruel, that may be given to calves as well as pigs, with great advantage and saving of milk.

A size is made from potatoes, which has great advantages over the common size, for the purpose of white-washing, as it does not smell, and it has also a more durable white-

ness. Yeast may also be made from these roots, fit for the use of either the baker or the brewer.

It does not form any part of the plan of this work to transcribe the various receipts for cooking vegetables; but we cannot avoid noticing, that too little attention is generally paid to the dressing of this root; for an indifferent potatoe becomes good when well cooked, and a good one becomes excellent when cooked with attention.

We recollect reading an advertisement for a cook, to which this necessary caution was subjoined, "None need apply who cannot cook a potatoe well."

The most simple, and perhaps the most wholesome, way of boiling potatoes, is, in an untinned iron pot or saucepan; when boiled, pour off the water, and let them continue over a gentle fire: the heat of the iron will cause the moisture to evaporate, and dry the potatoe fit for the table.

It is gratifying to learn, that this useful root is rapidly finding its way into every part of Europe. Experience has fully proved its value to Britons, who now generally promote its culture for the benefit of all nations; for which "The wilderness and the soli-

tary place shall be glad, and the desert shall rejoice, and blossom as the rose."* In Italy it has already become so familiar, that we may soon hope to see it used by their vagrants, who now often subsist on the watery gourd. The Horticultural Society of this country has already extended its benefits to the borders of the Black Sea, by sending out the best varieties of the potatoe to the Crimea and other parts.

It has now become a question of great importance, and one which deserves the most serious investigation, whether this root, now justly styled the bread-fruit of Great Britain and Ireland, degenerates, or loses any of its good qualities, by the long-continued practice of raising it from eyes? The principal points are, to ascertain if they are less farinaceous than formerly, or deficient in flavour. We have observed that potatoes which have been obtained from the berries only a few years, have generally a more agreeable taste than older varieties: it must therefore be desirable, that the *seed* should be continually sown, from which alone new varieties may be expected. The process is

* Isaiah, c. xxxv. v. I.

easy: the berries being collected when ripe, should be preserved in dry sand, until the following spring, when they should be rubbed with chaff or sand, to separate the seeds, and sown in light mould and a warm situation. When the plants have grown a few inches out of the earth, they should be transplanted into a second bed, at a proper distance; or as many should be removed as would be too close to each other. In the autumn, small potatoes will be found attached to these plants; and in every succeeding year the size will be observed to increase.

The red potatoe, which has a purple flower, is considered a distinct variety from those which have a white skin and a white flower.

The Horticultural Society, whose exertions have so eminently benefited their country, no sooner heard of the root called *Arracacha*, which is said to grow in New Grenada, in South America, than arrangements were made to bring this vegetable to England. It is said to be as sweet as chesnuts, and far superior to the potatoe in taste, usefulness, and production. From inquiries which we have made respecting this useful root, we may an-

ticipate that it will bear cultivation in our happy land, as it is only found growing in a moderate clime on the Cordilleras; and plants taken from the warmest parts of the world have generally been found to prosper in Europe.

Lemery, in his work on Foods, says, "Potatoes are nourishing enough, and allay the sharp humours of the breast by their oily and balsamic principles, which are apt to unite to those parts that want recruiting, and to embarrass the sharp salts that vellicate the breast. They produce gross humours and wind, because they contain a viscous and thick juice. They contain a little salt, but much oil and phlegm. They agree at all times with young bilious people, and those in general whose humours are very sharp, and much agitated."

Potatoes are extremely emollient, and consequently good to prevent and cure disorders proceeding from or attended with a rigidity or stricture of the fibres. Hence they are a very proper food for those who use much exercise.*

On analyzing a pound of potatoes, they

* James.

were found to contain eleven ounces and a half of water, two ounces and a half of starch, six gross of fibrous matter, one gross and a half of mucilaginous and saline extract.

The following instance of the value of the potatoe in the fattening of cattle is deserving of notice:

"Twenty-one acres were planted with potatoes, from the produce of which forty fat beasts have been kept from the last week in February to the present time (May 19th); also seven cows, many pigs, &c. There still remains sufficient for the cattle for three weeks to come, and seed for twenty-one acres." The gentleman who made the experiment, considered one acre of potatoes equal to two of turnips; and that when the potatoe begins to germ, it is even more nutritious than when first taken out of the ground. The oxen averaged fifty stone each, and the expense of cultivating the potatoes was forty shillings per acre. Potatoes may also be given to horses with considerable advantage, for on being cut and mixed with oats and chaff, they not only save the corn, but are found to be nutritive and cooling; they give moisture to the mouth, require less exertion of the salival glands, and prevent ex-

treme thirst, which must be the natural consequence of feeding wholly on dry food. They are said to cool the blood, and lessen that feverish heat to which horses that are kept in a stable, and high fed, are commonly subject.

We find the cultivation of this root is much increased in France within these last few years; but the poor of that country cannot yet be prevailed on to eat it.

In France, potatoes are generally fried or boiled in butter, a method that adds as much to the expense in cooking, as it detracts from the quality of the root.

Within these last few years potash has been manufactured from the stalks of potatoes. The experiments are said to have been executed first in France, and secondly in Ireland, by Mr. Rice; since which, Sir John Hay, Bart., we are informed, has made the same experiment on a large scale, to ascertain how far it might benefit the agriculturist; but the quantity of potash obtained from the two last-mentioned trials, falls so short of the quantity mentioned in the French accounts, that we fear it can never be made a profitable manufacture to the grower of potatoes.

RADISH.—RAPHANUS.

Natural order, Siliquosæ. A genus of the Tetradynamia Siliquosa class.

The Greeks called this plant Ῥαφανὶς and Ῥαφανὶς, from the speed with which it grows. In Latin, as well as *Raphanus* and *Radicula*, it was named *Radix*, from its being one of the largest of roots: this may appear singular to some of our readers, who are accustomed to see only very small radishes; but it is from this last name that the English word of Radish originated.

The *Sativus*, or garden-radish, is thought to be a native of China by most botanical writers; but it appears by the accounts left us by ancient naturalists, that its culture is of great antiquity in many parts of Europe, although it was not grown in England prior to 1548.

The Greeks esteemed radishes above most other roots. We find that in the oblations of garden fruits which they offered to Apollo

in his temple of Delphos, they dedicated turnips in lead, and beet in silver, whereas radishes were presented in beaten gold.

Moschian, a Greek writer, thought so highly of this root, that he compiled one whole book on the radish alone. The Greeks appear to have known three varieties, one of which was wild, and the other two cultivated.

"The ancient Egyptians," says Pliny*, "very much esteemed radishes, from the quantity of oil which they obtained from the seed; and as this root did not pay so much tribute or custom as corn, it was more profitable to the cultivator." The custom of paying corn as a tribute in Egypt, originated from the famine, when Joseph bought all the land for the king. "And Joseph made it a law over the land of Egypt unto this day, that Pharaoh should have the fifth part; except the land of the priests only, which became not Pharaoh's."†

Pliny observes, that radishes grow best in salt grounds, and therefore they are watered with brackish water, which, says he, is the cause that the radishes in Egypt are better

* Book xix. chap. 5. † Genesis, ch. xlvii. 26.

and sweeter than any other in the world, for there they are bedewed and sprinkled with nitre. This author gives us an account of the radishes known in Rome in his time, which was about the period when St. Paul preached in that celebrated city. "We have," says Pliny, "a kind of radish called Algiclense, so called from the place of that name." These he describes as being so clear and transparent, that one may see through them. A second sort he describes like the rape or turnip root; those were called Syriaca, "and are," says he, "the tenderest and sweetest, and best able to endure the frost and winter weather." He adds, "the most esteemed are those that have been raised from seeds lately brought out of Syria." He informs us, that this variety continues good through the winter. He mentions, also, a wild kind; and adds, that radishes thrive well in cold countries, and that in Germany they have the roots to a very great size. It is stated by some of the Roman authors, that, if a hole be made in the ground with a large stick, and then filled up with chaff six fingers deep, and a seed be placed on it and covered with dung and mould, the root will grow so large as to fill up the hole. Both Pliny

and Tragus state, that they had seen radishes that weighed forty pounds each; Amatus relates, that he had seen some which would weight sixty pounds; and Matthiole assures us that he had met with radishes of such an enormous size, that they weighed one hundred pounds each. We are informed, that the leaves were carefully taken off, in order to increase the size of the root.

The radishes of Zictan, in the neighbourhood of Brandenburg, are still in great esteem.

The peasants of Lyons and of l'Auvergne, as well as of Limousin, make great use of them in their aliments; they roast them under the ashes, and put them also into soup, to which they give an agreeable taste. Cattle are also fed with them during the winter months.

The ancients used them boiled; but the Roman physicians recommended them to be eaten raw in a morning with salt, and before taking any other food.

It was said that radishes were the only cure for a phthisic *(phtisicke)* or ulcer of the lungs, which had settled deep. The experiment and proof of this were discovered in Egypt, by their causing dead bodies to be

opened and anatomized, to ascertain the maladies of which men died.

The Romans admired radishes as a winter sauce to their meat; but it was observed, that they injure the teeth, and yet, says Pliny, they will polish ivory, which is the tooth of an elephant.

Radishes were considered good against poison. Nicander affirms that they are good for those who have eaten poisonous mushrooms. They were said to be a defence against the scorpion's venomous sting. The ancients relate, that if a man rub his hands well, either with the juice of the roots or the seeds, he may handle scorpions safely; and that, if you only lay a radish on one of these reptiles, it will cause its death.

Philostonicus prescribed them for those who were continually relaxed by reason of a weak stomach. The chewing of radishes was recommended to those who were given to drowsiness, and inclined to lethargy. The seeds parched, and mixed with honey, were given to cure short breathing.

Radishes abound with a penetrating nitrous juice, which makes them diuretic, and cleansing to the intestines and viscera. They have somewhat, also, in their outer skin,

which is hot and biting; both which qualities help to make them a good antiscorbutic. This outer skin of the red radish gives a blue tint, but which becomes red on pouring acids on it.

The syrup of radishes is as good as that of turnips for all complaints of the chest, in which respiration is difficult, as well as for hoarseness of the voice. It is said to be excellent in the hooping-cough.

Gerard cultivated four kinds of radishes in Queen Elizabeth's reign. He informs us, that they were eaten raw with bread only, but when boiled in broth, they were thought good for an old dry cough: they were then often called Rabone.

The principal varieties now cultivated in our gardens, are the Long White, the Scarlet London, Purple Short-top, Scarlet Turnip, White Turnip, and Black Spanish.

They are principally eaten with salt, as a salad, with butter or cheese. The leaves are sometimes boiled as greens: the roots make an excellent dish when boiled, and served to table as asparagus. Radishes love a light soil, rather inclined to sand.

Radishes are opening, attenuating, and antiscorbutic, but afford little nourishment.

They are diuretic, and good for the stone and gravel.*

The roots and seed are employed in medicine in wasting and expelling the stone; and in opening obstructions of the liver and spleen.†

The radish possesses the virtues of the *Cochlearia:* the root is esculent, expels phlegm from the intestines, and is a carminative. The flowers, leaves, seeds, and roots are antiscorbutic; for which reason they are proper for phlegmatic constitutions.

The root contains much of an aqueous and acrimonious substance; and the drier it is, the more acrid it becomes; but its acrimony is lost in boiling. Its aquosity renders it flatulent, on which account it is said not to be good in hypochondriacal disorders.

The daily use of the root, however, is of sufficient efficacy to cure a great dropsy in the beginning: and is of excellent service in the scurvy.‡

* Miller's Bot. Off.

† Dale.

‡ Hist. Plant. ascript. Boerhaave.

RHUBARB.—RHEUM.

Natural order, Holoraceæ. A genus of the Enneandria Monogynia class.

Rhubarb is a plant of the dock kind. It is the *Rheum Palmatum*, or *Rheum Chinense* of Linnæus.

The ancient Greeks called it *Rhabarbarum*, from its growing on the banks of the river Rha, (i. e. Wolga,) in the barbarous country of Russia. But the later Greeks are said to have called it *Barbaricum*, because it was brought to Barbary, whence it was sent to other countries.

The use of the roots of this plant for medicinal purposes is of so great antiquity, as to defy our endeavours to ascertain to whom mankind are indebted for the discovery of its virtues. All the species of rhubarb are natives of Asia, and we may conclude, that its properties did not pass unnoticed by the wise men of the East. We

have authentic accounts of its use prior to the birth of Christ, as Dioscorides, who was physician to Antony and Cleopatra, wrote on its qualities, and recommended it against weaknesses of the stomach, diseases of the liver, infirmities of the chest, &c.: as an external remedy, he mentions it as a cure for ringworms, if it be mixed with vinegar and the place anointed with it. Galen recommends this root for complaints of the liver, having an opening quality with an astringent power; from this remark, rhubarb has often been termed the life of the liver.

Some authors are of opinion, that the *Rheum* of the ancients is not the same as the rhubarb now in use.

Paulus Ægineta, who is said to have been the first man that practised as a midwife, seems also to have first used rhubarb as an opening medicine. We are told, the Arabians followed this plan, and brought the root into esteem, as a cleanser of choler. The recommendations of this plant by later practitioners would fill many volumes; as an article of commerce, it has been of considerable importance for many centuries. It was formerly brought from China by Tartary, to Aleppo, Damascus, and Alexandria; and

from thence it was sent to Vienna, and long maintained the distinction of Levant and Turkey rhubarb.

This root was first known to the Europeans of modern times in 1535, when the Chinese brought it for sale to the city of Goa, in India.* Valmont Beaumare states, that it was first brought into Europe by some soldiers of the army of Charles the Fifth: this would, in all probability, make its introduction about the same period; as we find that in this year Charles crossed the Mediterranean to gather laurels in Africa, and having defeated Barbarossa, and entered Tunis as a victor, he gave liberty to 22,000 Christian slaves, and returned to his own dominions in 1535. The disease which the followers of Columbus brought from the New World into Spain, caused dreadful apprehensions and alarm, from the rapidity with which it spread in that country: it is therefore likely that the emperor's army brought this drug out of Africa as a remedy; for we find the Spanish writings of that day mentioning its virtues for this complaint. Among others, Garcilasso de la Vega, a Toledian poet, (who followed his patron the emperor into Africa, and who

* Nieuhoff's Embassy to China.

died the following year, 1536, at Nice,) mentions rhubarb as a sovereign cure for the evil of the newly discovered world. Joseph Acosta, a provincial of the Jesuits in Peru, mentions it about the same period, in his Natural and Moral History of the Spanish Settlements. This author states, that those who use it for the purpose alluded to " may eat all manner of food, either flesh or fish, without hurt to themselves, or to the operation of the medicine; that it was taken as a decoction, two ounces of rhubarb being boiled with half an ounce of parsley in two quarts of water, until reduced to a third; this drink was taken cool several times in the day."

The Portuguese were the first who brought rhubarb by sea from Canton; but the Dutch soon obtained a part of this trade. In their first embassy to China, in 1655, we find it thus described by Nieuhoff, steward to the ambassadors. " The province of Xansi produces many incomparable medicinal roots and herbs, especially rhubarb, which does not grow wild, as many report, but, on the contrary, is raised and increased with great care and diligence; the leaves thereof in some sort resemble those of our cabbages,

but are much larger." The Chinese, says this author, "make a hole through the roots, and hang them up in the shade, where the sun may not shine upon them; for the sunbeams extract their virtues from them. From hence, and from Suchue, comes all the rhubarb which is brought into Europe by sea, or through the kingdoms of Cascar, Tebet, Mugor, and Persia;" and those, says he, are ignorant, that will have rhubarb grow in those parts; whereas, in truth, we only receive it from thence, but they purchase it from the Chinese."

This plant did not escape the notice and observation of our own herbalist. Gerard writes on its qualities in the year 1597, and says, "It is commonly called in Latin *Rha Barbarum*, or *Rha Barbaricum;* but the Moores and Arabians do more truly name it *Raued Seni, à Sinensi prouincia;* from whence it is brought into Persia and Arabia, and afterwards into Europe, and likewise from Tanguth, through the lande of Cataia, into the lande of the Persians, whereof the Sophie is the ruler; and from thence into Egypt, and afterwards into Europe. It is called of the Arabians and the people of China, and the parts adjacent, Rauend Cini, Raued Seni, and Raued Seeni: in English Rubarbe and

Rewbarbe." This author further adds, "The best rubarbe is that which is brought out of the countrie of Sina (commonly called China). The second in goodness is that which cometh from Barbarie. The last and worst from Bosphorus and Pontus."

One species of rhubarb, Rhapontic, *Rhaponticum*, has been cultivated in England, since 1573. Gerard says, this variety of rhubarb "is called in Latine *Rumex satiuus* (cultivated dock), and *Patientia*, or Patience, which worde is borrowed of the French, who call this herbe Pacience: after whom the Dutchmen name this pot-herbe also Patientie; of some *Rhabarbarum Monachorum*, or Monkes rhubarbe: bicause, as it should seeme, some monke or other haue vsed the roote heereof in steede of rubarbe." Gerard calls it the Bastard rhubarb; and from his observations we learn, that it was considered both as a pot-herb and a medicinal plant. He says, "Being sodden, it is not so pleasant as either beetes or spinage, &c." Again, he states, "Monkes rubarbe, or patience, is an excellent holsome pot-herbe; for being put into the pottage in some reasonable quantitie, it doth loosen; helpeth the iaunders, the tympanie, and such like diseases, proceeding of colde causes."

He adds, "Myselfe and others in London and elsewhere haue it growing in our gardens for vse in phisick and chirurgerie." This author, in addressing himself to the London College of Physicians, relates an anecdote, which we will give in his own words, to shew the contrast of his days to our own, as relates to country surgeons.

"I learned a notable experiment of one John Bennet, a chirurgion of Maidstone in Kent, a man as slenderly learned as myselfe, which he practised vpon a butcher's boie of the same towne, as himselfe reported vnto me. His practise was this: being desired to cure the foresaide ladde of an ague, which did greeuously vexe him, he promised him a medicine, and for want of one for the present, (for a shift, as himselfe confessed vnto me,) he tooke out of his garden three or fower leaues of the plant of rubarbe, which myselfe had among other simples giuen him, which he stamped and strained with a draugt of ale, and gaue it the ladde in the morning to drinke: it wrought extremely downwarde and vpwarde within one hower after, and neuer ceassed vntill night. In the ende, the strength of the boie ouercame the force of the phisicke, it gaue ouer working, and the

ladde lost his ague ; since which time (as he saith) he hath cured with the same medicine many of the like maladie, hauing euer great regarde vnto the quantitie, which was the cause of the violent working in the first cure. By reason of which accident, that thing hath beene reuealed vnto posteritie, which heeretofore was not so much as dreamed of."

Our cooks no longer use this vegetable in pottage; but it still holds its rank in the kitchen garden, where it is now cultivated principally for spring tarts; the young stalks of the leaves being peeled and cut, make an agreeable pudding or tart, which many persons prefer to either green gooseberries or apples : it is often used as a mixture with these fruits,—with the former before it has attained its flavour, and with the other after it has lost it by keeping. It is also served up in creams, &c. &c. Medical men have recommended it as one of the most cooling and wholesome tarts sent to table. It is now forced for the London markets, where it meets with a ready and profitable sale. The roots of this species of rhubarb afford a gentle purge, but are of inferior medicinal virtues to the other varieties.

As a plant, the rhubarb is highly ornamen-

tal in many situations in pleasure-grounds; its luxuriant foliage, and tall elegant spikes and flowers, contrasting so singularly with most of our native plants.

Michael Boyn says, in his work entitled *Flora Sinensis**, rhubarb is a native of all China, but is found most abundantly in the province of Su-Civen, Xeu-Sy, and of Sociew, which is a town near the Chinese wall, and bordering on Tartary, where the earth is of a red slimy nature.

We have some curious particulars relating to the culture of rhubarb in Mr. Bell's Travels, who tells us that the best rhubarb grows in that part of Eastern Tartary called Mongalia, which now serves as a boundary between Russia and China. He informs us that the *marmots*, a small kind of monkey, contribute greatly to the culture of the rhubarb; for wherever you see ten or twenty plants growing, you are sure of finding several burrows under the shade of the broad-spreading leaves of this plant: perhaps they sometimes eat the leaves and roots; however, it seems pretty certain that the manure they leave about the roots contributes not a little to its increase, and their casting up the earth makes it shoot out young buds, and multiply.

* Vienna, 1656.

This plant does not run and spread itself, like docks and others of the same species; but grows in tufts, at uncertain distances, as if the seeds had been dropped with design.

It appears that the Mongals never accounted it worth cultivation; but that the world is obliged to the marmots for the quantities scattered, at random, in many parts of that country, the seeds taking root among the loose earth thrown up by these animals.

Rhubarb has been cultivated of late years in this country with considerable success, and for medical purposes is found to equal that of foreign growth, as is proved by the Transactions of the London Society for encouraging Arts, &c. We learn from the Hortus Kewensis, that six varieties of this plant have been introduced and cultivated with success during the last century. The palmated leaved, *Palmatum*, or true China rhubarb, was first planted in this country in 1763. In the Transactions of the London Society of Arts for 1792, the gold medal was adjudged to Sir William Fordyce, for raising from seed, in the preceding year, upwards of 300 plants of the true rhubarb, or *Rheum palmatum*, of the London Pharmacopœia, 1788. In 1793 it was adjudged to Mr.

Thomas Jones, from whose papers the following account is extracted. "The season for spring-sowing is about March or April, or in autumn about August or September: those plants that are raised in the spring should be transplanted in the autumn, and *vice versa;* they cannot have too much room; room and time are essentially necessary to their being large, and perhaps to the increase of their purgative qualities; to effect this, the soil must be light, loamy, and rich, but not too much so, lest the roots should be too fibrous; their situation can scarcely be too dry, as more evils are to be expected from a superabundance of moisture than any actual want of it."

In the year 1794, the Society adjudged the gold medal to Mr. William Hayward of Oxfordshire, for propagating rhubarb by offsets taken from the crowns of large plants, instead of seeds, for the purpose of bringing it to perfection in a shorter time, which fully answered the expectation.

In the year 1794, the Society adjudged the gold medal to Mr. Ball for his method of curing the true rhubarb; the particulars of which may be seen in the Transactions of the Society.

Dr. Tirruogel, of Stockholm, states, that no roots should be taken up till they have been planted ten years, and that they should be taken out of the ground in winter, before the frost sets in, or early in the spring, and immediately cut into pieces and carefully barked; they should then be spread upon a table for three or four days, and be frequently turned, that the juice may thicken or condense within the roots. After this process, make a hole in each piece, and put a thread through it; by which, let them hang separately, either within doors, or in some sheltered shady situation.

In addition to the rhubarb of our own growth, two other sorts are met with in the shops. The first is imported from Turkey and Russia, in roundish pieces freed from the bark, with a hole through the middle of each; this is externally of a yellowish colour, and, on cutting, appears variegated with lively reddish streaks; this, unless it be kept dry, is apt to get mouldy and worm-eaten. The other kind, which is less esteemed, comes immediately from the East Indies, in longish pieces, harder, heavier, and more compact, than the foregoing.

As there is much deception practised by

the turbaned vendors of this root, in filling up the worm-holes with certain mixtures, and by colouring the outside of the damaged pieces, it may not be unacceptable to mention the marks of good rhubarb. It should be firm and solid, but not flinty; it should be easily pulverible, and the powder should be of a bright yellow colour; the smell slightly aromatic; its taste sub-acrid, bitterish, and somewhat astringent; on being chewed, it should impart to the spittle a saffron tinge, without proving slimy, or mucilaginous in the mouth.

All medical men acknowledge two virtues in rhubarb, that of evacuating bilious humours, and that of fortifying by its astringency the fibres of the stomach and intestines; it therefore proves useful in diarrhœas, and disorders proceeding from a laxity of the fibres. It is a mild cathartic, which operates without violence or irritation, and may be given, it is said, with safety, to pregnant females and children. Rhubarb in substance, operates more powerfully as a cathartic than any of the preparations of it.

Lord Bacon says, "Rubarb has manifestly in it parts of contrary operations: parts that purge, and parts that bind the body:

and the first lie looser, and the latter lie deeper: so that, if you infuse rubarb for an hour, and crush it well, it will purge better, and bind the body less after the purging, than if it stood twenty-four hours."

It is one of the best and mildest cathartics in the whole *Materia Medica;* it operates very well on the bile, and on all the viscera of the abdomen, and at the same time strengthens the nervous fibres. On these accounts, it is proper in weak stomachs and intestines. It is given in substance from twelve grains to half a dram; and in infusion, from half a dram to a dram and a half; and in a small dose, it becomes an excellent alterative. It purges the bile very effectually, and has a greater force than any other purgative, in opening obstructions of the liver. It is found by certain experience, to evacuate the bile preferably to any other fluid. On this account, it is the panacea of children; and also because it strengthens the stomach, and carries off all sorts of matter that stagnates therein.*

The virtue of this root consists in the mixture of a subtile and acrimonious salt with

* Geoffroy.

mucilaginous and earthy particles; those saline and acrimonious particles, in proportion as they are more or less disengaged from the mixture of mucilaginous and earthy particles in which they stuck and were entangled, the more or less they exert of their stimulating force. Sometimes they excite so great a commotion, as to press upon the liver itself, and especially the gall-bladder, whence may follow a double excretion of bile; which proves the root of extraordinary efficacy in the jaundice. Its cathartic virtue consists in its salts, and not at all in its resin or oleous particles, as appears from its tincture, which is extracted with water.*

The rhubarb brought through Turkey is generally preferred to that of the East Indies, though for some purposes this last is equally useful. Tinctures drawn from both with rectified spirits have nearly the same taste and virtue.

* Hist. Plant. ascript. Boerhaave.

RICE.—ORYZA.

Natural order, Gramina. A genus of the Hexandria Monogynia class.

The Latins continued the Greek name of Ὄρυζα, or Ὄρυζον, *Oryza*, for this grain, and it has not been much changed by any European nation. The French call it *Riz*, the Germans *Risz* and *Rys*, the Italians *Riso*, and the English formerly spelt it *Ryse* and *Rise*.

Of this excellent Ethiopian grain but one species has been discovered: its progress into Europe cannot be ascertained with any degree of certainty as to date. It seems ordained by the all-wise Providence, that some of our greatest blessings should sometimes emanate from the most acute afflictions, probably to shew us how short-sighted we are, and how incapable of comprehending the vast designs of Omnipotence. Thus, the wars which drove men from their peaceful plains, sent also their knowledge of rais-

ing grain to distant countries. Persecution has frequently driven arts from one shore to enlighten and bless the inhabitants of other nations.

We find, this species of corn was cultivated by the Egyptians, the Persians, the Babylonians, and all the eastern nations with whom they either warred or traded.

The writings of Theophrastus inform us, that the Greeks had obtained this nourishing seed prior to his day, which was about 300 years B. C.; from thence it travelled to Italy, and formed one of the earliest foods of the Roman people, who, we find, used rice-broth in the infancy of their monarchy. Among the libations and offerings prescribed by Numa, rice was preferred.

"If with pure hands you approach altars," said Horace, "there is no victim more efficacious to soften the irritated gods, than a religious offering of rice, seasoned with salt."*

Many benefits naturally arose from the superstition of the heathens; as their fear of offending their deities induced them to cultivate those plants which they were taught to believe most acceptable to their gods,

* Book iii. ode 23.

who did not always originate in the art of the sculptor or the craft of the priest; for before the ancients were blessed with a knowledge of the true God, no worship could be more reasonable, or devotion more justifiable, than that which their gratitude paid to the memory of those departed mortals who had given them the art of raising the comforts of life, or left them equitable laws to secure the possession of them. To commemorate the acts of these wise artists or able legislators, feasts of thanksgiving were established, and temples of glory erected :—

"These rites, these altars, and this feast, O King,
From no vain fears or superstition spring,
Or blind devotion, or from blinder chance,
Or heady zeal, or brutal ignorance:
But, saved from danger, with a grateful sense
The labours of a god we recompense."—VIRGIL.

The mortals whom they had deified, were next represented emblematically, to perpetuate the remembrance of their services; time and change of country corrupted this inoffensive worship into superstition; the victim of ignorance, and the tool of power, transformed their religion from simplicity to folly and vice, until the Almighty made it known that He alone who made the heavens

and the earth was to be worshipped and glorified.

The ancients esteemed rice as an aliment of a light substance, and easy of digestion. "As for us Italians," says Pliny, "we set the greatest store on rice, for it affords us groats superior to those which others make from barley." This grain is still very much used among aliments by all eastern nations, and especially the Indians. It is more easily digested, and more grateful to the palate, when boiled in cow's milk, almond cream, or pinguious broths prepared from flesh. It is commonly mixed with aliment intended for those who labour under a dysentery, and boiled in milk in which ignited stones have been extinguished.* Helmont recommends rice to be boiled in water, or chalybeate milk, for those who spit blood.

Spain produced rice in early days, but whether it was introduced by the Moors or the Romans is uncertain. The latter people would in all probability make the experiment of sowing it in England; but our situation is too far north to admit of the cultivation of this tropical grain with any degree of success.

* Matth.

Gerard informs us, that he attempted to cultivate it in his garden at Holborn in 1596, but that year being unseasonable, it did not even produce blossoms (we presume he means ears). England was then supplied with rice from Spain and the Fortunate Islands. We now principally get it from Carolina and the East Indies: the latter is the smallest grain, but the most nutritious and agreeable; the former is the handsomest in appearance.

Of all the plants transplanted from the ancient Continent into the New World, rice has succeeded the best. The soil in many parts of America was found by the first settlers covered with the leaves of trees and decayed vegetables in a putrid state, from four to six feet in depth. This soil would have been too moist and rich for other grain, until it had been in some degree exhausted by the impoverishing plant of the tobacco, or the thirsty stalks of the rice; for it is remarkably curious that so dry a grain should require so much moisture, and that marshy earth should produce a seed affording an aliment of so exquisite a taste, and which is as wholesome as it is dry. In the Island of Ceylon, and in most parts of Asia where

rice is cultivated, they make reservoirs of water to refresh this plant every day, although they select the moistest soil: the cultivators are often half way up their legs in water; but, as the harvest approaches, they suffer the ground to dry, for it requires as much heat to mature the seed as moisture to nourish it.

When cut, it is put into heaps, and the seed trod out by oxen or buffaloes, after the manner of the ancient Orientalists, as mentioned in the Scriptures.

The rice plant somewhat resembles our corn, but is thicker and more firm than that of wheat or barley; it grows commonly from three to five feet in height; its hermaphrodital flowers are of a purplish colour. Rice is subject to other enemies than the winds and the worm; for, about the time the ears are formed, there often arises a burning blast which runs on the ears and dries them: this evil is called the Devil's fire, and it never occurs but in the night. We conclude, that this fatal effect is produced by abundant electric fluid.

M. de Haller tells us, that M. Poivre discovered in Cochin China a kind of rice that does not require water, and which grows on

heights. It is surprising, says M. Bourgeois, that the Europeans have not availed themselves of that kind of rice which grows on cold dry earths, as it would add to the treasures of agricultural productions. This author was of opinion, that the rice which grows on the mountains of Cochin China, where it often freezes during winter, would succeed in several provinces of France as well as in Switzerland; but these unfortunate people have been so occupied in making temporary conquests of other countries, and ineffectually defending their own, that France has not advanced so rapidly in either agricultural or horticultural pursuits, as Great Britain has done during the long war, and which their poet Delille has noticed in his *Homme des Champs*.

> " Il avait, devinant l'art heureux d'Angleterre,
> Pétri, décomposé, recomposé la terre ;"
>
> Skill'd in the fruitful art of Albion's isle,
> Fallow'd, concocted, and composed the soil.

Nieuhoff informs us, that the rice which grows in Kiangsi, near the city of Kienchang, is called the Silver Corn by the Chinese, from its excellent quality, and that the emperors are furnished with this rice. The same author states, that the Chinese grow a sort of

rice, near the city of Kingyang in Xensi, that is used by the people of that country as a laxative and diuretic.

The Chinese water their rice-fields by means of moveable mills, placed as occasion requires, upon any part of the banks of a river. The water is raised in buckets to a proper height, and afterwards conveyed in channels to the destined places.

The uses of rice are as various as those of any other grain. When boiled with milk and sugar, it is said to give both flesh and strength; it agrees with most constitutions, although with some few it causes tightness, and sits heavy on the stomach. It thickens soups and broths without giving a taste. Rice bread, cakes, and puddings, are as familiar to us as if rice were an indigenous plant. It makes the best paste for any clean or delicate purposes.

The Chinese draw a strong and rather agreeable spirit from rice; they also form various figures and ornaments from a paste made of rice.

The decoction of rice is pectoral and astringent: this decoction in water makes the basis of the Indian medicine.

ROSEMARY.—ROSMARINUS.

Natural order, Verticillatæ. A genus of the Diandria Monogynia class.

The Greeks named this plant Λιβανωτις, from the perfume being similar to frankincense, which they called Λιβανος.

In Latin it was called *Rosmarinus* and *Rosmarinum.*

" —— That seas incessant lave,
Loosed from its hold and floating o'er the wave,
Clung to the cliff; when, lo! the barren earth,
Which scarce sufficed to give the rosemary birth."

Delille's *Homme des Champs.*

The Latins also called it *Rosmarinum coronarium*, because it was used for making crowns and garlands for the head.

The English name is a corruption of the Latin word, and not derived, as has been supposed, from the Virgin and the flower, as noticed by Gay, who asks in his burlesque pastoral:

" What flower is that which royal honour craves,
Adjoin the Virgin, and 'tis strown on graves?"

Rosemary grows abundantly, and without cultivation, in Spain, Italy, Provence, and Languedoc. In the latter place it grew so abundantly about the 16th century, that the inhabitants burnt scarcely any other fuel, and the perfume of this plant is said to have been smelt nearly twenty miles at sea.

This aromatic plant, we are informed, was first planted in English soil in the year 1548; but Gerard assures us that one variety of Rosemary is indigenous to our country. He says, "Wilde rosemarie groweth in Lancashire, in diuers places, especially in a fielde called Little Reede, amongst hurtle berries, neere vnto a small village called Maudsley."

This shrub has ever been treated with great respect, for its supposed efficacy in comforting the brain and strengthening the memory. Coles says, "The flowers and conserves made of them are singularly good to comfort the heart, and to expel the contagion of the pestilence; and that it is good to burn the branches of it in infectious times." We also attach a kind of veneration to the plant from the use made of it by our forefathers, who thought it emblematical of fidelity in love: it was therefore woven into coronets, and worn at weddings; and perhaps on the same

principle at funerals; on which latter occasion, in some parts of England, it is still distributed among the company, who generally throw the sprigs into the grave with the corpse. We noticed that it was frequently planted on the romantic graves of Père La Chaise, where it forcibly called to our minds these lines of Kirk White's:

"Sweet-scented flower! who art wont to bloom
On January's front severe,
And o'er the wintry desert drear
To waft thy waste perfume!
Come, thou shalt form my nosegay now,
And I will bind thee round my brow;
And, as I twine thy mournful wreath,
I 'll weave a melancholy song,
And sweet the strain shall be, and long,
The melody of Death.

Come, funeral flower! who lov'st to dwell
With the pale corse in lonely tomb,
And throw across the desert gloom
A sweet decaying smell:
Come, press my lips, and lie with me
Beneath the lowly alder tree;
And we will sleep a pleasant sleep,
And not a care shall dare intrude,
To break the marble solitude,
So peaceful and so deep.
And hark! the *windyad*, as he flies,
Moans hollow in the forest trees,
And sailing on the gusty breeze
Mysterious music dies.

Sweet flower! that requiem wild is mine;
It warns me to the lonely shrine,
The cold turf altar of the dead:
My grave shall be in yon lone spot,
Where as I lie by all forgot
A dying fragrance thou wilt o'er my ashes shed."

It is still the custom in some parts of this country, as well as in France, to put a branch of rosemary in the hands of the dead when in the coffin; and we are told by Valmont Bomare, in his *Histoire Naturelle*, " that when the coffins have been opened after several years, the plant has been found to have vegetated so much that the leaves have covered the whole corpse. This account savours more of superstition than of the nature of the plant.

It is still the custom at the hospitals in France to burn rosemary with juniper berries, to correct impure air, and to prevent infection. The custom of using it at funerals may have had reference to this virtue in the plant.

Without entering into the extravagant opinions of the ancients respecting odours, we cannot avoid thinking that the effect which different smells and perfumes have on the mind as well as the health, is not at present sufficiently attended to.

Most people acknowledge to have felt the refreshing odour of tea and coffee before tasting them; and in heated rooms the fragrance of a cut lemon, or a recently sliced cucumber, has been observed to give general refreshment.

The ancients held certain odours in the highest veneration. Among the Israelites, the principal perfume of the sanctuary was forbidden for all common uses. The smell of the incense and burnt offerings in their sacrifices was thought to dispose the mind to devotion; while others were used to excite love. "I have perfumed my bed with myrrh, aloes, and cinnamon."* Some perfumes were prescribed to procure pleasant dreams; whereas others were deemed of a contrary effect. It appears that they also employed odours as a nourishment when the frame was exhausted; as it is related that Democritus, when on his death-bed, hearing a woman in the house complain that she should be prevented from being at a solemn feast which she had a great desire to see, because there would be a corpse in the house, ordered some loaves of new bread to be brought,

* Proverbs, c. vii. v. 17

and having opened them, poured wine into them, and so kept himself alive with the odour of them until the feast was past.

Rosemary was in great esteem among the Roman physicians, as well as the Arabians, who used it to restore speech to those who had become dumb by the palsy.

Tragus informs us, that the Germans anciently used it as spice, and it was a practice in many countries to put it into wardrobes, both on account of its smell, and as a preservative against moths and other vermin, whence it was often styled Guardrobe.

Rosemary has a warm, pungent, and aromatic bitter taste; the perfume approaches nearly to that of lavender, but rather inclining to a camphorated smell. The leaves and tender tops are the strongest; the flowers by themselves are much weaker, but more agreeable. It is in the cup that the active qualities of the flowers reside; for, on separating the petals carefully, they will be found to possess but little either of smell or taste.

The sprigs of this plant were formerly stuck into beef whilst roasting, and they are said to have communicated to it an excellent relish. The leaves were also boiled in milk pottage, to give it an aromatic flavour; and

before simples were so much out of use, the apothecaries made a distilled water, a conserve, and an electuary from this plant, which also produces by distillation an essential oil, which was much esteemed for all affections of the brain. A decoction of the leaves in wine was used externally to strengthen the nerves, as well as the joints and weak parts of paralytic members.

Arnaldus de Villa Nova states, that he has often seen cancers, gangrenes, and fistulas dried up and perfectly cured, though they would yield to no other medicine, by frequently washing them with an infusion of rosemary in spirit of wine.

Dr. James says, " Rosemary is a plant of great service in affections of the head and nerves, helping the apoplexy, palsy, and all kinds of convulsions, pains, and dizziness of the head. It strengthens the sight and memory, and opens obstructions of the liver and spleen. The dried herb burnt is good to sweeten the air, and correct noxious and disagreeable smells.

RUE.—RUTA.

Natural order, Multisiliquæ. A genus of the Decandria Monogynia class.

"O'ER deeds of woe, as tortured memory sigh'd,
Here 's rue for thee, the poor Ophelia cried."

ROWDEN.

The English name of this plant seems to have been derived from the French, *Rue*, with which it agrees more nearly in pronunciation than with the Latin word *Ruta*. In Queen Elizabeth's time it was called Rue, or Herbe-grace.*

Miller says, it was called Herb of grace, because holy-water was sprinkled with it.

Our immortal bard gives it the same appellation, and introduces it as emblematic of sorrow:

"Here did she drop a tear; here, in this place,
I 'll set a bank of rue, sour herb of grace;
Rue even for ruth, here shortly shall be seen,
In the remembrance of a weeping queen."

Richard II.

* Gerard.

Modern botanists consider the common rue to be a native of the South of Europe, and state that it was not cultivated in this country prior to 1562. Tusser, who wrote previous to that time, says,

—— "What savor is better,
For places infected, than wormwood and rue?"

And Gerard states in his excellent old work, that "the wild rue grows on the hills of Lancashire and Yorke:" he observes that the smell is stronger in hot than in cold climates.

The ancient Romans held this herb in great esteem, as well for its flavour, as for its powers in medicine. Columella, in speaking of it, says,

"And rue which the Palladian Berries' taste excels."

Pliny says, I read in ancient histories, that rue was regarded above other herbs, and that Cornelius Cethegus, when he was chosen consul with Quintius Flaminius, after the election gave a largess to the people of new wine aromatized with rue.

Every medical student knows that rue-leaves formed the principal ingredient of the celebrated antidote of Mithridates, King

of Pontus. This antidote, with slight alterations, has been in use for nearly nineteen centuries: the receipt will be found in Phillip's History of Fruits, page 351.

The Greeks bordered their gardens with parsley and rue; and from thence arose their proverb, "You are not yet arrived at the parsley and rue." This proverb was applied by the Greeks to those who were about to undertake an enterprise, and had not begun it; for the garden could not be entered without passing the border of rue.

That man, who is blessed with reason, should study the virtues and powers of plants is natural; but that animals should be aware of their efficacy is truly astonishing: and of this the rue affords a curious instance. The weasel will eat rue as a preservative, when he hunts for rats, or before he fights with them; and in hot countries, where serpents are found, the weasel will eat rue before attacking them, to prevent, as is supposed, the effects of poison.

This is noticed by Pliny; and Macer, whose poem was written about twenty years before the Christian era, also regards this circumstance of natural history.

"Mustelæque docent obsistere posse venenis
Mirifice rutam; comedunt quæ primitus illam,
Cum pugnaturæ sunt cum serpentibus atris."

It has been thus translated by an old naturalist:

"And weezels teach it can withstand strong poyson's spite,
Which, when they are about with serpents black to fight,
In wondrous sort do first of all, Rue nibble, eat, and bite."

The ancients employed rue in many superstitious practices, and believed that, if stolen from a neighbour's garden, it would prosper better.

Pliny says, rue is one of the best medicinal herbs, but the juice taken in quantities is a poison, especially that drawn from the rue which grew in Macedonia, about the river *Aliacmon*, and in Galatia; yet, says this author, the juice of hemlock killeth the venomous quality of it; therefore the rue-gatherers used to anoint their hands with it to prevent blisters, which otherwise the rue caused. We may conclude that the Romans cultivated this herb to a great extent, as Pliny notices further that those who gather rue will be blistered, unless their hands are well gloved;

he adds, that the juice of rue was kept in boxes made of brass or copper, and that it was used against the sting of serpents, scorpions, bees, hornets, wasps, &c. as well as for the bite of mad dogs; and those, says he, who rubbed themselves with this juice, were sure not to be bit or stung by any venomous creatures.

The same author states, that engravers, carvers, and painters, ate rue-leaves to preserve their sight; and others just touched the corners of their eyes with the juice, which cured the watery humour in them. It was also used to rub the limbs of persons who were benumbed with cold. It was said, that when drunk with wine it cured the head-ache. The Romans often took rue before they began to drink hard, to prevent drunkenness.

Rue-leaves pounded, and put into the nostrils, are thought to stop the bleeding of the nose.

There is nothing (continues Pliny) so efficacious as a drink made from rue, for the cure of complaints in all four-footed animals, whether they are broken-winded, stung by serpents, or have swallowed leeches.

Medical practitioners are now so frequent in every part of the kingdom, that medicinal herbs are much less planted in private gardens than formerly, and it is now rare to see the rue shrub occupy a corner in the cottager's garden. Formerly, the English as well as the Germans and the Dutch used rue in their ragouts: it has a strong ungrateful smell, and a bitterish penetrating taste. The leaves, when full of vigour, are extremely acrid, so much so as to inflame and blister the skin, if much handled. With regard to their medicinal virtues, they are powerfully stimulating, attenuating, and detergent; and hence, in cold phlegmatic habits, they quicken the circulation, dissolve tenacious juices, remove glandular obstructions, and promote the fluid secretions.

Writers on the *Materia Medica* in general have entertained a very high opinion of the virtues of this plant. Boerhaave is full of its praises; particularly of the essential oil, and the distilled water. After extravagantly commending other waters prepared in this manner, he adds, with regard to that of rue, that the greatest commendation he can bestow upon it falls short of its merit: "What

medicine (says he) can be more efficacious for promoting perspiration ?"

The cohobated water is said not to be the most useful preparation of rue. An extract made with rectified spirit contains in a small compass the whole virtues of the plant; the menstruum taking up, by infusion, all the pungency and flavour of it. In distillation with water, its peculiar flavour and warmth arise; the bitterness, and a considerable share of the pungency, remaining behind.

Sir Wm. Temple, in his work on Health and Long Life, says, "Rue is of excellent use for all illnesses of the stomach, that proceed from cold or moist humours; a great digester and restorer of appetite; it dispels wind, helps perspiration, drives out ill humours, is useful in pestilent or contagious airs; the only ill lies in too frequent use, which impairs the natural heat of the stomach by the greater heat of an herb very hot and dry; and therefore, the juice made up with sugar into small pills, and swallowed only two or three at night or morning, where there is occasion, is the most innocent way of using it."

It is said, that by eating the leaves of rue, the king's evil may be cured.

A conserve of rue is often taken to prevent infection of contagious disorders.

The virtues of rue are pithily described in *Schola Salerni:*

> Ruta facit castum, dat lumen, et ingerit astum,
> Cocta facit ruta de pulicibus loca tuta.
>
> "Rue maketh chaste, and eke preserveth sight,
> Infuseth wit, and fleas doth put to flight."

Coles informs us, that the very smell of rue has often been known to keep off infection in times of pestilence. It should therefore be worn as a nosegay in our visits to those who suffer under contagious diseases; but it is said to be more efficacious when taken inwardly, either by chewing the leaves or in a drink.

The leaves of rue were formerly used as a pickle, being first boiled and then preserved in vinegar: they were not only esteemed a good sauce for meat, but to warm a cold stomach, and to relieve a dim sight.

The leaves bruised with pepper, common salt, and strong vinegar, and applied to the arteries of the carpus, provided the morbid matter is before duly managed, excellently check the febrile impetus; and are often used with more efficacy and less danger, in stop-

ping obstinate quartan fevers, than internal astringents, and the so much celebrated Peruvian bark.*

Rue thrives best in a brick earth, but will not endure dung. It should be planted in situations that are open to the sun.

It is worthy the attention of the curious to observe the blossom of this plant: the manner in which it is fecundated is a phenomenon not exceeded by any flower. By the class of the plant it will be observed, that the flower contains but one pistill, which is large in proportion to the petals, as are the ten stamina, the filaments of which are long: when the pollen or farina is matured, two or three of the filaments bend over, forming a quarter of a circle, and discharge their impregnating powder on the stigma, and then return to their straight position, and the next two or three take the same direction, until the whole have performed their office with the exactest regularity.

The wild rue is of so powerful a nature, that it often sends out vapours that will even scorch the face of those that look close on it.

* Hoffman de Præstant. Remed. Domest.

RYE.—SECALE.

Natural order, Gramina. A genus of the Triandria Digynia class.

This corn, of which we know but one species, is said to be a native of the Island of Candia. We should rather suppose that it was an indigenous grain of Egypt, since we have an authentic account of its being cultivated in that country, more than three thousand three hundred years ago. When Moses called down the plague of hail upon Egypt, "the wheat and the rye were not smitten; for they were not grown up."*

Both the winter and the spring varieties have been for many ages cultivated in this country; and in all probability it was among the earliest grains sown in these kingdoms.

Secale is so called *à secando*, from cutting; as opposed to leguminous plants, whose fruits used to be gathered by the hand.

* Exodus ix. 32.

The English name of this grain has no affinity with that of any other language, which induces a supposition, that it has been called Rye after one of the Cinque-port Towns in Sussex so named, and which has long been celebrated for its trade in corn. In years of scarcity, this kind of bread-corn was brought in great quantities from Germany; it is, therefore, likely to have been called Rye from the above place having been the port of importation.

Gerard says, "Rie groweth very plentifully in the most partes of Germanie and Polonia, as appeereth by the greate quantitie brought into England in times of dearth and scarsitie of corne, as happened in the yeere 1596; and at other times, when there was a generall want of bread-corne, by reason of the abundance of rain that fell the yeere before, whereby great penurie insued, as well of cattell, and all other victuals, as of all maner of graine. It groweth likewise very well in most places of England, especially toward the north."

Turner who was both doctor of physic and divinity, and who had travelled many years, says in his Herbal, which he dedicated to Queen Elizabeth, in the year 1568: "For this I do know, that in a countre

where as I haue ben, wythin the Dukedom of the Duke of Cleue, called Sourlant, that wheat if it be sown in that sourlande, as it is truly called, the fyrste yeare it will bring furth wheat; and in the second yeare, if the wheat that grew there be sowen in the same place agayne, that it turneth into rye; and that the same rye sowen in the same ground, within two yeares goeth out of kinde into darnell, and suche other naughty wedes; as rye, sowen in som place of Saxony, as I heard say, when I was in Germany, within few yeare sowen in some feldes, is turned into good wheat."

Tusser, whose verse was written in Queen Mary's reign, makes frequent mention of this corn, as

"In Brantham, where rie, but no barley did grow,
good barly I had, as many did know.

Gray wheat is the grosest, yet good for the claie,
though worst for the market, as farmers may say:
Much like vnto rie, be his properties found,
coorse flower, much bran, and a peeler of ground.

Otes, rie, or else barlie, and wheat that is gray,
brings land out of comfort, and soon to decay
One after another, no comfort between,
is crop upon crop, as will quickly be seen.

First rie and then barlie, the champion saies,
or wheat before barlie, be champion waies:
But drink before breadcorn, with Meddlesex men,
then laie on more compas, and fallow agen.

This grain is but little noticed by the ancients. Pliny informs us, that it was cultivated by a people called Taurini, at the foot of the Alps, where it yielded, in general, at least a hundred fold: he says, it was of the worst kind, and the bread made from it was unsavory to the palate, and hurtful to the stomach.

There is but one species of rye; the varieties differ only in the time of sowing, and other accidental circumstances attending it. It grows taller than any other English corn sown on the same land: it has a bearded ear more slender than wheat, and having a smaller grain of a darker colour.

Rye holds the next place to wheat among frumentaceous grains; the bread made of it is black and heavy, and has something of an obstruent quality, is difficult of concoction, and heavy upon the stomach, especially if it be not cleansed from the bran.*

Some prefer bread made of rye to that which is made of wheat, on account of its moistness, which it retains for a longer time.

"The people of our country" (Wirtemburg), says Bauhine, "use to mix with rye an equal quantity of meal of wheat or spelt, that the bread may the longer retain its soft-

* James.

ness, and be lighter and more grateful to the taste; and the bread so prepared is, by advice of the physicians, much used by persons of quality, especially in summer.

Rye bread is now but little used in any part of these dominions, owing to the attention that has been given to agricultural pursuits, and which has so changed the nature of things, that there is now (1821) a complaint of our being blessed with too much corn, and bread at too low a price. Long may we hear this complaint, rather than return to a dependence on neighbouring states for a scanty supply of rye bread, the use of which has in many instances brought on dreadful and even contagious complaints.

Rye is subject to a disease producing what the French call *Ergot,* which often happens when a rainy spring is succeeded by a hot summer. Bread made of this, called by the English farmers Horned rye, has a nauseous acrid taste, and produces spasmodic and gangrenous disorders. In 1596, an epidemic disease prevailed in Hesse, which the physicians ascribed to bread made of horned rye. Some, we are told, were seized with an epilepsy, and these seldom recovered; others became lunatic, and con-

tinued stupid the rest of their lives: those who apparently recovered, had annual returns of their disorder, and the malady was said to be contagious. Many other instances are given of the same disease being occasioned on the Continent by the use of this bread, in the years 1648, 1675, 1716, 1720, 1722, and 1736: it has been minutely described by Hoffman, Goerlicke, Vater Burghart, and Srinck.

In the year 1709 one fourth part of all the rye raised in the neighbourhood of Salon, in Provence, was horned; and the surgeon to the hospital d'Orleans had no less than 500 patients under his care, who were distempered by eating it. The first symptom is described as a kind of drunkenness, then the local disorder began in the toes, and thence extended sometimes to the thigh, and the trunk itself, even after amputation.

In the year 1710, the celebrated Fontenelle describes a case in the History of the Academy of Sciences of France, which exactly resembles that of a poor family at Wattisham. A peasant at Blois, who had eaten horned rye in bread, was seized with a mortification, which first caused all the toes of one foot to fall off, then the toes of the

other, afterwards the remainder of the feet, and lastly, it ate off the flesh of both his legs and thighs, leaving the bone bare.

This diseased rye is not only pernicious to man, but to dumb animals also, who have been known to die miserably convulsed, or dreadfully ulcerated. It has been known to destroy even the flies that settle on it.

This defect in rye, which we call horned rye, *Secale cornutum*, and which the French call *Ergot*, from its resemblance to a cock's spur, is a very different disease from the *rubigo*, or mildew in wheat, or the *ustrigo*, black or smut of corn. At the time when rye-bread was more generally used in Europe than at present, and the dreadful diseases already described were frequent, this subject was one of the utmost importance; but, however the improvements in husbandry may have lessened the diseases incident to corn, and thereby banished some of the calamities of man, yet we should endeavour as far as possible to ascertain the cause of these irregular vegetations producing so singular a poison. Dr. Tissot remarks, that the circumstance of this poison producing at one time spasms, at another gangrene, sometimes with fever, but generally without, is highly de-

serving the attention of physicians, presenting many phenomena, which, if well understood, might throw much light on some obscure points in physic. This inquiry seems the more important, since we find that bread made of damaged wheat has produced the same disorder in a slighter degree.

Mons. Fagon, first physician to Louis the Fifteenth, considered it a kind of monster in vegetation, which a particular sort of rye sown in March is more apt to produce than what is sown in the autumn: he observes, that it abounds in moist cold countries, and in wet seasons.

According to the observations of Haller, it is an irregular vegetation of the rye grain, which puts on a middle nature between the grain and the leaf, becoming of a brownish green colour, irregularly compressed; and, according to Marchand and Vaillant, frequently fourteen or fifteen lines long, and two lines broad. Langius, who published a treatise on this disease in the German language in 1717, says, he found that such seed, when put into the ground, never germinated; and that it abounded most in rainy years, and when a very hot summer followed a wet spring. Mons. Aimes has shewn, that the

caries was owing to the seeds being contaminated by situation, *(cariem oriri ex seminibus situ fœdatis)* i. e. contaminated by moisture.

From our own remarks, strengthened by these observations, we consider this secret vegetable poison to arise from putrid matter caused by great moisture, and which the rapid growth of rye in hot seasons draws with its natural nourishment; and which is forced into the grain, without being corrected by those operations which slower vegetation would, in all probability, have accomplished.

We are told by Koestlin, a German physician, that the vines which grow on the hills, over the iron mines in Elba, contain particles of iron in their leaves and stems, as may be discovered, says this author, by calcination.

If this be true, it would give a greater degree of credibility to the stories told in Hungary, where bits of gold are shewn adhering to the stalks and grapes of the Tokay vines, supposed to have been drawn out of the ground by the plant in the course of vegetation. Without arguing on the possibility or probability of these statements, we are decidedly of opinion, that poisonous qua-

lities may be forced by high fermentation, into the seed of grasses from the root, and that they are not always the effect of a blighting air. This should induce us to pay particular regard to the soil in which most esculent vegetables are grown; and there are many vegetable poisons, whose mode of operation we do not perfectly understand.

The *Secale cornutum*, has an acrid nauseous taste, in common with many other deadly poisons; and it seems to infect the humours with a poisonous taint, which either irritates the nerves so as to excite spasms, or corrupt the blood, and thereby produce gangrene.

We are told, that these poisons are so baneful, that if a person walk barefooted in fields covered with the *Nigella*, his feet and legs will be ulcerated.

Mons. Duhamel has given a description of this disease, which prevailed in Sologne, and which destroyed most of those who were seized with it. The disorder was first felt by a weariness and pain in the feet and legs, of which, after they had become livid, there was a mortification, rather dry than moist; worms were often engendered in the mortified parts, the toes separated from their articulations, and fell off with the metatarsus; afterwards

the foot, the legs, and even the thigh, which last dropped from the cotyloid cavity. It was the same with the upper extremities; and instances had occurred in the hospital of Orleans of persons living several weeks after their legs and arms had rotted off, and nothing remained but the bare trunk; for this dropping off of the limbs was never followed by hemorrhage.

Rye is commonly sown on poor, dry, limestone, or sandy soils, where wheat will not thrive. By continuing to sow it on such soil for two or three years, it will at length ripen a month earlier than that which has been raised for years on strong cold ground; but it is the nature of the corn to ear a month before wheat, from which arises the saying, that April never goes out without an ear of rye, nor May without an ear of wheat.

According to Tissot, horned rye is such as suffers an irregular vegetation in the middle substance between the grain and the leaf, producing an excrescence of a brownish colour, about an inch and a half long, and two-tenths of an inch broad. By immoderate rains, the lower corn of the ears of rye, when ripe, grow out into a black purple grain; or, as C. Bauhine expresses it, some seeds are

protruded a considerable way out of their husks, and grow to a considerable bulk; and some of them are bent in the figure of a horn; all which contract a black colour on the outside, but contain within, a white farinaceous substance, of a pretty close contexture, of the taste of malt, called in some parts of Germany, *Mutterkorn*, that is, the mother of rye. This degenerate *Secale* is by C. Bauhine called *Secale luxurians;* and by Lonicerus, *Clavus siliginis.* This disease was formerly thought to have been caused by the puncture of insects.*

Mr. Marshall states, that the farmers in Yorkshire believe, that if a small quantity of rye be sown among wheat, it will prevent the mildew.

* Raii Hist. p. 1741.

SAGE.—SALVIA.

Natural order, Verticillatæ. A genus of the Diandria Monogynia class.

The Greeks named this plant Ελελίσφακος, from the dry and withered colour of its leaves, which is most visible on the scorched hills where it grows naturally.

The generic name is derived from the word *salvus*, on account of its healing qualities.

It is called Sage in English from the French word *sage* (wise), from the property it is said to possess of strengthening the memory, and thus making people sage or wise.

The School of Salernum thought so highly of this plant that they recommended it as a remedy in all diseases, and left this verse allusive to its virtues.

"Cur moriatur homo cui salvia crescit in horto?"

Why should a man die while he has sage in his garden?

Miller enumerates twelve species of this

plant, and Linnæus thirty-nine. Aiton now counts sixty that have been brought to this country from various parts of the world, the earliest of which was the Syrian sage, Clary, *Sclarea*. This appears to have been introduced as early as 1562, and the common garden sage, *Officinalis*, which is a native of the South of Europe, was first cultivated in England in 1573.

We have two species of wild sage indigenous to our soil, viz. meadow sage, *Pratensis*, and the wild clary, *Verbenaca*.

Gerard mentions several varieties which he cultivated in his garden previously to 1597, and says, "Sage is singularly good for the head and brain, quickeneth the senses and memory, strengtheneth the sinews, restoreth health to those that have the palsie upon a moist cause, taketh away shaking or trembling of the members, &c. &c." He adds, "No man needeth to doubt of the wholesomeness of sage ale."

Sage-leaves dried and smoked in a pipe as tobacco, are said to lighten the brain.

The Chinese express their astonishment that the Europeans should come to them for tea, when we have what they think so superior. The Dutch have long been in the

habit of drying sage-leaves to resemble tea, for which they collect not only their own growth, but also great quantities from the South of France; this they pack in cases, and take out to China, where, for every pound of sage they get in exchange four pounds of tea; the Chinese preferring it to the best of their own tea.

The French make a pickle of the young sage-leaves. In this country it is principally used as a seasoning for strong meats, sausages, ducks, &c. It was formerly thought a great improvement to cheese:

"Marbled with sage, the hard'ning cheese she press'd;"
GAY.

but this practice is nearly discontinued. It used also to be eaten with bread and butter.

This plant has a strong fragrant smell, and a warm bitterish aromatic taste: it is said to be cephalic, cordial, and alexiteric; but at present our practitioners consider it of but little importance. Van Swieten says, he found it efficacious in stopping night-sweats, infused in wine or spirits; and a strong infusion in water has been found equally successful. The leaves and tops have been used with success in debilities and

relaxations, both of the nervous and vascular systems. Van Swieten also found it restrained the flow of milk in the breasts of mothers, after they had weaned their children. Valmont Bomare says, the decoction of the leaves and flowers is good to fortify the nerves, soften tumours, and dispel swellings. Sage proves of service in debility of stomach, and has considerable antiseptic virtues.

The aromatic oil of sage is said to be good for rheumatic complaints. Sage used as a tea is a good gargle for the mouth and throat, and all scorbutic complaints of the gums, as well as to fasten loose teeth. M. Bourgeois says, the distilled water of sage answers the same purpose. The best preparations are the watery infusion, and a tincture or extract made with rectified spirits of wine: these contain the whole virtues of sage.

If sage be smelt to for a considerable time, it is said to cause a sort of ebriety, and at length a vertigo. "On examining this plant upon an empty stomach, says Dr. James, I found myself almost drunk with the smell thereof; and when I had taken some of the flowers, I felt a heat with an accession of strength from them."

The leaves infused in water blacken it like tea; and ink may be made with the same, as well as with galls.

All the species of sage have the nature of the *Quercus*, whence they are binding, excite the spirits, and move the nerves; from which they are thought a good remedy in a laxness and inertness of the nerves. A conserve of sage is very proper for a weakness of the stomach in women; for those who have for years together laboured under an infirmity or debility of the stomach, are benefited by taking half a dram of the conserve.*

Tournefort informs us, that he has seen in the Levant, large galls growing on the sage, which is caused by the wounds made on the plant by the biting of insects: these galls are sold in the markets, to preserve with sugar.

Coles recommends the planting of rue among the sage, to keep toads away from this plant; this reptile having as much aversion to the former vegetable as predilection for the latter.

"Salvia cum Ruta faciunt tibi pocula tuta."

The following ancient verse particularly

* Hist. Plant. adscript. Boerhaave.

notices three principal virtues of this plant: we give with it the pithy translation of an old medical author:

Salvia confortat nervos, manuumque tremorem
Tollit; et ejus ope, febris acuta fugit.

"Sage helps the nerves; and, by its powerful might,
Palsies and fevers quickly puts to flight."

SAGO PALM.—SAGUS.

Natural order, Filices, or Ferns. A genus of the Diœcia Polyandria class.
Cycus revoluta, Narrow-leaved Cycus.

This nutritious and restorative vegetable diet is better known than the tree that produces such an abundant and wholesome *medulla*, or pith.

This species of the palm grows naturally in Japan, and upon the rocky dry mountains of Malabar, as also in the Friendly Islands, and the New Hebrides.

As a native of these warm countries it can only be cultivated in England in the hot-house; where, from the size of the plant, it requires too much room and height to be brought to perfection; and as the valuable part of the plant can be imported in perfection, there is no other inducement to fill our stoves with this bulky exotic, but that of its extreme beauty.

The sago plant was first introduced to us, about the year 1758, by Richard Warner, Esq. of Woodford in Essex. This gentleman received a plant from Captain Hutchinson, whose ship being attacked by the French, the head of the plant was shot off, but the stem being preserved, produced several heads, which being taken off, produced as many plants; one of which, in all probability, was cultivated at Farnham Castle, Surrey, where it produced fruit under the management of the Bishop of Winchester's gardener. His Lordship, wishing that an account of it might be laid before the Linnean Society, induced Dr. J. E. Smith and Mr. Sowerby to go to Farnham to make the requisite observations; and as it appears to be the only plant of the kind that has yet fruited in England, we shall give the account as read to the Society, November 3, 1801. Dr. Smith says, "We found the fruit then ripe, and exhibiting a most magnificent spectacle. The plant was much larger than any I had seen of the same species, and seems to be one of the oldest in England: we learn from the Hortus Kewensis, that this Cycus has been about forty years in our collections.

"It is not known that the Farnham plant

was larger at its first introduction than such as are usually brought from abroad, perhaps two or three feet in the diameter of the circle formed by the expanded leaves; that diameter is now ten or twelve feet. Supposing it therefore to have been one of the very first introduced, it has grown much more rapidly than usual, for there are few to be seen in England, even the oldest, that are half so large.

"The stem is about two feet in height, and nine or ten inches in diameter. Thunberg describes the same as rising in Japan to the height of six feet or more, with nearly the above-mentioned diameter. Its surface is brown, and very scaly, with the remains of old leaf-stalks. A single circle of about forty evergreen pinnate leaves crowns the summit, forming a magnificent basin, whose margin measures ten or twelve feet across, and five or six feet in height above the level of the bark bed of the stove. On mounting a ladder, we beheld in the bottom of this verdant and shining amphitheatre a circular cluster, perhaps eighteen inches wide, of about an hundred orange-coloured downy oval fruits, intermingled with innumerable palmate, pale brown, thick and woolly leaves

or fronds, each of whose finger-like segments was tipped with a sharp spine. With respect to its earlier state, the Bishop has informed me, that on his arrival at Farnham, early in September, the gardener informed his Lordship that the Cycus "had borne a singular appearance during summer." On inspection, the crown of the plant was found occupied by the above mentioned woolly leaves, then beautifully laciniated, though not spinous, and having the appearance of a strobilus or cone, hollow like a bird's next, and filled with a quantity of green *drupæ*, about the size of half-grown apricots, and intermixed with the same kind of downy greyish leaves that surrounded them. The changes which had taken place from that time to the period of my arrival were, that the whole cluster of fronds and fruit had become rather convex than concave, the fronds were browner, spines had grown at the tip of each of their lengthened segments, and the *drupæ* were become nearly as large as a moderate-sized apricot, and farther resembled that fruit in their rich orange hue and downy surface. On separating some of these woolly leaves, they were found to be true fronds. Each was from six to eight inches long, fleshy, en-

tirely clothed with pale brown woolly down: their lower part a flattish stalk; their middle bearing on each margin a row of three or four sessile *drupæ;* their extremity dilated into a pinnatifid, or rather palmate, many-fingered leaf, whose lobes were generally curved inwards, and tipped with a spine as before mentioned. When wounded, these fronds distilled a great quantity of thick, clear, insipid mucilage, which soon hardened into a substance resembling gum tragacanth, in which probably resides the nutritive quality for which this palm is so celebrated in the Flora Japonica. We are told that a very small morsel of the pith of its stem is sufficient to sustain life a long time, and on that account it is jealously preserved for the use of the Japanese army. The *drupæ* are also said to be used as food. We roasted some, and found in their kernels the flavour of chesnuts, with less sweetness and a more watery consistency. Each *drupa* is elliptical, or somewhat obovate, a little compressed, tipped with a minute rigid point formed of the permanent stigma, which is umbilicated at its summit. The outer coat is coriaceous, bright orange red, clothed with woolly down, which easily rubs off. This coat is not eatable.

Nut solitary, elliptical, even, hard, whitish, tipped with a point connected with the stigma, and internally lined with a loose brown membranous integument, closely enfolding the kernel, which is also elliptical, white, firm, uniform, completely occupying the shell, and consisting entirely of *albumen*. In its upper part, immediately under the stigma, we discovered a small round cavity, where the embryo should have been, but no traces of it were to be found, for want of impregnation by the male pollen, which is produced on a separate tree. Probably the flavour of the nuts might have been improved, had they been impregnated.

"Enough has been said to shew the near affinity of this genus to *Zamia*, from which it is chiefly, and indeed sufficiently, distinguished by its *drupæ* growing on a true frond, contrasted with the amentaceous fruit of Zamia. The two genera, perhaps, constitute an intermediate order between *Palmæ* and *Filices*, but are surely most akin to the former."*

The Cycus *revoluta* is also a native of some parts of China; but it is not used as a food in that country, and only cultivated for

* Linn. Trans. vol. vi.

its beauty. We have lately seen a most superb plant of this species in the Botanic Gardens at Chelsea, and a very fine one at the Royal Exotic Gardens at Kew; where the Cycus *circinalis*, broad-leaved Cycus, has fruited, under the inspection of Mr. Aiton. This species is also a native of the East Indies, the Friendly Islands, and the New Hebrides. It was introduced about the year 1763, by John Blackburn, Esq. The fruit is an ovate, flat, red *drupe*, an inch and half in length.* Mr. Aiton is of opinion that this species would produce an edible pith, similar to the Cycus *revoluta*, although it is not the true sago palm.

It is hardly possible to form an idea of a plant more graceful in its foliage, or more beautiful when in fruit, than this species of the palm. The foliation, which slightly resembles that of the fern, is placed on the stem in the manner of the feathers in a shuttlecock, thus forming a gigantic basket of the most graceful form, at the bottom of which the salmon-coloured fruit seems thrown promiscuously, with a substance both in shape and texture resembling the cock's-

* Thunberg.

comb, but of a pale buff-colour, inclining to brown, which gives a lustre to the fruit, beautifully contrasting these colours with the dark rich feather-like leaves.

Among the singularities of this plant or tree in its native soil, is its slow growth at first, when it appears as a mere shrub, so thickly set with thorns as to keep off all intrusion; but as soon as the stem is formed, its increase is rapid, until it has reached about thirty feet in height, and six feet in circumference. During this rapid expansion it imperceptibly loses its thorns. When the tree has reached its maturity, a whitish powder transpires through the pores of the leaves, and adheres to their extremities. On this intimation of their being filled with pith, the Malays cut them down near the root, and divide them into several sections, which are then split into quarters. The bark, which is ligneous, is not often more than an inch in thickness, and the entire body of the tree is filled with a multitude of fibres, interwoven one with another, enclosing in the centre the fat or gummy pith, which forms the Sago as brought to us. This pithy substance, being scooped out of the quarters, is diluted in pure water, and then strained through a bag

of fine cloth to separate the gummy substance from the fibres. After this paste has evaporated part of its moisture, it is thrown into earthen vessels, where it dries and hardens into globular particles of various sizes; but its general appearance is much like the seed of the radish plant.

Sago will keep good for many years: the finest sort makes a delicious jelly; and when made into puddings and baked, it is one of the best dishes that can be given either to children or infirm old persons. The Indians, through a principle of humanity, reserve the finest of their sago for the aged and afflicted. It is often recommended as a restorative diet in milk or wine, according to the state of the patient. It is a very kindly and nourishing food, never fermenting in the stomach, and very proper in hectic fevers.*

It is now greatly recommended by the medical men of Paris, although they have but lately been able to procure it in that city.

Dampier says that the sago trees are called by the natives of Mindanao, (one of the Philippine islands) Libby trees; that they grow wild in great groves of five or six miles

* Geoffrey.

long, by the sides of the rivers. Their body and shape is much like that of the palmeto tree, or the cabbage tree, but not so tall as the latter. The wood is full of white pith, like that of elder. The tree, after being cut down, is split in the middle, and all the pith is scraped out and well beaten with a wooden pestle in a great mortar or trough, and then put into a cloth or strainer over a trough; water being poured upon it, the substance is stirred about until the water carries all the pith through the cloth into the trough, leaving behind a light sort of husk, which is thrown away. That which runs into the vessel settles at the bottom like mud; the water is then drawn off, and the substance formed into cakes, which being baked, prove a very good bread. The people of Mindanao live three or four months of the year on this food. The native Indians of Ternate, Tidore, and all the Spice Islands, have plenty of these trees, and use them for food. The sago which is transported into other parts of the East Indies, is dried in small pieces like little seeds or comfits, and commonly eaten with milk of almonds by those who are troubled with the flux.

The Arabs eat the pith of the young date-

bearing palm-tree, without any other preparation than that of stripping it of the bark and fibrous parts : this pith is also esteemed very nourishing, and is called the marrow of the date-tree.

The medulla, or pith of trees and plants, is found most abundant in those that shoot with the greatest force, as the elder, raspberry, &c. It is composed of small transparent globes, originating and being connected together in a similar manner to the froth or bubbles of liquor ; it afterwards forms a kind of spungy or floccose substance, and then hardens into a consistence of a nature between meal and gum.

As the analogy betwixt animal and vegetable life has been so clearly shewn in many instances, we may be best understood by comparing the pith in the latter to the marrow in the former ; it having no more connection with the sap of the tree, than the marrow of animals has with their blood. Trees of slower growth, whose roots are less powerful in the operation of suction, have less pith ; the salts of their juices being all more regularly consumed through finer pores, for the nourishment of branches, leaves, &c.

SAFFRON.—CROCUS SATIVUS.

Natural order, Ensatæ. A genus of the Triandria Monogynia class.

THICK new-born violets a soft carpet spread,
And clust'ring lotos swell'd the rising bed,
And sudden hyacinths the turf bestrow,
And flow'ry crocus made the mountain glow.
Iliad, book 14.

Homer having thus mentioned the crocus as one of the four flowers that formed the genial couch of Jove and Juno, has suggested the supposition, that the exhilarating qualities of this blossom were known in that poet's day. Lindestolpe suspects that it was the *Nepenthe* of Homer. It was the Κροκος of Theophrastus, but the Greeks generally called this plant Κρόκος or Κρόκον. The Latins named it Crocus, after a beautiful youth, who was said to have been consumed by the impatience of his love for Smilax, but was by Hercules, his father, changed into a flower that still bears his name. Smilax

was metamorphosed into the plant called Smilax, or Bindweed.

Et Crocum in parvos versum cum Smilace flores.
OVID.

The Greek name, perhaps, comes from Κροκὶς, which signifies a thread or hair, or weaver's woof; because saffron, when it is dry and in strings, has that appearance. Others derive it from Coriscus, a city and mountain of Cilicia. Crocus is by the chemist, from its golden colour, called *Aurum Philosophorum*, by contraction, *Aroph;* by others, *Sanguis Herculis*, and *Aurum vegetabile*. For its extraordinary virtues in many diseases, it has been honoured with the title of *Rex Vegetabilium*, and *Panacea vegetabilis*.

The English word Saffron is derived from *Zahafram*, the Arabian name of this plant, which is nearly the same in the French, Dutch, and German languages.

The unpolluted organs of which this flower is robbed, to form saffron, were early known to the Romans, as we find that the Cilician physicians who attended Antony and Cleopatra in Egypt, recommended saffron as a medicine that cleared the complexion, by relieving the jaundice or the bile. Dioscо-

rides states farther, that it is good against a surfeit. Pliny informs us, that the best saffron grew in Cilicia, on a mountain called Corycus, and that the next in quality grew on the Mount Olympus in Lycia. The saffron third in quality was gathered at Phlegra in Macedonia. The Sicilian saffron was also esteemed by the Romans, who used it as a perfume. Pliny tells us, that it was steeped in wine, and then sprinkled over the theatres, filling every part of the building with a sweet odour. The same author says, the wild crocus produces the best saffron; therefore, the planting of it in gardens was deemed bad husbandry, for the plants became strong and large; but the flowers yielded but few chives, and would not pay the expense and trouble of planting. He observes, that the crocus was never used in garlands, but that a chaplet of saffron, worn upon the head, allayed the fumes of wine, and prevented inebriety. It was therefore taken in drink by great wine-bibbers, to enable them to drink largely without intoxication. The Romans also used saffron in all inflammations, particularly those of the eyes; and it was esteemed good against exulcerations of the

stomach, breast, or liver, &c.; it was likewise given in coughs and the pleurisy.

Nothing is so subject to adulteration, says Pliny, as saffron; and the best way of trying it is to lay the hand on it, when, if good, it will be heard to crack or snap. This, we presume, was a dry kind of saffron. The same author says, that after handling this drug, if the hand be put to the mouth, it will cause a stinging sensation to the face and eyes if it be good. He adds farther, that the best saffron will, on being chewed, stain the spittle and the teeth, and that the most effectual way of preserving its qualities is to keep it in a box made of horn.

From these accounts, the crocus that produces the saffron is indisputably a native of the mountainous parts of Asia Minor, and the southern extremities of Europe. It is said also to be an indigenous plant of this country; but this seems improbable, as it does not ripen its seed either in England or the still warmer countries of Spain or France; and as it is the nature of the crocus to propagate itself both by seed and offsets, being viviparous as well as oviparous, we cannot consider it a native plant, without also con-

tradicting the rules of nature, in considering its parts of fructification as being an unnecessary appendage to the flower.

This bulb, having the power of increasing its species in the earth, is able to endure our climate, but not to continue its species here by its oviparous faculties. Coles says, in his History of Plants, called "Adam in Eden," that the crocus or saffron that flowers in September, was brought out of Portugal to this country, but it was most probably introduced by the Romans, from their known attachment to this medicine, and that the culture of it was discontinued on their leaving England. The earliest accounts we have of its being cultivated in England, mention, that it was grown near a Roman road running through Essex; it is therefore not improbable, but some of the bulbs might have remained increasing in that and other neighbourhoods for many ages, so as to give the idea of their being indigenous to the soil; and this may account for what is stated in Hackluyt's Voyages*, "that the soil in Herefordshire yields the wild saffron commonly," and may also justify what Dr. Withering as-

* Vol. ii. p. 164, edit. 1599.

serts in his Botanical Arrangements, "that it is found about Halifax, and in a meadow near the copper-mills at Derby."

It is commonly said, that saffron was originally brought into England in the time of Edward the Third, and that Sir Thomas Smith introduced it into the neighbourhood of Walden, Essex; but we do not meet with satisfactory authorities for this statement. Camden observes in 1586, that the fields all about Walden make a show with this plant. And we find that the corporation of Walden bears three saffron plants in their arms. Their charter was granted in the third year of Edward the Sixth, when, it is most likely, their arms were also given: from this it may be presumed that the town was then famous for the cultivation of this plant. Dr. Morison in 1680 states, that saffron is no where better or more flourishing than in England; and Mr. Houghton in 1698 affirms, that the chief place in the world for saffron is Walden in Essex. That town was evidently called Saffron Walden, from the early cultivation of this plant in that neighbourhood, which was once the chief market for saffron. Tusser, who resided in Essex in the reigns of Mary and Elizabeth, notices it in his

"Five Hundred Points of good Husbandry," as if it was planted by farmers in general, as a part of their produce to be furnished to their landlords. In his directions for the month of August, he says,

> " Pare saffron between the two S. Maries daies,
> or set or go shift it, that knoweth the waies :
> What yeere shal I do it (more profit to yeeld),
> the fourth in the garden, the third in the field.
>
> In hauing but fortie foot, workmanly dight,
> take saffron inough, for a lord and a knight,
> Al winter-time after, as practise doth teach,
> what plot have ye better, for linnen to bleach."

In Hackluyt's Voyages*, the first introdution of the saffron into England is ascribed to a pilgrim, who, purposing to do good to his country, stole a head of saffron, and hid it in his palmer's staff. This savours too much of the miraculous, that a single plant, which only increases about seven times its number annually, should stock the nation.

Gerard says, in 1597, " Common, or the best known saffron, groweth plentifully in Cambridgeshire, Saffron Walden, and other places there-about, as corne in the fieldes." In the following chapter of his Herbal he

* Edit. 1599. vol. ii. 165.

adds, " All these wilde saffrons we haue growing in our London gardens. Those which do flower in autumne, do grow vpon certain craggy rocks in Portingale, not far from the sea-side. The other haue beene sent ouer vnto vs, some out of Italy, and some out of Spaine, by the labour and diligence of that notable learned herbarist, Carolus Clusius. That plesant plant that bringeth foorth yellow flowers, was sent vnto me from Robinus of Paris, that painful and most curious searcher of simples."

The common meadow saffron, *Colchicum autumnale* (of the *Hexandria Trigynia* class) is a native of England, " It groweth", says Gerard, " in great abundance, in fat and fertill medowes, as about Vilford and Bathe, as also in the medowes neere to a small village in the west part of England called Shepton Mallet, in the medowes about Bristow, and likewise in great plentie in Nobottle wood, two miles from the towne of Northampton, and many other places." This native plant deserves particular attention, from the singular manner by which its seeds are matured and brought forth, and which will be noticed in its proper place.

This plant is remarkable for sending forth

its blossom out of the earth before either its leaves or stalk; and it has therefore been called *Filius ante Patrem*, the father before the son.

The true saffron crocus is that which grows and blossoms in autumn, of a blue purplish colour, and of a pleasant scent; the beautiful yellow stamina of which form the saffron of the Materia Medica, and it is truly wonderful how rich these chives are in odour, taste, and colour, and how powerful their virtues are in medicine. Providence seems to have ordained that certain parts of particular vegetables should possess a determined kind of body, so different from others in its virtues and powers, that they seem intended to employ our minds in seeking for the benefits bestowed on us through the vegetable world; for of some plants man takes the root, of others the stalk, the leaves, the blossoms, the buds, the fruit, the seed, the pod, the bark, the fibres, the sap, and the pith, to add to his gratifications; but in the crocus every part is neglected, but the organs of fructification, so minutely has nature been investigated to discover remedies for our maladies; and this September flower seems particularly to tell us, "The Lord

hath created medicines out of the earth, and he that is wise will not abhor them."*

When a saffron plantation comes to flower, the owner of the fields collects a number of hands, who commence gathering the flowers early in the morning, and throwing them by handfuls into baskets; the pistillum shrinks when the sun becomes powerful, therefore the gathering is discontinued about eleven o'clock, and the flowers are carried to a building, where the stigma and chives are taken out, and the rest of the flower thrown away; these are placed about two or three inches thick, between white paper, and then sweated and dried in little kilns for the purpose, over a charcoal fire, where great nicety is required in the turning and drying the saffron. The gathering is never stopped on account of the weather, or even of the sabbath-day, the infraction of which was allowed on this occasion even by that strict sabbatarian, Mr. Greenham, in his Treatise on that subject, "because," he says, "God who hath made the saffron so to flower, would not that a thing so useful for man's health, should be lost for want of gathering."

* Ecclesiastes, chap. xxxviii. v. 4.

Miller tells us, in his Gardener's Dictionary, published in 1724, that "the method of drying it may be learned at Littlebury, near Walden in Essex; for there is so much art in it, that saffron is five or ten shillings a pound the better for that only." It takes from three to five pounds of the fresh stigma and chives to make one pound of dry saffron. An acre of land has sometimes produced eighteen pounds of dried saffron; but ten pounds is a more general crop. Miller informs us, that in dry years it sold for upwards of five pounds per pound, prior to the year 1724. It has been as low as 28*s.*, but the present wholesale price is from 48*s.* to 56*s.* per pound. Coles says, "there is no saffron comparable to the English, but that it was cultivated by so many persons (about the year 1657) that it was not then so profitable as formerly." As late as 1705, Phillips observes,

—— "Can Tmolus' head
Vie with our saffron odours?"

Saffron is also cultivated in Cambridgeshire, in a circle of about ten miles in diameter. It loves an open country, free from trees and enclosures; and where there is a good mould upon a chalky bottom, it pros-

pers best. Hares are very fond of this plant, which makes it necessary to protect the plantations with hurdles, or some other effective fence to prevent the depredations of these animals.

The saffron roots are planted about midsummer, which is also the time that they are taken out of the ground, and sold by the bushel. It requires about 128 bushels of these bulbs to plant an acre of land, and about the third or fourth year, when the roots are taken out of the ground to make fresh plantations, they are generally so increased as to plant from three to four times the same quantity of land.*

The expense of planting, hoeing, gathering, and drying the saffron is very considerable; and the crocus plantations are not more exempt from casualties, than the other crops of the husbandman; but they are less felt in this country than in the saffron-fields of Gatinois. M. du Hamel, who undertook to give the Paris Academy an account of the principal malady of this plant, appears to have been the first person who ascertained the cause of what we call the rot, and

* Liger.

the French, *la mort*, of the bulb. Before M. du Hamel had made this discovery, (for which the world, as well as the crocus planter, have to thank him,) its terrible effects were felt without the cause being at all divined. It seems a sort of contagion among these plants, spreading far and wide, and extending from one root as from a centre all over a whole field, if not stopped; the season of its most fatal spreading is the spring, and the progress of the mischief is found to be stopped, by digging deep trenches at that time of the year between the sound and the tainted parts of the field.

M. du Hamel discovered, that the bulbs of the saffron were destroyed by a parasitical plant, which grows very quick in its glandules; and by means of thready filaments sucks the nutritious juices from the roots of the saffron. This enemy of the crocus seems to grow in the same manner as the truffle, without appearing above the surface of the earth, but is produced under ground, and there grows and propagates its species. It spreads very fast, and soon occupies a large compass of ground, continually furnishing new glandules at the end of the filamentous roots, in the manner of the

potatoe. Thus, the disease of the saffron, wherever it begins, spreads itself every way in a circular direction, and there is nothing to be seen on the surface of the earth, which can give any idea of the cause. This mischievous plant is found to injure the roots of the lily, tulip, and other bulbs; but it is thought that it may be of service in cornfields, by destroying many of the pernicious herbs which hurt the corn, as it preys only on those which send their roots deep into the earth, never hurting those that are superficially fixed, as corn and most grasses are. The florist, however, is probably as often injured by it as the saffron cultivator; and the misfortune attending this destructive plant is, that the common culture of land, which destroys other weeds, serves rather to promote its increase, since it delights in light dry earth, not in wet or untilled lands.*

Mr. Bradley was of opinion, that good saffron may be gathered from the blue spring crocus: there being little or no difference in the flowers of the one and the other. We know not whether this experiment has ever been made. Should it succeed, the crop would be much more certain, as the pistillum

* Mem. Acad. Par. 1728.

would not be so likely to shrink, as in the warmer time of autumn; and the culture would be more easy, and readily freed from weeds. Haller remarks, that the autumnal saffron differs from the spring crocus, in having the stigma divided into three long segments, the ends of which are also trifid. These three horns of the stigma are odorous and aromatic, which is not the case in the vernal crocus; and the flowers are much larger.

Dr. James says, in his Medical Dictionary, "The best saffron in the world grows in England, being cultivated in Essex, Suffolk, and Cambridgeshire." The English saffron was formerly highly extolled, but the importation of saffron has lessened its home cultivation. If this drug is valuable or necessary, it must be of national importance that the propagation should be continued, for, if the culture be entirely dropped, it will not easily be renewed, and it would, although in a small degree, lessen the employ of the poor labourer, which should in every instance be as much guarded against, as we would guard against national confusion.

As a medicine, saffron has ever been esteemed an elegant as well as a useful aro-

matic, and a cordial so highly stimulating, that it is said to exhilarate the spirits to such a degree, (if taken in large quantities,) as to occasion immoderate mirth, and involuntary laughter. It is, therefore, particularly serviceable in hysteric depressions, proceeding from a cold cause, and on this account it has been called *Cor hominis*, the heart of man; and there is an old proverb, alluding to one of a merry temper, *Dormivit in sacco Croci*, "He hath slept in a bag of saffron."

Saffron imparts the whole of its virtues and colour to rectified or proof spirits, which will retain its qualities for many years.

Dodoens recommends saffron in diet as comforting the stomach, and causing good digestion; and when drunk in wine, he says, it prevents intoxication. The same author says, that the root of this plant is a diuretic, that greatly relieves the stone or the gravel. Ancient physicians, and some of our old medical writers, affirm, that saffron causes head-aches, and that the use of it is hurtful to the brain; but we presume that they allude to a too frequent use of this drug, which, by preventing sleep, would naturally injure the head. Gerard tells us, that the "moderate vse of it is good for the head,

maketh the sences more quicke and lively, shaketh off heauie and drowsie sleepe, and maketh a man merrie. Also saffron strengtheneth the heart, concocteth crude or raw humors of the chest, openeth the lungs, and remooueth obstructions or stoppings." The same author says, "the chives steeped in water serueth to illumine, or, as we say, limme pictures and imagerie, as also to colour sundry meates and confections."

Lord Bacon says, in his History of Life and Death, that "the English are rendered sprightly by a liberal use of saffron in sweetmeats and broths." We read in Ovington's Voyages, that the Indians, on their holidays, express their joy by scattering or throwing about saffron.

Lobal, in the Account of his Travels into Spain and Italy, informs us, that the inhabitants of these countries are persuaded, that without the use of saffron they should be perpetually molested with disorders of the breast, lipothymies, and want of sleep. Laurembergius tells us, that the women in Ireland formerly dyed their body-linen with saffron, to procure to themselves strength of body, and cheerfulness of mind, and that the young men chewed it in their mouths; by which means they acquired a fragrant

breath, and by breathing upon the face of a female whom they suspected to have been painted, it would immediately make her become pale, and betray her counterfeit beauty. Scaliger, in his Exercitationes, informs us, that in Iceland, as well as in Ireland, the lower classes tinge their shirts with saffron, with an intention to keep off vermin; but Lord Bacon says, that in Ireland, linen shirts tinged with saffron were originally intended for preventing putrefaction; and he was of opinion that the practice contributed to the prolongation of life. The same author, in his Treatise *De retardandis Senectutis accidentibus*, advises saffron to be mixed with medicine intended to prevent the effects of old age; for, says he, "Saffron conveys medicine to the heart, cures its palpitation, removes melancholy and uneasiness, revives the brain, renders the mind cheerful, and generates boldness. Boerhaave, in the second volume of his Chemistry, calls it a true and genuine rouser of the animal spirits, because it is possessed of aromatic, stimulating, and heating qualities. Caspar Hoffman says, it may be justly doubted whether it does not surpass all other simples.

Saffron has often been called *Anima Pulmonum*, the soul of the lungs, from its excel-

lence in freeing the lungs from thick and viscid phlegm. Camerarius, in his *Hortus Medicus*, affirms that it is so beneficial in disorders of the thorax, that some give a scruple and a half of it with half a grain of musk, to be drunk in warm wine, as a cure for the asthma. He also affirms, that it greatly contributes to remove the effects of a perspiration obstructed by cold. Hersdt, in his *Crocologia*, recommends the following preparation as a specific in the jaundice: "Take of malmsey wine, one pint; the yolks of two eggs; one dram of saffron: mix all together. One half of this preparation to be taken at night, when going to bed, and the other in the morning."

Saffron was in great demand before Vaccination had so nearly banished that pest of the health and beauty of the human face, the Small-pox; as it is said to be a medicine of uncommon service in promoting the eruption of that terrible disease. Ray says, it was formerly suspended in small bags under the chin and throat of those who suffered from that complaint, for dissipating putrid and venomous matter, lest, stagnating in the parts, it should excite an inflammation, and strangle the patient.

We are informed by the great Verulam, "that a certain Englishman who used to be excessively sick at sea, had his usual nauseas prevented by wearing a bag of saffron at the region of his stomach."

To enumerate all the good qualities that have been attributed to saffron, by the most able and learned physicians, would require a separate volume: we shall therefore conclude with warning the incautious against the abuse of this admirable drug, which does not differ from the general principle in other medicines, viz. "that, the more efficacious, the more dangerous."

Galen says*, when saffron is too liberally used, it either destroys the patient's reason, or procures his death. According to Geoffroy, Costæus informs us, that many who have used a small bag of saffron by way of cushion, have been seized with a pain of the head so intolerable as to put an end to their lives.

Borelli gives an account of a merchant's servant, who, using to lie down and sleep near a large quantity of saffron, was seized with such intense pain of the head, and

* De Simplic. Medicament. Facultat. lib. v. cap. 19.

weakness of the heart, that he died. He also tells us, that he was informed, that horses which carry loads of saffron generally died of a bloody discharge.*

Amatus (in Dioscorid.) gives an account of one Agaso, a native of Pesaro, who happening to sleep upon two small bags of saffron, died the same night ; and, according to the same author, a merchant, after throwing a large quantity of saffron into a pot containing some soup, which he intended for his supper, was, upon eating the soup, seized with so violent a fit of laughter that he was near dying.

We have accounts of many females, who have lost their lives by taking saffron in too large quantities. It is therefore obvious, that as the moderate use of saffron is beneficial in many diseases, so is it dangerous when taken unseasonably, or in too large doses. For this reason Boerhaave classed it among the narcotic poisons. Dr. James says, the largest dose for such as are not accustomed to it, ought not to exceed half a scruple ; but that it may be gradually increased to half a dram.

The best saffron is of a full orange colour,

* Observationes Medico-physicæ, cent. 4, obs. 35.

and gives a dark yellow tincture. It should not be kept too long, being best fresh, neither dry nor too moist, but firm and tough in tearing, diffusing a strong acrid smell. A small quantity of this drug will turn wine or water to a reddish yellow colour. Saffron affords a yellow colour to the dyers, and a useful one to the painters in their water-colours, as gamboge and king's yellow are not sufficiently dark to shade without the assistance of this tint.

Saffron, by a chemical analysis, yields an acrimonious, thin, and highly volatile spirit, which comes off first, though in small quantity, in the distillation; to this succeeds a sub-acid phlegm, which will turn a tincture of heliotropium of a red colour; then a very little oil, and a very small quantity of urinous salt.

SAFFLOWER, OR BASTARD SAFFRON.—CARTHAMUS TINCTORIS.

Natural order, Cinarocephalæ. A genus of the Syngenesia Polygamia Æqualis class.

THIS plant, which was once cultivated to a considerable extent in Gloucestershire, is now

but rarely to be seen even in the gardens of the curious: thus a useful vegetable which formed an article of trade in this country, is now lost to us.

It is a native of Egypt; but Allioni enrols it among the Italian plants, and it is said to grow on the dry hills about Nice, so as to justify his arrangement, as it would have been difficult to prove whether it was only domesticated or an aboriginal of those hills, had not Pliny stated positively that it was confined to Egypt, and not known in Italy before the reign of Vespasian.

It is a hardy annual plant, which grows to three feet in height; the flowers are *capitate*, or artichoke-shaped, but throwing out saffron-coloured chives instead of purple; it has also the smell of saffron, and was probably used by the Spaniards to adulterate the true sort. It is much used in Spain and in the Levant as a culinary ingredient, as it formerly was in this country; but Parkinson says, that it gives no relish to the soups, &c. to which it is added, and is only used to give the yellow colour, so agreeable to the eyes of the Spaniards. The seed, which was used in medicine, is now quite disregarded.

The flowers constitute a dyer's drug, that

gives to silk a fine rose or *ponceau* colour, a tint in which the British dyer is greatly outshone by those of the Continent. A red pigment for painters is made from the stamina, and the cosmetic vegetable rouge receives its hue from safflower.

Parrots eat the seed with pleasure, and it has therefore been called Parrot's corn, being a wholesome food for that tribe of birds, although noxious to all other animals.

SAMPHIRE.—CRITHMUM.

Natural order, Umbelliferæ. A genus of the Pentandria Digynia class.

The generic name is derived from the Greek Κριθμον, or Κριθαμον.

The Dutch considered this plant to be a marine fennel, as did also the Italians, who called it *Fenocchio marino*, and *Herba di San Pietro*, that is, St. Peter's grass, which name was abbreviated into Sampetra, next corrupted into Sampier, and now spelt, in English, Samphire.

To prove this marine vegetable indigenous to Albion's cliffs, and that it was a dainty sought after with extreme danger, we have only to extract a few lines from our immortal bard,

—— "How fearful
And dizzy 'tis, to cast one's eyes so low!
The crows and choughs that wing the midway air,
Shew scarce so gross as beetles: half way down
Hangs one that gathers samphire; dreadful trade!
Methinks he seems no bigger than his head."

The samphire-gatherers in early days, we may conclude, met with a ready sale for this salad, as we have accounts of its being regularly cried through the streets of London. In later days, Phillips sang its praises in his happy style :

—— "Nor untrembling canst thou see,
How from a craggy rock, whose prominence
Half overshades the ocean, hardy men,
Fearless of rending winds and dashing waves,
Cut Sampire, to excite the squeamish gust
Of pamper'd luxury."

Gerard, who composed his Herbal about Shakespeare's time, informs us, that "Sampier was then thought the pleasantest sauce, most familiar and best agreeing with man's bodie, both for digestion of meates, breaking of the stone, and voiding of grauell." He adds, "The leaues kept in pickle, and eaten in sallads with oil and vinegar, is a pleasant sauce for meate, and stirreth vp an appetite to meate." At that period it was often called Crestmarine, and Gerard notices, that the "Rock sampier groweth on the rocky cliffes at Douer, Winchelsey, by Rie, about Southampton, the Yle of Wight, and most rockes about the west and northwest parts of England."

Samphire seems to have gone nearly out of use about the middle of the 17th century; as we learn from Dr. Culpepper's Astrological Herbal, which says, "It is an herb of Jupiter, and was in former times wont to be used more than now it is; the more is the pity. It is well known almost to every body, that ill digestions, and obstructions, are the cause of most of the diseases which the frail nature of man is subject to; both which might be remedied by a more frequent use of this herb."

Coles says, "Of all the sauces (which are very many), there is none so pleasant, none so familiar and agreeable to man's body, as samphire, for the digestions of meats, &c. &c."

The introduction of so great a variety of salad herbs has nearly driven samphire from our board, although it was so highly commended by Hippocrates.

Pliny says*, "Samphire is one of the wild worts that is usually eaten in salads, and is the very herb that the good country-wife Hecale set upon her board, in a meal that she prepared for Theseus, as he was going

* Book xxvi. chap. 8.

against the Bull of Marathon." This author adds, "It grows upon the sea-coast amongst rocks and cliffs, and may be eaten raw or boiled, with beets, coles, or other pot-herbs:" he notices, that the taste is aromatic and pleasant, and that it was usually preserved and kept in a pickle, and that the principal medicinal purposes that it was then used for were, for the strangury, and for eyes afflicted with a gummy watery humour. It was esteemed diuretic, and the Romans believed, that the leaves, stalks, or roots, taken in wine, caused the complexion to be clear, and the countenance cheerful. This author also tells us, that the powder of this plant mixed with barley is of service to horses that are suffering with the glanders.

Samphire is still mentioned as a cathartic and diuretic, and good for phlegmatic watery humours, therefore serviceable against the dropsy, jaundice, &c.

The Rock Samphire, *Crithmum maritimum*, grows plentifully on all the cliffs of the Cornish coast. The fields about Porth Gwylan, in Caernarvonshire, are covered with it.

This plant may be cultivated on artificial rock-work, either by seeds, or parting the

roots. The pickle that is generally sold in the oil-shops of London as samphire, is not even a species of the same plant, but is the marine plant *Salicornia,* jointed glasswort, saltwort, or crabgrass.

This plant is found growing in most sea-marshes, and, being easily procured on many parts of the coast, has been substituted for the rock samphire. Many acres of the beach near the mouth of the river Adur, in Sussex, are covered with this herb, from whence the Author of this work has often procured it for pickle, but which he found more ornamental than excellent.

This plant is also called Kali or Alkali, from the Arabic. It is from the ashes of this plant that the salt called alkali is extracted, which being mixed with a fine sort of sand, makes the glass called crystal. It grows in great abundance in Egypt and Syria, and is cultivated in Languedoc and Provence by the farmers, who plant whole fields of it to good purpose; for the soda or kelp they make is exported to Italy, where the Venetians manufacture it into those beautiful glasses so much esteemed.

The ashes of this maritime vegetable, made

into a ley, and boiled with oil, make the best soap. We learn from the ancients that the ashes of this plant were thought good to consume proud flesh, and to cleanse the skin from scorbutic eruptions. They also burnt this herb with a belief that the smell of the smoke drove away serpents.

SAVORY.—SATUREIA.

Natural order, Verticillatæ. A genus of the Didynamia Gymnospermia class.

It was called in Greek Θυμβρα, from θύω, *suffio*, on account of its odour. In Latin it was named *Satureia*, *à saturando*, being used to season broth and stewed meats.

It is supposed to have grown abundantly near Troy, in a place called Thymbra; and from thence Apollo, one of the patrons of that city, was called Thymbræus.

The summer savory, *Hortensis*, is an aromatic annual plant. The winter savory, *Montana*, grows to a considerable-sized shrub, when planted in a poor dry soil; but in rich earth its pores become too full of moisture to stand the severity of our winters. Both these species of savory are natives of the South of Europe, and are noticed by Virgil among the fragrant herbs and shrubs that should grow near the beehive.

" The verdant lavender must there abound,
There savory shed its pleasant sweets around."

These plants are said to have been first cultivated in this country in the year 1562; but from the manner in which Gerard notices them in 1597, we are disposed to think that the introduction was much earlier. Indeed, it can scarcely be doubted, that this and many other Italian herbs, which familiar use had made almost necessary to the Romans, were cultivated here during their residence in Britain, as we cannot suppose that men so well acquainted with horticulture, and the value of plants, would neglect planting useful herbs in the vicinity of the villas, the floors of which they tesselated with so much ingenuity and care.

Savory was used by the Romans in acid sauce, or as a kind of spice to give warmth to lettuce, and other cool salads; and it was certainly a more rational way of taking this hot acrid herb, than the present method of using it, to give heat to our already too inflammatory dishes. Dodoens says, savory, in its operations, resembles thyme, and is very good, and necessary to be used in meats. It was usual for the ancients to dip their animal food in vinegar, flavoured with

aromatic herbs, which would be much less heating than forcing our roast joints with hot spices and acrid vegetables. Gerard says, "Sommer sauorie is not full so hot as winter sauorie, and therefore more fit to be vsed in medicine: it maketh thin, and doth maruellously preuaile against winde: therefore it is with good successe boiled and eaten with beanes, peason, and other windie pulses."

Summer savory affords, in distillation with water, a subtle essential oil, of a penetrating smell, and of a hot acrid taste. It also yields to rectified spirits the whole of its taste and perfume.

Both kinds are propagated by seeds. Those of the annual plant should be sown early in April, on a bed of light earth. The winter savory should be sown in a poor acrid soil. Six other species of savory are now cultivated in this country, by the curious herbalist. The one brought from the Isle of Candia, in 1640, requires the green-house; and that which arrived from Jamaica, in 1783, must remain a stove-plant.

This plant, from its taste and smell, appears to be of a heating and drying quality, with some slight measure of astringency. We may, therefore, rationally suppose it to

be of good service in the stone and gravel, and other nephritic disorders.*

Savory is of a very hot, penetrating, and aromatic taste, whence it is of service in all diseases in which water and an inert phlegm are predominant. It is an excellent seasoning for farinaceous foods, as beans, and the like; and is accounted one of the best antiscorbutics, and highly commended against pituitous diseases, and the dropsy. It is a very serviceable plant in affections of the stomach, or crudities and loss of appetite, and sharpens the sight. Externally, it eases pains of the ears, and discusses cold tumours.†

This plant was formerly used in the composition of cakes, puddings, sausages, &c. and was thought inferior to none of the European aromatics, for pleasantness of smell and flavour.

* Prosper Alpinus de Plantis Exoticis.

† Hist. Plant. ascript. Boerhaave.

SORREL.—ACETOSA, OR OXALIS.

A species of the Rumex. A genus of the Hexandria Trigynia class.

THE generic name is derived from *acetosus*, eager, sour: Sorrel, so called of the Anglo-Saxon ſuꝛ, sour.

—— "When solar beams
Parch thirsty human veins, the damask'd meads
Unforced display their thousand painted flowers,
Useful in potables."

PHILLIPS.

Rarity being oftener coveted than excellence, it is not surprising that we should find this native vegetable discarded in an age in which Novelty, principally, stimulates Art, to furnish our kitchens. The caprice of fashion extends even to our vegetable food; and the zeal which should animate us to improve the virtues of our own plants, is often wasted in obtaining those of distant countries, whose qualities are uncertain!

Sorrel is now scarcely known as a pot-herb in this country, except at fashionable tables; and the small demand having now nearly banished it from the metropolitan markets, it bears, when procured, the price of dainty forced plants.

The use of sorrel is of great antiquity: Pliny observes, that it renders meat more pleasant, and lighter of digestion. "The garden sorrel, or sour dock," (says this author) "is the hardiest of all vegetables; for where it once seeds, there it grows for ever, neither can it be killed, do what you will with the earth, particularly if it be near the water."—"The wild dock," he adds, "is better than the garden sorrel, which the Romans called *Rumex*."

Miller says, sorrel is a species of dock, and that it agrees with the dock in all its characters, and only differs in having an acid taste. It is said to possess all the properties of vegetables.

Lord Bacon, observes, that "Of all roots the sorrel goeth the furthest into the earth; and that it is a cold and acid herb that loveth the earth, and is not much drawn by the sun." This quality gives it great advantage over other vegetables, the root penetrating into

the earth to a depth seldom reached by the frost: it rarely, if ever, suffers by the winter.

The Author experienced this benefit in his garden after the winter of 1819, when every species of vegetable was killed by the severity of the weather: the sorrel soon returned from its winter quarters, and afforded an agreeable supply, before spinach or cabbage-sprouts could be procured; and by keeping it regularly cut, so that it was not exhausted by running to seed, he kept it in perfection, not only during the summer, but until after Christmas.

It is acid and cooling; grateful to the stomach, quenches thirst, allays the heat of choler, and is an excellent anti-scorbutic. It tempers the circulation of the blood, and thickens, or sweetens, according to circumstances; it is said to be good in pestilential or intermitting fevers.

Dale tells us, that sorrel is one of the principal cardiacs and hepatics, resists putrefaction, creates an appetite, represses bile, and allays thirst; whence it is most frequently given in common and pestilential fevers.

Boerhaave says, this plant is excellent for hot, lax, putrid constitutions, abounding with bile. The same author says, a decoction

of the leaves or roots, in whey of new milk, is exceedingly good against all lingering diseases in general, where there is an acrimony tending to putrefaction. No plant better cleanses the body of feculent humours collected in winter. A handful of the leaves boiled in a pint of whey, is an excellent medicine in April. In short, it is one of the most effectual remedies against the scurvy, if the plant be eaten green, or its juice drunk; for it helps an offensive breath, fastens loose teeth, and cures the putrefaction of the gums; and is extremely beneficial in all cases where the blood is too fluid, and the vessels lax.

They who spit blood, and are prone to consumption, find extraordinary relief from taking the juice hereof, which is of use also externally applied; for it is proper to cleanse sordid ulcers; and the leaves, contused with fresh butter, are of the greatest service against such carbuncles as tend to gangrene.*

The leaves of the wood-sorrel are said to excel common sorrel in all physical virtues, and are reckoned more cordial and useful in inflammatory fevers.†

The juice of this plant, says Boerhaave, is

* Hist. Plant. † James.

somewhat oily, acid, and nitrous; therefore it is good in all burning, putrid, pestilential distempers. The herb boiled in milk and water, is an excellent remedy for inflammation, pleurisy, and all acute diseases; nothing better corrects the humours, bile, and putrefaction, than this herb; therefore it must be good for nausea and want of digestion, arising from putrefied bile, or from any alcalescent humour in the stomach.

A volume has been written on the virtues of this herb in German, and translated into Latin, wherein, says Boerhaave, you will find that the plague has been cured, and the gums that were eaten with the scurvy restored and healed, by the use of it.

Bartholin, in his Memoirs of Copenhagen*, says, that the people of Greenland make use of it with scurvy-grass† in their barley-broth, for scorbutic complaints; and that these herbs should be generally used together.

The root of sorrel is very oily, and almost without acidity; it is aperient, and, when dried, has the singular quality of giving a fine red colour to boiling water: it is, therefore, used by the French to colour barley-

* 1671, obs. 9. † Cochlearia.

water like red wine, when they wish to avoid giving wine to the sick; it gives but a faint red colour to blue paper, whereas the leaves give it as deep a red as alum. The red from the leaves continues after the paper is dry; that from the roots vanishes, nothing remaining but a brown spot.

There does not appear to be any vitriol in sorrel; for the juice of its leaves does not blacken the tincture of galls any more than other acids which have nothing metallic in them.*

The seeds are esteemed cordial, and beneficial in dysenteries.

The blossoms of sorrel are given to singing birds to cool and refresh them.

Dr. Quincy recommends sorrel in summer salads.

Arbuthnot says, "Acid austere vegetables contract and strengthen the fibres, as all kinds of sorrel, the virtues of which lie in acid astringent salt; a sovereign antidote against putrescent bilious alkali.

We generally use it boiled, as a sauce for roast meat, particularly veal and pork; and it is an excellent substitute for apple-sauce with winter geese. It should, like spinach,

* James.

be put into a saucepan without water, except that which hangs to the leaves in washing it; it should be boiled slowly; and then be beat up with a small piece of butter, and served at table as spinach. It becomes more excellent when the yolks of eggs and cream are added to the butter.

The Rev. Mr. Hughes, in his Natural History of Barbadoes, says, the young leaves of sorrel (first stewed) make excellent tarts.

Nicholson mentions two kinds of sorrel in St. Domingo, both of which are used in the kitchen, being esteemed emollient and cooling.

The best sorrel (called French sorrel) is a native of Provence, and may be known by the leaves being nearly round. The French botanists distinguish thirty varieties.

In France there are few soups or sauces made without a portion of sorrel; and so much is it esteemed in that country, that they take the greatest care to have a store preserved for winter use. It is a common saying among the French, that a good housewife is known by her pots of sorrel.

In the vegetable markets, as well as at the doors of the green-grocers in Paris, the pick-

ing of sorrel is as common as the shelling of peas in London.

It is recommended to all persons subject to bilious complaints; but those having asthmas, coughs, or acidity in the stomach, should avoid it.

In Switzerland, Suabia, and other countries, where it grows abundantly, they prepare, with the juice of sorrel, an essential salt, called Sorrel Salt; that of Switzerland has the advantage of being whiter and in larger crystals than any other. This salt, being thrown on hot coals, burns like cream of tartar; but, if mixed with salt of tartar, it gives an odour similar to sal-ammoniac.

Savary says, that fifty pound of sorrel produces only two ounces and a half of pure salt.*

The French use the juice of sorrel to prepare their hemp and flax for a red dye; it turns blue paper to a fine purple.

Gerard's account of this herb will shew in what estimation it was held in the time of Henry the Eighth, and that of his daughter. He says, "Sorrel groweth in most parts in gardens. Sorrell doth vndoubtedly cool, and mightily drie; but because it is sower, it

* Dissertatio Inauguralis de Sale essent. acetosæ. Argentor. 1773.

likewise cutteth tough humours; the juice heereof in summer time is a profitable sauce in many meates, and pleasant to the taste. It cooleth an hot stomache; mooveth appetite to meate; tempereth the heat of the liuver, and openeth the stoppings thereof. The leaves taken in good quantitie, stamped and strained into some ale, and a posset made thereof, cooleth the sick bodie, quenches the thirst, and alaieth the heat of such as are troubled with a pestilent feuer. The leaves, sodden and eaten in manner of a spinach tart, or eaten as meat, doth attemper and cool the blood exceedingly." It was made into green sauce, and eaten with fish, in this author's time.

The wild sorrel was used medicinally by the Romans in various cases. They used it mixed with hog's lard for swelled kernels, and the king's evil, as also to cure the sting of scorpions. The root was chewed to fasten teeth that were loose, and it was also used to cure wens, &c.*

The natives of Lapland boil large quantities of the leaves of sorrel in water, and mix the juice, when cold, with the milk of the

* Plin. book xix. c. 12.

rein deer, which they esteem an agreeable and wholesome food.

The Irish, who are particularly fond of acids, eat the leaves of sorrel with their milk and fish. Bryan says, the leaves of the wood-sorrel afford one of the most grateful acids of any in nature. The leaves of this plant, boiled with milk, form a most agreeable whey, which is accounted good for opening obstructions of the viscera.

The Dutch are said to cultivate this plant for its usefulness in the dyeing of woollen cloths black. In many parts of Scotland it is also used to give an excellent black colour to their woollen stuffs, without the use of copperas; and cloths so dyed are found more soft and silky than those dyed by the aid of copperas.

The following important observation was made by the Earl of Dundonald, in his Treatise on Agriculture connected with Chymistry:—"Soils not calcareous, containing much inert vegetable matter or peat, have a tendency to produce wild sorrel, a plant considered in general as an indication of the want of fertility in the soil. This is certainly correct, if the fertility of the soil is only to be estimated by the use or value at market of

the crop, but not as it respects vegetation itself; for a soil of the above description often produces a most plentiful crop of sorrel. In this case, as it applies to the future improvement of the land, the growth of sorrel should as much as possible be encouraged, even by sowing the seed for this especial purpose. The vegetation of this plant is, no doubt, promoted in the soil by the oxalic or soreline acid, formed by the combination of oxygen, or pure air, with the basis of soreline acid contained in the vegetable matter of the soil; and so long as the vegetable matter remains in a state fit to become oxygenated, it will have a tendency to promote the growth of sorrel."

It has been stated, that the juice or salt of sorrel is a super-acidulated neutral salt, consisting of the vegetable alkali and the oxalic acid. This superabundant acid is inimical to the growth of grain, or of such vegetables or grasses as constitute the food of most animals, but which tendency in the soil, and injurious consequences, are to be corrected by the application of different substances, viz: lime, chalk, magnesia, and alkaline salts; and also by paring and burning, which the Noble Lord recommends to be done, when the sorrel is in its most luxuriant state.

SPINAGE or SPINACH.—SPINACIA.

Natural order, Holoraceæ. A genus of the Diœcia Pentandria class.

This vegetable seems to have been unknown to the ancients. It has by the moderns been called *Spinacia*, from its spinous seed, though there is a species of it, which produces a smooth seed.

The pronunciation of its name is nearly the same in most of the European languages. In French, *Epinards*. In German, *Spinat*. In Italian, *Spinace*. In Spanish, *Espinaca*. In Arabic, *Hispane*. From this latter name, and as it was formerly often called in this country *Olus Hispanicum*, it has been thought to be a native of Spain. This hardy annual plant was first cultivated in our gardens about the year 1568; as Turner says, in his Herbal, which was published in that year, "Spinage, or Spinech, is an herb lately found, and not long in vse;" and it is still considered as a pot-herb of considerable

importance, being in demand for the kitchen at all seasons of the year, but more particularly in the spring, after hard winters, when it is often the earliest green vegetable our markets afford. Fontenelle, who was a great epicure, is said to have been very fond of this vegetable; and an anecdote is told of him that shews how much more he thought of his appetite than of his departed friends.

An acquaintance, who was equally fond of spinage, appointed to dine with him, at a season of the year when but a small portion of their favourite vegetable could be procured. Just as the dinner was to be dished up, the cook inquired if his master would have the spinage served up *au gras,* which was his favourite way, or *au maigre,* as his friend preferred it; or if it should be divided and sent up both ways. The author of the Plurality of Worlds, desired the cook to wait until the guest arrived, before he dished it up. At the moment, a messenger entered to announce the sudden death of his expected friend. Fontenelle, having received the message, called out to the cook, "Send up all the spinage *au gras.*"

Spinage eaten freely, is laxative, diuretic, and cooling: it has no hurtful quality, nor

does it give nutriment; but is said to be good for those to eat who have been debarred from meat, when first they take to it again.

"Among all culinary greens," says Tragus, "spinage is, in my opinion, the most laudable and grateful; whence it may be eaten in almost all kinds of diseases. It is very serviceable in feverish disorders, and is proper for all old persons who are subject to costiveness: in the first, by allaying the heat, though it be even of a hectic quality; and for aged persons, by lubricating the stomach. It is cooling and moistening, by its nitrous quality."*

The fresh herb affords a thick, but very wholesome juice, which mitigates the asperity of the lungs, and is of service in inflammations of the stomach †.

The water in which spinage has been boiled makes as good touch-paper for fireworks, as is procured by the assistance of nitre, which is an evident proof of its cooling quality.

The juice of spinage being nearly tasteless, and quite inoffensive, is the only green-

* Raii Hist. Plant.

† Hist. Plant. ascript. Boerhaave.

colouring that cooks and confectioners should be allowed to use in their ornamental eatables. Wealthy families should allow the use of a silver saucepan for this vegetable as well as sorrell. These plants being of so moist a nature should be boiled without water, except what hangs to the leaves in rinsing them. Many persons prefer a mixture of these two vegetables to either cooked separately.

The young leaves of spinach were used in salad, not only in the time of Queen Elizabeth, but so late as the days of Charles I.

Gerard observes, " This herbe, of all other pot-herbs and sallade herbes, maketh the greatest diuersities of meats and sallades." This author considered it a kind of Orach, *Atriplex;* but this plant is of the class *Polygamia Monœcia.*

The garden Orach, *Atriplex hortensis,* is a native of Tartary, and seems to have been cultivated in England previous to spinage, as we have accounts of it as early as 1548. It is now but seldom seen in either our gardens or markets; yet there are some people among us who prefer it to spinage, and in France it is greatly esteemed. Its qualities are nearly the same as those of spinage: we have now

fourteen species of orach ; seven of which are plants.

Many old herbalists considered spinage to be only a variety of Blite, *Blitum*, often called Strawberry Blight, and Strawberry Spinage ; but this plant is of a different genus, belonging to the *Monandria Digynia* class.

Mercury, *Mercurialis*, is by the country people generally thought to be a wild spinage, and many people eat it in preference to spinage: it differs, however, in appearance from the latter plant very considerably, as the mercury seems powdered over with a greyish white colour ; it is a genus of the *Diœcia Enneandria* class. It grows in neglected gardens, and among old rubbish, as also on new-made banks that are free from shrubs ; it appears about the end of May, and may be gathered all the summer. The French call it *Bon Henri ;* the Germans, *Guter Heinrich*, Good Henry ; and it is generally known in this country by the name of Good Henry, or *Bonus Henricus*. In Cambridgeshire it is called Good King Harry. It is sometimes called *Tota Bona*, and Fat Hen. The country people bruise it, and lay it on green wounds to cleanse them. Galen recommended it to the ancients in poultices,

to assuage swellings and inflammations. Hippocrates commended it for various purposes. Matthiolus says, the seed boiled with wormwood, and drunk, cures the jaundice in a speedy manner. Culpepper says, that the leaves or the juice of this plant rubbed upon warts, takes them away.

The Author discovered a marine plant which he considers a true species of spinage, growing on the beach between Worthing and Lancing in Sussex, the leaves of which are as thick as those of cabbage, and the flavour very superior to the common spinage; yet it is neglected by the neighbouring inhabitants, and suffered to wither on the shore, either through ignorance of its quality, or their fear of eating any herb that has not found its way into either the market or the garden. As it is a perennial, it cannot fail of being a valuable addition to the gardens of those who have residences near the sea. It should be sown on a heap of decayed seaweed, covered with large gravel or small flints. The root is of the tap kind, but often branches among the stones on the beach; it is sweeter than even the carrot. The flowers are formed of five petals of a pale green colour, but of so solid a nature that when

expanded they cannot be closed without breaking; but to counteract this apparent inconvenience, and to secure the pollen from the weather, to which, from its natural situation it is particularly exposed, each petal forms a kind of hood, under whose roof the chives thrust their fecundating heads, until the stigma is sufficiently matured to receive the farina, when the chives by bending to a quarter circle extricate their loaded balls for the purpose of impregnation. The stigma is solitary, and slightly cut in three at the top. Its blossoms, which may be found in the months of August and September, are worth the inspection of the curious, who will see in them that nothing in nature is too minute to be perfectly formed, and suited for its situation and security in producing its species.

SUGAR CANE.—SACCHARUM.

Natural order, Gramina. A genus of the Triandria Digynia class.

To trace the history of a plant that is become of such immense importance to society as sugar, to learn by whom it was discovered and brought from the remotest corners of the globe, and by what channels its luxurious sweets have floated to all civilized countries, is an arduous undertaking.

Whilst most other tastes are acquired by early habit, long custom, and often originate in necessity or the caprice of fashion, the love of sweets is natural, not only to man, but to animals that are not carnivorous. Fowls, reptiles, and insects, seek greedily for the saccharine particles of vegetables; the American perroquet taps with its beak the maple-tree, to obtain its sugar; the fly pierces for the same purpose the turkey fig; the bee hunts for the nectar of flowers; and our oxen fatten in sweet pastures. Sweets were among

the blessings of the promised land: "I will give you a land flowing with milk and honey."

When the Israelites murmured for want of bread, the Almighty gave them manna, "and the taste of it was like wafers made with honey. And Moses said unto them, this is the bread which the Lord has given you to eat: And the children of Israel did eat manna forty years.*"

Lord Bacon observes, "There are three things in use for sweetness, sugar, honey, and manna:" he adds, "Sugar was scarce known to the ancients, and in little use."

We may safely conclude, that the sweetness of the cane was discovered and appreciated many ages prior to the making of sugar. The sweet cane is mentioned in the Old Testament, in a manner which suggests that this kind of sweet was not altogether unknown to the ancient Jews, but that it formed a part of the costly rarities used in their religious ceremonies and sacrifices. Moses was commanded to make the holy anointing oil of pure myrrh, sweet cinnamon, and sweet calamus.† The prophet Jeremiah says "To what purpose cometh there to

* Exodus chap. xvi. † Exodus c. xxx. v. 23.

me incense from Sheba, and the sweet cane from a far country*?" "Thou hast bought me no sweet cane with money, neither hast thou filled me with the fat of thy sacrifices.†"

Our translators have sometimes rendered the Hebrew word קנה, which frequently occurs in the Old Testament, as *calamus*, and sometimes as *sweet cane;* but it is generally supposed to mean the sugar-cane.

The East Indies being the only country in which the cinnamon grew, we may conclude that the people of Judea were supplied with the sugar-cane from the same country which afforded them their favourite spice.

The prophet Ezekiel mentions the calamus as being among the merchandise in the markets of Tyrus, about 595 years B. C.

"Dan also and Javan, going to and fro, occupied in thy fairs; bright iron, cassia, and calamus, were in thy market."‡

The sugar-cane was first made known to the western world by Alexander the Great, whose conquests, or rather military travels, reaching to the Indian seas, enabled the naturalists of that day to make great collections of fruits and plants, many of which were first

* Chap. vi. 20. † Isaiah xliii. 24.
‡ Ezekiel xxvii. 19.

planted in Europe on the return of his army. Strabo informs us that Nearchus, who was admiral of Alexander's fleet, discovered the sugar-cane in the East Indies.*

Lucan relates, that an Oriental nation in alliance with Pompey used the juice of the cane as a drink.

"Quique bibunt tenera dulces ab arundine succos.

Lib. iii. 237.

This would naturally be the first use of so delicious a juice; and as sugar will ferment liquors, so will it cause intoxication. The Encyclopedia Britannica says, "If any credit be due to etymology, it confirms the opinion that *Kené* from the Hebrew, denotes the sugar cane; for the Latin word *canna*, and the English word *cane*, are evidently derived from it. It is also a curious fact that *sachar* or *sheker* in Hebrew, signifies inebriation, from which the Greek word σακχαρ, sugar, is undoubtedly to be traced.

Varro, who was Pompey's lieutenant in his piratical wars, and who lived in the century before the Christian era, describes this sweet in a fragment quoted by Isidorus† as a fluid pressed from reeds of a large size, which was sweeter than honey:—

* Lib. xv. † Lib. xvii. c. 7.

"Indica non magna nimis arbore crescit Arundo,
Illius è lentis premitur radicibus humor,
Dulcia cui nequeant succo contendere mella."

"In India there grows a cane of a moderate size, from whose viscid roots is expressed a liquor with which honey itself cannot be compared for sweetness."

Seneca notices it in a way that convinces us the Romans knew not the art of extracting sugar in his time. "It is reported," says he, "that honey is found among the Indians in the leaves of reeds, which is generated either by the dew of that climate, or the sweet and fat humour of the reed itself."

It is also described by Dioscorides, the physician of Antony and Cleopatra. He says, there is a kind of honey called *Saccharon*, which is found in India and Arabia Felix. It has the appearance of salt, and is brittle when chewed. If dissolved in water, it is beneficial to the bowels and stomach, is useful in diseases of the bladder and kidneys, and when sprinkled on the eye, removes those substances that obscure the sight. *

Pliny says†, "As for sugar, it is produced in Arabia, but the best comes out of India.

* Matthioli Dios. cap. 75. † Book xii. chap. 8.

It is a kind of honey, gathered and candied in certain canes, which is white and like a gum, but brittle between the teeth."

The juice or liquor of the cane, being dried or candied in the sun, was called by the ancient Latin writers, *Sal Indum* and *Saccharum Indum.* This appears to have been the earliest method of procuring sugar.

The interpreters of Avicenna and Serapion call sugar *Spodium;* the Persians, *Tabaxir;* and the Indians, *Mambu.*

Salmasius* assures us, that the Arabs had used the art of making sugar, such as we now have it, above nine hundred years.

Dr. William Douglas, in his Summary, &c. of the first planting of our American Settlement, printed at Boston, in 1751, and reprinted at London in 1755, informs us, that sugar came originally from China, by way of the East Indies and Arabia, into Europe, and was formerly used only in syrups, conserves, and such Arabian medicinal compositions.

"The Romans," says Gerard, "have called this plant *Arundo Saccharina,* with this addi-

* Com. de Sacchar. apud Plin. Exercit. vol. ii. p. 257. anno Dom. 1689.

tament, *Indica*, because it was first known or brought from India."

From these accounts it appears certain that the sugar-cane has been known from the most ancient time in Asia; and that during the greatness of Rome it appears to have been imported into Europe principally as a medicine, and by a very circuitous channel. In the progress of the subsequent ages, the plant itself became known in Europe, and was cultivated in Sicily and in Spain, previously to the discovery of America.

It is a received opinion, that the sugar-cane was brought into Europe during the Crusades, and that we are therefore now enjoying the sweets of those romantic expeditions. The Arabian word of *Succhar*, coming so near to the English name Sugar, seems to strengthen the supposition; and Albertus Aquensis, a monkish writer, observes, that the Christian soldiers, when in the Holy Land, frequently derived refreshment and support during a scarcity of provisions, by sucking the canes. These appear to have been first planted in the Morea, and in the Islands of Rhodes and Malta, from whence they were transplanted into Sicily; but at what exact period is uncertain. It must, however, have been some

time prior to 1166, as in that year, William the Second, King of Sicily, made a donation of a mill for grinding sugar-canes, with all its rights, members, and appurtenances, to the monastery of St. Bennet.*

From the shores of the Mediterranean, this saccharine vegetable was conveyed to Madeira, the Canary and Cape de Verde Islands, soon after they were discovered. Prince Henry, son to John the First of Portugal, planted the vine in Madeira, in the year 1420; and probably the sugar-cane was first planted there about the same time. From one of these Islands, it is supposed to have found its way to the West Indies.

After the discovery of America by Columbus, in 1492, the Spaniards carried out plants of the sugar-cane to the New World; but they found the plant had been previously cultivated in that hemisphere. They had not long been seated in their new colonial territories, before they made sugar a principal article in their agriculture and manufactures.

The sugar-cane was first planted in Jamaica, when it was in possession of the

* Lasitaus, History of the Portuguese discoveries.

Spaniards, by Esquimel, a Spanish governor under Diego Columbus; and at the time Elizabeth became mistress of Jamaica, there were three small plantations on the Island, the chief of which was at the Angels. Sir Thomas Modyford was the first Englishman who planted this valuable cane in Jamaica, which he did in 1660. Since that period, it has been the glory and pride of the Island, amply rewarding the planter, greatly enriching the British merchant, and giving bread to thousands of manufacturers and seamen; and last, but not least, bringing an immense revenue to the Crown.

It is worthy of remark, that two vegetables of so much consequence in the commerce of Jamaica, as the coffee-tree, and the sugar-cane, should have found their way to that hot climate, through the temperate zone of Europe, where they never could have arrived at prefection. The coffee-tree was planted at Fulham in Middlesex, fourteen years before it was known in Jamaica; and the sugar-cane was also planted in this country, fifty years previously to its being cultivated in that Island; which may now be justly styled the London Sugar and Coffee garden.

Gerard planted the sugar-cane in his garden in Holborn, (now Hatton-garden, or in that neighbourhood,) about the year 1596, as in the following year he published his Herbal, wherein he informs us, "that the sugar-cane groweth in many parts of Europe at this day, as Spain, Portugale, and Olbia, in Prouence. It groweth also in Barbarie, generally almost euery where in the Canarie Islands, and in those of Madeira, in the East and West Indies, and many other places.

"Myselfe did plant some shootes thereof in my garden, and some in Flanders did the like: but the coldness of our clymate made an end of mine; and I think the Flemmings will haue the like profit of their labour."

Evelyn observes in his Diary, as late as 1645, "that the canes for sugar were then cultivated in the neighbourhood of Naples."

The natural situation of the sugar-cane is from about twenty to thirty degrees on each side of the Equator; beyond these limits, it has never been propagated with any great degree of success, notwithstanding its cultivation has been attempted as high as forty-three degrees north latitude. We may conclude, from the accounts of the early writers, that it is a spontaneous production

of Arabia, and the northern parts of Africa; in addition to which Mr. Bruce found it in Upper Egypt. That it is an indigenous plant to some parts of the East Indies is not to be disputed. Marco Polo, the Venetian traveller, found sugar in abundance in Bengal, about 1250. The Dutch found it growing in China, when their first embassy visited that country in 1655; and Nieuhoff states, that the Chinese cultivated the sugar-cane in the province of Suchue, long before they knew the art of extracting sugar from it. This author says, "The province of Suchue produces great store of sugar-canes, from whence they draw large quantities of sugar, and that none of the worst; and though there has grown for a long time great abundance of such canes in this province, yet the inhabitants never knew how to extract sugar from them, until they were taught by a certain Indian priest, who, accidentally riding with his ass through a field of sugar-canes, was detained by the owner thereof for spoiling the same, who would not let him pass until he had made satisfaction for what damage he had done: whereupon the priest, to redeem his ass, discovered to the country-

man the way of making sugar out of these canes."

It has been asserted, that the sugar-cane is not indigenous to America; but that all the plants originally migrated through Europe. This opinion seems to have originated in its having been first planted in many of the West India islands by the Europeans. It was thought by some, that Columbus introduced the plant into Hispaniola, in his first voyage in 1492. From the testimony of Peter Martyr, in the third book of his Decade, which was composed during Columbus's second voyage, and which commenced in the following year, and ended in 1495, it appears that the sugar-cane was known at that time in Hispaniola. Jean de Lery, who went to Rio Janeiro in 1556, asserts, that he found it every where near the River de la Plata, in great quantities; and Francis Himenes, Hernandes, and Piso, all affirm that the sugar-cane grows spontaneously near that river. Father Hennepen, in 1680, found it growing near the mouth of the Mississipi, for thirty leagues. The opinion of its being a native of the West Indies is much strengthened by its being found in

great abundance in the South Sea Islands, when first discovered by our illustrious circumnavigator Capt. Cook.

We shall now proceed to furnish some information respecting

THE MAKING OF SUGAR.

Sugar is the essential salt of the sugar-cane, *Saccharum officinarum* of Linnæus.

From what has already been stated, it appears that the art of making sugar originated in the East, and if we may trust the account of Giovanni Lioni, a considerable trade was carried on in sugar in Nubia, as early as 1500. Vasco de Gama, who first doubled the Cape of Good Hope in 1497, relates, that a great trade in sugar then existed in the kingdom of Calicut. The Spaniards and Portuguese taught the West Indians the method of extracting and making sugar. The English made it in some of their islands as early as 1643, but in Jamaica not until 1664.

We have already observed, that sugar was first used in Europe as a medicine; it next became a substitute for honey; and we are informed that before kitchen gardens became known in England, (which was about the

year 1509) sugar was eaten with meat, to correct its putrescency. Gerard, after stating the medicinal virtues of sugar, says, "Of the juice of the reede is made the most pleasant and profitable sweete, called sugar, whereof is made infinite confections, confectures, sirupes, and such like, as also preseruing and conseruing of sundrie fruits, herbes, and flowers, as roses, violets, rosemary flowers, and such like, which still retain with them the name of sugar, as sugar of roset, sugar violet," &c.

Lord Bacon observes, that "Sugar hath put down the use of honey, insomuch as we have lost those observations and preparations of honey, which the ancients had when it was more in price." This author adds, "There is brought into use a sugar mead (for so we may call it), though without any mixture of honey; and so brew it and keep it stale, as they used mead, for certainly, though it would not be abstersive, and opening, and solutive a drink as mead, yet it will be more grateful to the stomach, and more lenitive, and fit to be used in sharp diseases."

The use of chocolate, which was introduced in this country in 1520, must have added to the demand for sugar, and that of

coffee, which was publicly sold in London in 1652, must have augmented the sale considerably, but the introduction of the tea leaf from China, about the middle of the seventeenth century, caused a consumption of sugar beyond whatever could have been expected by the early Colonial planters; for the most sanguine speculators never could have calculated on the sudden change which has taken place in the general beverage of the whole nation, since our commerce has been established with China.

Sugar is now scarcely deemed a luxury, even by the cottager; habit has made it one of the necessaries of life, and few, if any civilized people would be content to live without it; for, in addition to the quantity consumed at our tea-tables, and in our confectionary and pastry, it forms the basis of all our made wines; is often used as a composition in our malt liquors, and the distillers draw great quantities of spirits from it. The farmer often uses it to fatten his Christmas ox, and its use has even descended to the blacking of our shoes.

The quantity of raw sugar imported into Great Britain in the year 1787 was 1,926,741 cwt., and in the year 1811, we received from

the island of Jamaica alone 127,751 hogsheads, 15,235 tierces, and 3,046 barrels, making about 2,178,080 cwt. allowing 16 cwt. to the hogshead.

THE REFINING OF SUGAR

is of considerable antiquity, as it was in use previously to the discovery of the New World. The art was made known to the Europeans by a Venetian, who is said to have received 100,000 crowns for the communication, although some conjecture that it was known to the Chinese at a still earlier period. It appears to have been refined in England previously to 1596, as Gerard, in his account of the sugar-cane, notices the method of making sugar, which he tells us he had from the mouth of an Indian, his own servant. He concludes by saying, "Sugar is like vnto sande both in shewe and handling, but somewhat softer; and so afterwards it is carried into all parts of Europe, where it is by the sugar-bakers artificially purged and refined to that whiteness as we see."

Evelyn notices in his Diary, 27th June, 1654, being then at Bristol, "Here I first saw the manner of refining sugar, and casting it into loaves."

"Sugar," says Dr. Rush, affords the greatest quantity of nourishment in less quantity of matter of any substance in nature: of course it may be preserved in less room in our houses, and may be consumed in less time, than more bulky and less nourishing aliments. It has this peculiar advantage over most kinds of aliment, that it is not liable to have its nutritious qualities affected by time or the weather; hence it is preferred by the Indians in their excursions from home. They mix a certain quantity of maple sugar with an equal quantity of Indian corn, dried and powdered in its milky state. This mixture is packed in little baskets, which are frequently wetted, in travelling, without injuring the sugar. A few spoonfuls of it mixed with half a pint of spring water, afford them a pleasant and strengthening meal.

From the degree of strength and nourishment which are conveyed into animal bodies by a small bulk of sugar, it might probably be given to horses with great advantage, when they are used in places or under circumstances which make it difficult or expensive to support them with more bulky or weighty aliment. A pound of sugar, with grass or hay, has supported the strength and

spirits of a horse during a whole day's labour in one of the West India islands. A larger quantity given alone has fattened horses and cattle, during the war before last, in Hispaniola, for a period of several months, in which the exportation of sugar and the importation of grain were prevented by the want of ships.

In crop time, every negro on the plantations, and every animal, even the dogs, get fat. This sufficiently proves the nourishing and healthy qualities of sugar.

Sugar has also been found a remedy for the scurvy, and a valuable article of food in cases of necessity. M. Imbert de Lennes, first surgeon to the Duke of Orleans, published the following narrative in the Gazette de Santé, which confirms this assertion : " A vessel laden with sugar bound from the West Indies, was becalmed in its passage for several days, during which the stock of provisions was exhausted. Some of the crew were dying of the scurvy, and the rest were threatened with a still more terrible death. In this emergency, recourse was had to the sugar. The consequence was, the symptoms of the scurvy went off, the crew found it a wholesome and substantial aliment, and returned in good health to France."

The plentiful use of sugar in diet is one of the best preventives that has ever been discovered for the diseases which are produced by worms.

Nature seems to have implanted a love for this aliment in all children, as if it were on purpose to defend them from those diseases. Dr. Rush knew a gentleman in Philadelphia, who early adopted this opinion, and who, by indulging a large family of children in the use of sugar, has preserved them all from the diseases usually occasioned by worms.

It was formerly alleged, that the eating of sugar destroys the colour of and spoils the teeth: this proves to be a mistake, for no people on earth have finer teeth than the negroes in Jamaica.

Dr. Alston, formerly professor of Botany and Materia Medica at Edinburgh, endeavoured to obviate this vulgar opinion: he had a fine set of teeth, which he ascribed solely to his eating great quantities of sugar.

It often proves a useful external remedy, when mixed with the pulp of a roasted orange and applied to putrid or ill disposed ulcers it is found a powerful corrector.

Sir John Pringle has remarked, that the plague has never been known in any country

where sugar composes a material part of the diet of the inhabitants. Dr. Rush thinks it probable, that the frequency of malignant fevers of all kinds has been lessened by this diet, and that its more general use would defend that class of people who are most subject to malignant fevers from being so often affected by them.

In the numerous and frequent disorders of the breast, which occur in all countries where the body is exposed to a variable temperature of the weather, sugar affords the basis of many agreeable remedies. It is useful in weaknesses, and acrid defluxions upon other parts of the body. Many facts might be adduced in favour of this assertion. Dr. Rush mentions only one, which from the venerable name of the person whose case furnished it, cannot fail of commanding attention and credit. "Upon my inquiry of Dr. Franklin, at the request of a friend," (says our respectable author) about a year before he died, "whether he had found any relief from the pain of the stone from the blackberry jam, of which he took large quantities, he told me he had, but that he believed the medicinal part of the jam resided wholly in the sugar; and, as a reason for

thinking so, he added, that he often found the same relief by taking about half-a-pint of syrup, prepared by boiling a little brown sugar in water, just before he went to bed, that he did from a dose of opium." It has been supposed by some of the early physicians of our country, that the sugar obtained from the maple-tree is more medicinal than that obtained from the West India sugar-cane; but this opinion, I believe, is without foundation. It is preferable to the West India sugar only on account of its superior cleanliness.

Angelus Sala says, that "sugar, used in a proper manner, nourishes the body, generates good blood, cherishes the spirits, strengthens children in the womb; and this is not astonishing, because it contains similar virtues to the very sweet wines. It is serviceable also in complaints of the throat and lungs; hoarseness and difficulty of breathing, arising from an acrid defluxion; for ulcerations of the lungs, chest, kidneys, and bladder, and to cleanse those parts from purulent matter. It eases pains of the intestines, softens the fæces, and prepares them for expulsion; it cleanses wounds and

punctures in the body; also films in the eyes. It removes pains in ulcers and tumours, by concocting the flux of humours; or, if they have no tendency to suppuration, by dispersing them."

Baptista Porta, another early writer, says, "Sugar, extracted from canes, is not only incorruptible in itself, but preserves all other things from corruption; sprinkled upon wounds, it keeps them from mortifying. I have seen very large wounds cured only with sugar. Therefore sugar should be constantly used by those who wish to prolong life; because it will not suffer the humours, nor the food in the body to putrefy."

Pomet says, "The white and red sugar-candy are better for rheums, coughs, colds, catarrhs, asthmas, and wheezings, than common sugar; because, being harder, they take longer time to melt in the mouth, and keep the throat and stomach moister than sugar does. Put into the eyes, in fine powder, it takes away their dimness, and heals them, being bloodshot; it cleans old sores, being strewed gently on them."

Herman says, "It should not be used in large quantities by the melancholic, hypo-

chondriac, and hysterical, nor by people in fevers, on account of its proneness to acescence."

It is often given to new-born infants, with oil of sweet almonds, to relax the bowels.

Boerhaave observes of sugar, "that it never generates phlegm; but, on the contrary, dissolves it. Neither does it increase the bile, nor is it converted into it; but opens, attenuates, and divides it. At the same time, by dissolving oleaginous particles in the body, it may induce leanness; and by too much attenuation, cause debility, and too great laxity."

Dr. Frederick Slare, in speaking of sugar, says,

"I will set down an experiment I had from a friend: he was a little lean man, who used to drink much wine in company of strong drinkers: I asked him how he was able to bear it? He told me, that he received much damage in his health, and was apt to be fuddled before he used to dissolve sugar in his wine; from that time he was never sick, nor inflamed, nor fuddled, with wine. He usually drank red wine. I made use of sugar myself in red wine, and found the like good effect; that it prevents heating

my blood, or giving my head any disturbance, if I drink a larger portion than ordinary. I allow about two ounces of sugar to a pint of wine; and dare assert that this proportion will take off the heating of wine in a good measure; and after one has some time used himself to add sugar to his wine, he will be pleased with the taste, and feel the comfortable and cordial virtue of this composition. Let those that are thin, and apt to have hot hands, and heated brains, upon drinking, and cannot abstain, or be excused from drinking, take notice of this counsel, and try it for some time, and they will be pleased with the delicious taste and salubrious effects of this saccharine addition."

"In the West Indies," says Dr. Moseley, "the negro children, from crude vegetable diet, are much afflicted with worms. In crop time, when the canes are ripe, these children are always sucking them. Give a negro infant a piece of sugar-cane to suck, and the impoverished milk of his mother is tasteless to him. This salubrious luxury soon changes his appearance: worms are discharged; his enlarged belly and joints diminish; his emaciated limbs increase; and if canes were always ripe, he would never be diseased. I

have often seen old, scabby, wasted negroes, crawl from the bottom houses, apparently half dead, in crop time, and by sucking canes all day long, they would soon become strong, fat, and sleeky. The restorative power of sugar, in wasted and decayed habits, is recorded by several physicians in different parts of the world. I have known many people far advanced in pulmonary consumption, recovered by the juice of the sugar-cane.

"A friend of mine, a clergyman in Shropshire, has favoured me with a very interesting account of a cure performed by the use of sugar, in such a diseased state of the lungs as is generally denominated a complete consumption."

After relating that various methods had failed, and all hopes of recovery were lost, Dr. Moseley continues the relation in the gentleman's own words :—"I did not take to the use of sugar until I was reduced to so weak a condition as to be unable to take any thing else. Sugar was never prescribed for me by my physician ; but being very thirsty from the fever, I had a great inclination for spring water, which I was not permitted to have, by the affectionate relative who nursed me, without some Muscovado sugar, a little

ginger, and a piece of toasted bread in it. I soon became extremely fond of the saccharine taste, and used to sweeten the water to excess. I did not take it as a medicine, nor confine myself to any specific measure, but always used it in a considerable quantity, some days to the amount, I believe, of eight ounces; and that, with the small portion of toasted bread put into my drink, was the principal part of my sustenance during the greatest part of twelve years, nor did it cease to be so until my stomach became strong and capable of bearing animal food." Dr. Moseley adds, "He continued in good health from the preceding period until the month of April 1793, when, in consequence of a neglected cold, he had a return of all his former dangerous symptoms; but by recurring to his old regimen, he was again restored to health, in about six months time, excepting in strength; which he recovered by degrees. He is now in better health than he ever was before in his life.—1800."

In another place the Doctor observes, "Aged people, who have no teeth, and whose digestive faculties are impaired, and as incapable as those of infants, may, like infants, live on sugar. I could produce many instances

where aged people have been supported many years by scarcely any thing but sugar.

" Taken in tea, milk, and beer, it has been found not only sufficient to sustain nature, but has caused lean people to grow fat, and has increased the vigour of their bodies. The late king of Sardinia ate a great quantity of sugar daily. He ate it by itself, without dissolving it, or mixing it with any thing. It was his chief food. After his death his body was opened, all his viscera were perfectly sound.

" The great Duke of Beaufort, as he was called, who died about 100 years ago, at the age of seventy, was opened; his viscera were found in the same manner, as perfect as in a person of twenty, and his teeth white and firm. He had for forty years before his death used a pound of sugar daily, in his wine, chocolate, and sweetmeats.

" Slare says, his grandfather, M. Malory, was strong and cheerful in his eighty-second year; at which time his hair changed somewhat dark; his old teeth came out, pushed away by young ones, which continued so to do until he had a new set of teeth complete. He lived easy, and free from pain or sickness, until his hundredth year, when he died. He

used sugar to a great degree in all his food, vegetable and animal; and delighted in all manner of sweetmeats. He says, he followed the practice of his grandfather, and used sugar in every thing he ate and drank; and in the sixty-seventh year of his age all his teeth were sound and firm, and in their full number.

"I know a person at this time, about eighty years old, who has lived for several years almost on sugar; and is healthy and strong, and as youthful in appearance, as most people at fifty. The cause of this fondness for sugar was a paralytic affection, with which she was attacked nearly twenty years ago, which prevented her, for a considerable time, swallowing any thing but fluids, in which a portion of sugar was dissolved. Her diet now consists of sugar, and the simple vehicles in which it is taken; these are, tea, milk, gruel, barley-water, roasted and boiled apples, and beer generally for supper."

Mr. Edwards, in his History of the West Indies, has very justly observed, that, "The time of crop in the sugar islands is the season of gladness and festivity to man and beast. So palatable, salutary, and nourishing is the juice of the cane, that every indi-

vidual of the animal creation, drinking freely of it, derives health and vigour from its use. The meagre and sickly among the negroes exhibit a surprising alteration in a few weeks after the mill is set in action. The labouring horses, oxen, and mules, though almost constantly at work during this season, yet being indulged with plenty of green tops of this noble plant, and some of the scummings from the boiling-house, improve more than at any other period of the year. Even the pigs and the poultry fatten on the refuse."

"He," says Slare, "that undertakes to argue against sweets in general, takes upon him a very difficult task: for nature seems to have recommended this taste to all sorts of creatures; the birds of the air, the beasts of the fields, many reptiles and flies, seem to be pleased and delighted with the specific relish of all sweets, and a distaste is contrary. Now the sugar-cane, or sugar, I hold for the top and highest standard of vegetable sweets."

After these observations on the virtues of sugar, we can scarcely be surprised at the increased consumption of this valuable article. It preserves the juices and substances of fruits in all countries, and in all seasons. It

affords a delicious seasoning to many kinds of food. It is made into the most agreeable and ornamental decorations of the table, being easily made transparent and of any colour or shape, and retaining and giving taste without losing the least of its sweetness.

It is useful in pharmacy, for it unites with medicine, and greatly removes its disagreeable flavour; it is the basis of all syrups, and may be beneficially employed in fermenting wines. It preserves both animal and vegetable substances from putrefaction in a much greater degree than common alimentary salt. Animal flesh has been preserved by sugar more than three years from taint or rottenness.

The chemical properties of sugar are numerous: it is soluble in water, and in a small degree in alcohol. When united with a small portion of water, it becomes fusible; to which circumstance the art of preserving is indebted for many of its preparations. It is phosphoric; the loaf-sugar, when rubbed in the dark, being highly luminous. It is also combustible; when exposed to fire, emitting a blue flame if the combustion be slow, and a white flame if the combustion be rapid.

By distillation it produces a quantity of phlegm, acid, oil, gas, and charcoal.

Bergman, in treating sugar with the nitrous acid, obtained a new acid, now known by the name of oxalic acid. Lavoisier, after many experiments, has assigned three principles to sugar: hydrogen, oxygen, and carbon.

If the juice of sugar be left to itself, it passes into the acetous fermentation, and during the decomposition of the juice, which is continued for three or four months, a great quantity of glutinous matter is separated; this matter, when distilled, gives a portion of ammoniac. If the juice be exposed to the spiritous fermentation, a wine is obtained analogous to cider. If this wine, after being kept in bottle a year, be distilled, a portion of brandy is obtained.

A field of canes, when standing in the month of November, in arrow, or full bloom, (says Mr. Beckford, in his descriptive account of the Island of Jamaica,) is one of the most beautiful productions that the pen or pencil can possibly describe. It in common rises from three to eight feet or more in height; a difference of growth that very strongly marks the difference of soil or the varieties of culture. It is, when ripe, of a bright and

golden yellow, and, where obvious to the sun, is in many parts very beautifully streaked with red: the top is of a darkish green, but as it becomes dry, from either an excess of ripeness, or a continuance of drought, of a russet yellow, with long and narrow leaves depending; from the centre of this shoots up an arrow like a silver wand, from two to six feet in height, and from the summits of which grows out a plume of white feathers, which are delicately fringed with a lilac dye; and indeed it is, in its appearance, not much unlike the tuft that adorns this particular and elegant tree.

The root of the sugar-cane is jointed, like those of other sorts of cane or reed. From this root arise four, five, or more shoots, proportionable to the age or strength of the root, eight or ten feet high, according to the goodness of the ground: in some moist rich soils, canes have been measured near twenty feet long; but these are not so good as those of middling growth, abounding in juice, but having little of the essential salt. The canes are jointed, and these joints are more or less distant, in proportion to the soil. A leaf is placed at each joint, and the base of it em-

braces the stalk to the next joint above its insertion before it expands; from hence to the point it is three or four feet in length, according to the vigour of the plant; there is a deep whitish furrow or hollowed midrib, which is broad and prominent on the under side; the edges are thin, and armed with small sharp teeth, which are scarcely to be discerned by the naked eye, but will cut the skin of a tender hand, if drawn along it. The flowers are produced in pinnacles at the top of the stalks; they are from two to three feet long, and are composed of many spikes; these have long down inclosing the flowers, so as to hide them from the sight. The seed is oblong, pointed, and ripens in the valves of the flower.

Lunan says, in his Hortus Jamaicensis, "There are several varieties of this valuable plant; but the cultivation of all has been for some years past greatly neglected, to make room for the introduction of the Bourbon or Otaheite cane, which was brought here in the year 1796, and has since been generally cultivated. This cane is of a much larger size than any other, the joints frequently measuring eight or nine inches, and of a proportionate thickness—the common cane sel-

dom exceeded two or three inches; they have consequently been found very productive, and their sugar also of a superior quality. An acre of them, in good land, has been found to produce from four to five hogsheads, of which the same quantity in common canes would only produce one. The juice of the Bourbon canes is of a paler colour, and they are ripe enough to grind in ten months; if allowed to remain a longer time uncut, they lose part of their juices. From their size they resist dry weather much better than any other cane, and are not near so subject to suffer from that destructive insect the borer. With all these seeming advantages, it is no wonder if they entirely superseded the use of all other varieties of the sugar-cane in Jamaica. They, however, more speedily exhaust the soil; and it may be questioned, whether, in the course of time, they will not themselves dwindle, from repeated transplantation in a foreign soil, which all exotics do; and which, indeed, has already been found the case, in a considerable degree, on many plantations. The old cane, it is acknowledged, possessed richer juices than the new, and its tops afforded a much greater fodder for cattle,

which considerations, added to that of its not impoverishing the soil so much as the other, render it very doubtful whether the ultimate benefit will be so great as was expected."

The manner of planting the sugar-cane, and the manufacture of it, are so well known as to require no lengthened description. The soil should be rich, deep, and free, the situation warm, and such as has, at least, moderate seasons.

Previous to digging the cane-holes, the land is lined into small squares of three feet and a half, marked by pegs; and a negro is placed opposite to each square to dig up the mould, and form a trench six or eight inches deep, throwing the mould into a bank, forming ridges like the plough, which instrument of agriculture has been successfully introduced on many plantations, where the nature of the land will admit. These ridges of earth are afterwards gradually drawn round the roots of canes as they grow. The cuttings or plants of the canes, containing five or six germes or eyes, are placed horizontally at the bottom of the holes, and covered with mould from the banks about two inches deep. In twelve or fourteen days the

sprouts appear, and being moulded as they grow, the ridges of earth are entirely levelled in four or five months.

It is scarcely necessary to mention, that the ground should always be kept clear of weeds, which will ensure the plants arriving at perfection, unless attacked by what is called the blast, which often destroys whole fields of canes, and is occasioned by myriads of minute insects, appearing like white spots or blotches upon the cane, supposed to be the Aphis of Linnæus, for which no effectual remedy has yet been found. Edwards mentions, indeed, the raffle ant, which, he says, will also clear a plantation of those destructive animals, rats, ruinous enemies to the sugar-cane: he, however, has his doubts. The same author enumerates the most convenient and proper manures for cane-fields, as follow: 1st. Of the coal and vegetable ashes, drawn from the fires of the boiling and still-houses. 2nd. Feculencies discharged from the still-house, mixed up with rubbish of buildings, white lime, &c. 3rd. Refuse of field trash, i. e. the decayed leaves and stems of the canes, so called in contradistinction to cane-trash, reserved for fuel. 4th. Dung obtained from the horse

and mule stables, and from moveable pens, or small enclosures, made by posts and rails, occasionally shifted upon the lands intended to be planted, and into which the cattle are turned at night. 5th. Good mould, collected from gullies, and other waste places, and thrown into the cattle-pens. The canes, being arrived at maturity, are cut and carried to the mill in bundles, the branches at the top being chopped off, which are an excellent food for the cattle. The top shoot, which is full of eyes, is generally preserved for planting. The mill consists principally of three upright iron-plated rollers or cylinders, from thirty to forty inches in length, and from twenty to twenty-five inches diameter; and the middle one, to which the moving power is applied, turns the other two by means of cogs. Between these rollers, the canes, being previously cut short, and tied into bundles, are twice compressed; for, having passed through the first and second rollers, they are turned round the middle one, by a circular piece of framework or screen, called the dumb returner, and forced back through the second and third; an operation which squeezes them completely dry. The juice is received in a leaden bed, and thence con-

veyed into a vessel called the receiver. The refuse, or macerated rind of the cane, which is called cane-trash, serves for fuel to boil the liquor. The juice as it flows from the mill, taken at a medium, contains eight parts of pure water, one part of sugar, and one part consisting of coarse oil and mucilaginous gum, with a portion of essential oil.

As this juice has a strong disposition to fermentation, it must be boiled as soon as possible. There are some water-mills that will grind, with great ease, canes sufficient for thirty hogsheads of sugar in a week. It is necessary to have boiling-vessels or clarifiers, that will correspond in dimension to the quantity of juice flowing from the receiver.

These clarifiers are commonly three in number, and are sometimes capable of containing one thousand gallons each; but it is more usual to see them of three or four hundred gallons each. Besides the clarifiers, which are used for the first boiling, there are generally four coppers or boilers. The clarifiers are placed in the middle, or at one end, of the boiling-house. If at one end, the boiler called the teache is placed at the other, and several boilers (generally three) are ranged between them. The teache is

ordinarily from seventy to one hundred gallons, and the boilers between the clarifiers and teache diminish in size from the first to the last. Where the clarifiers are in the middle, there is usually a set of three boilers on each side, which constitutes in effect a double boiling-house. On very large estates this arrangement is found useful and necessary. The objection to so great a number is the expense of fuel; to obviate which in some degree, the three boilers on each side of the clarifiers are commonly hung on one fire. The juice runs from the receiver along a wooden gutter lined with lead, into the boiling-house; where it is received into one of the clarifiers. When the clarifier is filled, a fire is lighted, and a quantity of Bristol quick-lime in powder, which is called temper, is poured into the vessel. The use of the lime is to unite with the superabundant acid, which, for the success of the process, it is necessary to get rid of. The quantity sufficient to separate the acid must vary, according to the strength of the quick-lime, and the quality of the liquor. Some planters allow a pint of lime to every hundred gallons of liquor; but Mr. Edwards thinks that little more than half the quantity is a better me-

dium proportion; and even then, that it ought to be dissolved in boiling water, that as little as possible may be precipitated. The heat is suffered gradually to increase, till it approaches within a few degrees of the heat of boiling water, that the impurities may be thoroughly separated. But if the liquor was suffered to boil with violence, the impurities would again incorporate with it. It is known to be sufficiently heated when the scum begins to rise in blisters, which break into white froth, and appear generally in about forty minutes. The fire is then suddenly extinguished by means of a damper, which excludes the external air, and the liquor is allowed to remain about an hour undisturbed, during which period the impurities are collected in scum on the surface. The juice is then drained off, either by a syphon or a cock; the scum being of a tenacious or gummy nature, does not flow out with the liquor, but remains behind in the clarifier. The liquid juice is conveyed from the clarifier by a gutter into the evaporating boiler, commonly termed the grand copper, and, if it has been obtained from good canes, it generally appears transparent.

In the evaporating boiler, which should be large enough to receive the contents of the clarifier, the liquor is allowed to boil; and as the scum rises, it is taken off. The scumming and evaporation are continued till the liquor becomes finer and thicker, and so far diminished in bulk that it may be easily contained in the second copper. When put into the second copper, it is nearly the colour of Madeira wine; the boiling and scumming are continued, and, if the impurities be considerable, a quantity of lime-water is added. This process is carried on till the liquor be sufficiently diminished in quantity, to be contained in the third copper. After being purified a third time, it is put into the fourth copper, which is called the teache, where it is boiled and evaporated till it is judged sufficiently pure to be removed from the fire, of which there are various methods of judging.

The juice, being thus purified, is poured into coolers, usually six in number. The removal from the teache to the cooler is called striking. The cooler is a shallow wooden vessel, seven feet long, from five to six wide, about eleven inches deep, and capable of containing a hogshead of sugar. As the liquor cools, the sugar grains, that is,

collects into an irregular mass of imperfect crystals, separating itself from the molasses. It is then removed from the cooler, and conveyed to the curing-house, where the molasses drain from it. For receiving them, there is a large cistern, the sloping sides of which are lined with boards. Directly above the cistern a frame of joist-work without boarding is placed, on which empty hogsheads without heads are ranged. The bottoms of these hogsheads are pierced with eight or ten holes, in each of which the stalk of a plantain leaf is fixed, so as to project six or eight inches below the joists, and rise a little above the top of the hogshead. The hogsheads being filled with the contents of the cooler, consisting of sugar and molasses, the molasses being liquid, drain through the spungy stalk, and drop into the cistern. After the molasses are drained off, the sugar becomes pretty dry and fair, and is then called muscovado, or raw sugar.

From the molasses, scummings of the hot cane juice, or sometimes raw cane liquor, lees, or as it is called in Jamaica, dunder, (which answers the purpose of yeast in the fermentation of flour,) rum is made.

The process is as follows, when the ingre-

dients are mixed in the following proportion, according to Mr. Edwards.

		GALLONS.
Dunder on half, or		50
Sweets, 12 per cent.	Molasses	6
	Scummings, being equal to 6 gallons more of molasses	36
Water		8
		100

Of this mixture (or wash as it is sometimes called) 1200 ought to produce 300 of low wines. The method of adding all the molasses at once, which is done after the fermentation commences, renders the process safe and expeditious; whereas, by charging the molasses at different times, the fermentation is checked, and the process delayed.

These ingredients are well mixed and fermented in a cistern for seven or eight days, when it throws up clear heads or globules, and is fit for distillation. The first distillation produces a spirit called low wines. To make it rum of Jamaica proof, it undergoes a second distillation; thus 220 of proof rum are made from 530 of low wines; or about 113 of rum from 1200 of wash.

It will be observed, that the description of cultivating the canes and making the sugar,

is principally drawn from the West India accounts; the Eastern methods are so similar, that to describe them would be needless repetition. The clayed sugar is made at Batavia.

Great Britain affords several vegetables from which sugar may be obtained; as beet-roots, skerrets, parsnips, potatoes; celery, red-cabbage stalks, the birch-tree, &c. During the late war, when Bonaparte prohibited the introduction of colonial produce into France, considerable quantities of tolerably good sugar were made in that country from beet-roots; but, the expense being much more considerable than it could be procured for from the Indies, this manufacture dropped with the war.

Nature, whose bounty is even greater than the wants of man, has supplied the inhabitants of the colder parts of North America, where the sugar-cane would not grow, with an excellent substitute, which affords a saccharine juice, nearly as valuable as that of the cane, and without the expense of cultivation. In the extensive forests of this country, particularly about Kentucky, and the remoter parts of Pennsylvania, is found a great number of trees of the Maple spe-

cies, called the Sugar Maple, viz. the *Acer saccharinum* of Linnæus. It has been long known that sugar could be made from the juice of these trees; and as this part of America has been colonized by Europeans since sugar has become so familiar a part of the food of men, this opportunity of obtaining it was not likely to have been neglected by the settlers, who were under the necessity of obtaining it from these trees, or going without it; thus stimulated, they soon found means of procuring it from the sap of this bountiful tree, nearly equal to the finest Jamaica sugar; and they are not only able to furnish themselves amply with this valuable article, but they could, with an increase of hands, supply nearly the whole world with sugar, so abundantly do these trees grow in that part of the world; and they are known to be the hardiest, and the most difficult to destroy, of all the trees in the immense forests of that country.

Imlay says, in his History of North America, "It is very certain, that the life of a sugar maple tree, is as long as that of an oak, or any other tree; and the more they are used with proper attention, the more plentiful and rich will be their juice to a cer-

tain age; and therefore all fear of destroying the trees is at an end."

It is a singular circumstance in the economy of those trees, that they do not appear to be injured by tapping, and it is known, that old trees produce the most, and the richest juice; and that those trees which have been used for years, are better than fresh trees.

These trees grow as tall as the common oak, and from two to three feet in diameter. They are extremely ornamental in the spring, as they put forth a beautiful white blossom before they shew a single leaf. The timber of this tree, as may be supposed, is extremely inflammable, and therefore used by the hunters and others for fire-wood, in preference to any other. The saccharine matter being so abundant in the small branches, makes them a valuable fodder for the cattle, horses, and sheep, of the first settlers, before they are able to clear the ground for cultivation. The ashes of these trees produce a great quantity of potash of the best quality. The sugar maple trees are found in such plenty in most parts of North America, that it is not uncommon to find entire woods of them, covering five or six acres in

a spot; but in the forest generally, where they are interspersed with other trees, they average from thirty to fifty per acre; they grow in rich soil, and often in stony ground; and it is remarked, that the springs found in the neighbourhood of the sugar maple tree are of the purest water.

It is a general observation in North America, that, whenever they see a tree of this sort with a blackish trunk, it is a sure sign of a rich one, as the blackness proceeds from the incisions made in the bark by the pecking of the parroquet, the woodpecker, and other birds, in the season of the juice rising, which, oozing out, dribbles down its sides, and colours the bark, which in time becomes black. The sap of these trees is much sweeter than that of others that have not been previously wounded.

"The season for tapping," says Imlay, "is mostly about the middle of February, in Kentucky; but not until the latter end of the month, aboutPittsburg, the head branches of the Susquehannah and Delaware, and in the state of New York. The season continues about six weeks; and it is found to discharge most abundantly in warm sunny days that succeed frosty nights. After the

sap becomes too thin and poor for the purpose of making sugar, they still continue to catch it, as it is then capable of making molasses, from which they make a pleasant kind of beer, or extract a spirit.

The process of making sugar from maple trees is mostly managed by women and children, the men seldom doing more than to tap the trees, which is done with a screw auger of three-fourths of an inch in diameter, when a spout made of elder tree is put into the hole to conduct the juice into vessels below. A moderate-sized tree will give from 20 to 30 gallons of sap, from which about six pounds of good sugar is made; but this varies according to the richness of the trees: in some instances upwards of twenty pounds of sugar has been made from the sap of a single tree, and it is observed that the saccharine quality of the juice appears to be highly improved by a careful cultivation of the tree.

The farmers in the country reduce the sap into sugar with a very simple apparatus. It is usually clarified with lime and white of eggs, or milk, and grained and clayed in the manner of the cane sugar. It is sometimes reduced into sugar by freezing; but boiling is the most expeditious method.

These trees have been planted in England since 1735.

We shall close this account of sugar by an important observation, made by Dr. Rush, who says, "Should the use of sugar in diet become more general in this country, it may tend to lessen the inclination, or supposed necessity, for spirits; for I have observed a relish for sugar in diet to be seldom accompanied by a love for strong drink." The author has generally found this observation to be correct.

TANSY.—TANACETUM.

Natural order, Compositæ. A genus of the Syngenesia Polygamia Superflua class.

The English name of this plant is either an abbreviation of the Latin, or is derived from the French name *Tanaise*.

Miller enumerates seven, and Linnæus eight species of this herb. The common yellow-blossomed tansy, of which there are three varieties, is a native of Britain.

This herb may frequently be observed growing in country church-yards, which induces us to think that it was formerly used as a funeral plant. Tansy has this peculiar quality, that if any dead animal substance be rubbed with it, the flesh-fly will not attack it. Boerhaave says, the leaves applied to a dead body, and intruded into the mouth and nostrils, preserve it from putrefaction and insects; whence the plant has been called *Athanasia*, that is, immortal plant.

This herb has a bitter taste, and an aro-

matic smell; and was formerly esteemed of use in warming and strengthening the stomach, for which reason the young leaves obtained a place among culinary herbs, their juice being used in puddings, &c.

Boerhaave says, "This balsamic plant may supply the place of nutmegs and cinnamon. For I believe Asia does not afford a plant of greater fragrancy than tansy." Notwithstanding this high encomium, tansy is now but rarely used as a domestic vegetable, and our change of custom and habits, as well as of diet, has caused this plant to be neglected, although it was considered so necessary to health by our forefathers, particularly when Lent was more strictly observed as a fast. It was then usual to make cakes at Easter of eggs, flour, and the tender leaves of tansy, which were not only esteemed good, but necessary to be eaten at that season, to relieve the stomach of phlegm, occasioned by a continuation of fish diet, as also on account of its discussing the flatulencies generated by eating pulse during this fast. The practice of making Easter cakes to offer to visitors, is still kept up in most parts of the country, but we no longer hear of tansy as an ingredient in them; and indeed we may observe,

that little attention is now paid to Lent in any respect.

Gerard observes, that in his time "they made cakes of the young leaves in the spring, mixed with eggs, which were called tansies." "These," says he, "be pleasant in taste, and good for the stomache. For, if any bad humours cleaue thereunto, it doth perfectly concoct them, and carry them off. The root preserved in honie or sugar, is an especiall thing against the gout, if, euerie day for a certaine space, a reasonable quantitie thereof be eaten fasting."

It is related in *Raii Hist. Plant.* that a soldier of Montpelier, labouring under a stubborn dropsy, was restored to perfect health, by a decoction of tansy only.

The seeds and leaves were formerly in considerable esteem for destroying worms in children; and they were generally thought serviceable in colics, flatulencies, &c.

In some parts of Sweden and Lapland, a bath, with a decoction of this plant, is made use of to assist parturition.

Both the leaves and flowers of tansy give out their virtue to water, but more perfectly to spirits: the tincture made from the leaves is of a fine green; that made from the

flowers, of a bright pale yellow colour. This plant is used as a warm deobstruent bitter, in weakness of the stomach, and is good in cachectic and hysteric disorders, and likewise as an anthelminthic; the seeds have been chiefly recommended in this last intention.*

Tansy contains an aromatic, oily, volatile salt, loaded with a great deal of sulphur; for by the chemical analysis, it yields a great deal of oil, a pretty considerable quantity of earth, a little urinous spirit, and no volatile concrete salt. Thus it is stomachic, febrifuge, sudorific, vulnerary, and aperient.†

It gives no tincture of red to blue paper.

* Lewis. † James.

TEA, OR CHA.—THEA.

Natural order, Columniferæ. A genus of the Polyandria Monogynia class.

" Now stir the fire, and close the shutters fast,
Let fall the curtains, wheel the sofa round,
And, while the bubbling and loud hissing urn
Throws up a steamy column, and the cups
That cheer, but not inebriate, wait on each"—

(COWPER)

We 'll write on tea;—for Waller says,

" The Muses' friend, tea, does our fancy aid,
Repress those vapours which the head invade;
And keeps that palace of the soul serene."

The tea plant, or shrub, is a native of China, Japan, and Tonquin; but does not appear to grow spontaneously in other parts of the world. It attains the greatest perfection in the temperate regions about Nankin, although it flourishes in the northern latitude of Pekin, as well as round Canton. It appears to be confined between the 20th and 40th degrees of north latitude.

We do not meet with any account of tea

by European authors before the year 1590, when it is first alluded to by Giovanni Botero, an eminent Italian writer, who, in his Treatise on the Cause of the Magnificence and Greatness of Cities, says, "The Chinese have an herb, out of which they press a delicate juice which serves them for drink instead of wine; it also preserves their health, and frees them from all those evils which the immoderate use of wine produces amongst us."

The Dutch are said to have first introduced tea into Europe in the year 1610. The Dutch East India Company made their first embassy to the Grand Tartar Cham, Emperor of China, in 1655. During the time they were detained at Canton, by their negotiations with the Court of Pekin, the viceroys gave them a splendid entertainment, in which tea is thus mentioned: "At the beginning of the dinner, there were several bottles of The, or Tea, served to the table, whereof they drank to the ambassadors, bidding them welcome. This drink is made of the herb The, or Cha, after this manner; they infuse half a handful of the herb in fair water, which afterwards they boil, till a third be consumed, to which they add about a fourth part of warm milk, and a little salt, and then drink it as hot as

they can well endure. The Chinese boast as much of the excellencey of this infusion, as the alchymists of the virtues of their expected elixir. After the ambassadors had drunk of this Tea, or The, they gave the health of the viceroys, in a glass of Spanish wine; which pleased them so well," says the relater, "that they forsook and utterly relinquished their own liquor." The Mandarins of that day were certainly men of taste.

John Nieuhoff, who was secretary to this embassy, notices this vegetable in his General Description of the Empire of China, and says, "China is famous for an herb called Thea, or Cha, and whereof the natives and other neighbouring people make their drink, called also Thea, or Cha. Of all the places in China, this herb grows fastest, and in greatest abundance, in the Province of Nankin, near to the city of Luchen; and indeed the same is only found in China, Siam, and in the island of Japan: the leaves thereof are very like unto those of sumach, and that this is a kind of sumach none need to doubt; however it springs not wild."

The following extract is from the works of Father Athanasius Kircher, who wrote about the same period, to shew in what estimation

tea was held by the Europeans of that day. In writing on the plants of China, he observes, "There is the plant called Cha, which, not being able to contain itself within the bounds of China, hath insinuated itself into Europe: it aboundeth in divers regions of China, and there is great difference, but the best and most choice is in the Province Kingnan, in the territory of the city Hocicheu. The leaf being boiled and infused in water, they drink it hot as often as they please: it is of a diuretic faculty, much fortifies the stomach, exhilarates the spirits, and wonderfully openeth all the nephritick passages or reins; it freeth the head by suppressing of fuliginous vapours, so that it is a most excellent drink for studious and sedentary persons, to quicken them in their operations; and though, at the first, it seemeth insipid and bitter, yet custom maketh it pleasant; and though the Turkish coffee administer the like cordiality, and the Mexican chocolate be another excellent drink, yet tea, if the best, very much excelleth them both, because, that chocolate in hot seasons inflameth more than ordinary, and coffee agitateth choler; but tea in all seasons hath one and the same effect."

We have been able to trace back the use

of tea in China about one thousand years; as it is noticed in the travels of two Mahomedans, who visited that country about the year 831, and again in 851. These travels have been translated from the Arabic of Abu Zeid al Hasen of Siraf, by Eusebius Renaudot, a learned Member of the French Academy. The MS. belonged to the library of the Count de Seignelay; and it has been justly esteemed, as it contains an account of China, that was penned above four hundred years earlier than the travels of Marco Polo.

From these travels we learn, that the Emperor of China derived a considerable revenue by a tax on tea in that early period, as it is noticed that the Emperor reserves to himself the revenues which arise from the salt-mines, and those which are derived from impositions upon an herb called *Tcha*, which they drink with hot water, and of which vast quantities are sold in all cities in China. These travellers observe, that it is produced from a shrub more bushy than the pomegranate tree, and of a more pleasant smell, but having a kind of bitterish taste; and that the way of using the herb was by pouring boiling water upon the leaves: this infusion is noticed as a cure for all the diseases of the Chinese.

Tea appears to have been first used in England during the Commonwealth; for on the restoration of Charles the Second, in 1660, the Parliament in that year laid a duty of eight-pence on every gallon of the infusion of tea that was sold at the coffee-houses. This duty could not have been very productive to the government, as the price of common tea was then sixty shillings per pound in London; although it did not cost more than two and sixpence or three shillings at Batavia. A duty of four-pence per gallon was laid on all the coffee sold at the coffee-houses at the same time. It therefore seems to have been the wish of the ministers to suppress coffee-houses, which were then more the rendezvous of politicians than at the present day; for we find in 1675, that the above-mentioned monarch was so ill advised, as to issue a proclamation for shutting up coffee-houses as seminaries of sedition. This ill-judged act was, however, suspended in a few days; but it had the effect of making them to be more frequented.

In 1666, tea appears to have been first used by families of distinction; as we are told, that in that year it was imported from Holland by the Lords Arlington and Ossory,

who brought it into fashion among people of quality. This was the year after the great plague of London, and it may have been considered an antidote against that disorder. If this opinion was entertained, we need not be surprised at the rapidity with which tea came into use.

Mills informs us in his History of India, that the English East India Company sent their first order for tea in the year 1667-8, when they ordered their agents "to send home by their ships one-hundred pounds weight of the best tey that you can get;" and in the year 1676-7, tea to the value of one-hundred dollars was ordered on the Company's account.

Worlidge informs us in his *Vinetum Britannicum*, which was published in 1675, that "Mr. Thomas Garway, in Exchange-alley, near the Royal Exchange, was the principal, if not the first promoter and disperser of this leaf and liquor in London. He had," says Worlidge, "a paper printed, declaring the virtues of this beverage against all affections of the head, and obstructions in the stomach, the spleen, and the reins. It drieth up all vapours that offend the head, and annoy the sight; it digesteth any thing that lieth heavy

on the stomach, and restoreth lost appetite, &c. &c." One of these printed bills is in the British Museum, from which we find that tea had only been known by presents sent to princes and grandees before the year 1657, when it sold from six to ten pounds the pound weight. From these dates we may conclude, that the Dutch Embassy in 1656 brought it first to Europe.

In the printed circular alluded to, Thomas Garway offers his tea for sale, from sixteen to fifty shillings per pound. We believe it is to this person that Garraway's Coffee House owes its name and origin.

Sir Kenelm Digby, in his Book of Receipts (8vo. London, 1669,) has the following notice of a new mode of making tea. "The Jesuite that came from China, anno 1664, told Mr. Waller, (the Poet,) that there they use tea sometimes in this manner. To near a pint of the infusion take two yolks of new-laid eggs, and beat them very well with as much fine sugar as is sufficient for this quantity of liquor; when they are very well incorporated, pour the tea upon the eggs and sugar, and stir them well together, and so drink it hot. This is good in a morning, or when one returns home fatigued and faint;

in which case a pleasanter beverage does not exist."

Pierre Pomet tells us, in his *Histoire Generale des Drogues*, published in 1694, that the best tea could not then be bought in France under two hundred francs per pound, which is nearly eight guineas English money. The same author tell us, that tea, which had formerly been in general use with the French citizens and nobility, was then entirely superseded by the use of coffee and chocolate. He gives us the figure of the leaf of the tea-plant, from a leaf which he obtained from Holland for that purpose; and he notices, that *Les Sieurs du Four et de Blegny*, who had then written on the qualities of tea, had endeavoured to procure plants with a hope of cultivating it in France. Had these naturalists been assisted by their government, there is no doubt that long before this time France would have been able to supply the whole of Europe with tea, as Portugal does with the China orange.*

Tea continued at the high price of sixty shillings per pound until about the year 1700. In 1715 green tea began to be used;

* See Pomarium Britannicum, p. 271.

and as it was imported in greater quantities, the price was lessened. From 1717 to 1726, the yearly importation did not exceed seven hundred thousand pounds; therefore, the consumption must have been confined principally to the metropolis, and to those families who furnished themselves with contraband tea from the coast; for in 1720, the French began to send it to us by a clandestine commerce, which the high duties created; and this unlawful traffic was carried to so great an extent, that it was not uncommon to meet (even within the memory of the author of this work,) a troop of a hundred horses laden with bags of tea. The farmers in Sussex dared not refuse them a passage through their grounds. So formidable were these gangs of smugglers, that to lie under the suspicion of being an informer, or in any way to give them offence, was as dangerous in Sussex, as it would be in Spain to incur the jealousy of the officers of the Inquisition.

The smuggling of tea was, at one time, carried to so great an extent on the coast of Suffolk, that it was calculated the quantity thus clandestinely imported, from May

1744, to January 1745, was not less than 382,144 lbs.

In the year 1755, the quantity of tea imported into this country, in the regular trade, amounted to about four millions of pounds; ten years after, it had increased to six millions; in 1785, to twelve millions; and in 1794, it had reached to the extent of twenty millions. During the late war the whole of this trade was in the hands of the English; and it was an article of the highest commercial importance. In the year 1814, the home consumption amounted to 24,640,000lb. and the duties for that year produced a revenue of 4,130,000*l*. Supposing the tea to be bought in China at the rate of two shillings per pound on an average, the supply of this vegetable to England alone will produce above two million pounds sterling; and this is principally paid in bullion. The policy of this traffic, in which we send out so large a portion of our precious metals, (for the Chinese take few of our manufactures in return,) may well be questioned, as there is no doubt but we could, with very little care, grow this plant in many parts of our own dominions. We have no hesitation in affirming that it

would thrive in the Isle of Wight, and many parts of Devonshire, Sussex, and Kent; indeed in every place where the myrtle grows. We are not far removed from the latitude in which it grows in China; and it is well known that from the insular situation of this kingdom, the winter with us is less severe than in some more southerly situations. The China rose is already naturalized in our climate, so that it blossoms even during winter in our open gardens; and we recollect this plant as the pet of the conservatory but a few years back. Are we then so overburthened with riches, that we nurse up ornamental flowers, and neglect the cultivation of a plant which we purchase with so much treasure?

The prosperity of the East India Company, or any other society, should not be set in competition with the general good of a country; and that kingdom must be the most prosperous, that possesses the greatest resources within itself. Our natural situation will always insure us sufficient nurseries for sailors, without going to China for tea.

The Portuguese are now able to cultivate the tea-plant in the Brazils; and the French

are likely to succeed in the cultivation of a new species of it in the South of France. This plant is called *Xenopoma Thea Sinensis*; it is a species of the tea plant hardly known to us, as it has not yet been imported as an article of commerce. It was brought into France about four years ago by a Russian, and has lately been examined by order of the Minister of the Interior. The academicians, the chemists, and the physicians, to whom the duty was committed, have agreed that its qualities are sudorific and stomachic. The leaves may be used green, immediately after they are gathered from the plant. It is said to be easily propagated, and it is thought that it will soon become naturalized in France.

The possibility of cultivating the tea shrub in our climate is now established beyond a doubt. We believe the first tea-plant that was seen in Europe, was that which Carl Gustavus Ekeberg, captain of a Swedish East Indiaman, raised from seed on his voyage home, and which he presented to Linnæus, on the 3d of October, 1763. It was also raised from seed by John Ellis, Esq. in the year 1768; who presented it to the king's gardener at Kew, where are collected all the useful and ornamental plants that

have been discovered in the known world, most of which have thriven under the skilful management of Mr. Aiton and his father, who have so long and so justly retained that situation, under a family illustrious for the patronage of the arts and sciences, but particularly for the encouragement of agriculture and horticulture.

Our Princesses entered so fully into this delightful study, as not only to patronize the science of gardening, but they actually painted from nature almost every curious plant that was known to flower at Kew; an instance of industrious application well deserving the imitation of English gentlewomen.

Dr. Woodville states, that the first tea-tree which flowered in Europe, was at Sion House, the seat of the Duke of Northumberland. It is now to be seen in most of the nursery gardens near London, where we have observed both the broad and the narrow leaved varieties, particularly in the grounds of Mr. Joseph Knight, of the King's Road, Chelsea, where the layers appeared as healthy and luxuriant as those of any other hardy exotic evergreen. The variety with a long leaf, which our gardeners call the Green Tea, is the hardiest plant, and with very little pro-

tection will bear the rigour of our winters even near the metropolis. In its native country this plant delights in valleys, or on the hills that slope to the south, or the banks of rivers. The flowers are white, and equally ornamental with those of the myrtle. The Abbé Rochen says, it grows as well in a poor, as a rich soil; but that there are certain places where it is of a better quality. The rocky soil produces the best tea, and that of clay the worst.

To give implicit credit to all that the Chinese affirm of the excellent qualities of the tea leaf would argue a degree of credulity equal to that of the Japanese, who believe that Darma, one of their saints, who lived about the 519th year of Christ, was so devout and austere in his religious duties, as to forego necessary rest and sleep. One day, being weary from long watching and fasting, he unluckily dropped asleep. His sorrow on awaking was great for having broken his solemn vow; and attributing it to his eyebrows, he cut them off, and threw them on the ground with the greatest indignation. Returning the next day to the same place, behold! from his eye-brows were sprung two beautiful tea shrubs! Darma, eating some of

the leaves, was presently filled with new joy and strength to pursue his divine meditations. He immediately communicated to his disciples the great benefit he found from tea, which he also published to his countrymen. As the saint was at that time the head of their religious order, being the 28th successor of the holy seed of Siaka, the founder of their Paganism, we may conclude from this curious fable, that the Japanese have used the tea leaf in their drink upwards of 1300 years.

It would be unjust, however, to deny that this plant possesses many of the excellent qualities which the Chinese assign to it; and we should find it difficult to name another beverage that would have less pernicious effects, when it is considered that it is taken by persons of all habits, and at all seasons of the year; is generally the first drink in the morning, and often the last in the evening. Certainly neither wine nor beer could be taken with so much impunity. When taken in moderation, as to strength as well as quantity, it is perhaps preferable to any other vegetable infusion hitherto discovered. And when we take into consideration its refreshing qualities, and its well-known enlivening powers, we shall be inclined to agree with the ingeni-

ous Dr. Lettsom, that our attachment to tea is not merely owing to its being costly and fashionable, but to its real superiority in taste and effect over most other vegetables.

That the too frequent use of tea, or rather hot water, destroys the tone of the stomach, and causes nervous complaints, is admitted, but there are also other causes for these disorders.

Jonas Hanway, the well-known traveller, to whose philanthropy the Magdalen Charity and the Marine Society owe their origin, and to whose humanity the lower classes are indebted for the establishment of Sunday schools, wrote an Essay on Tea, which he considered pernicious to health. The treatise was reviewed by Dr. Samuel Johnson, in the Literary Magazine for 1757, with much wit and force of argument. Mr. Hanway proceeds to enumerate the ill effects of tea, and having uttered some piteous lamentations about the "weak digestion, low spirits, and bad teeth of the sweet creatures of the other sex," all of which he attributes to the use of tea, he gravely observes, "Men seem to have lost their stature and comeliness, and women their beauty. I am not young, but methinks there is not quite so much beauty

in this land as there was; your very chambermaids have lost their bloom, I suppose by sipping tea. Even the agitations of the passions at cards are not so hostile to female charms."

"Of these dreadful effects, (observes the Reviewer) some are perhaps imaginary, and some may have another cause. That there is less beauty in the present race of females, than in those who entered the world with us, all of us are inclined to think on whom beauty has ceased to smile; but our fathers and grandfathers made the same complaint before us; and our posterity will still find beauties irresistibly powerful."

"That the diseases commonly called nervous tremors, fits, habitual depressions, and all the maladies which proceed from laxity and debility, are more frequent than in any former time, is, I believe, true, however deplorable. But this new race of evils will not be expelled by the prohibition of tea. This general languor is the effect of general luxury, of general idleness. If it be most to be found among tea-drinkers, the reason is, that tea is found one of the stated amusements of the idle and luxurious. The whole mode of life is changed; every kind of voluntary labour,

every exercise that strengthened the nerves and hardened the muscles, is fallen into disuse. The inhabitants are crowded together in populous cities, so that no occasion of life requires much motion; every one is near to all that he wants; and the rich and delicate seldom pass from one street to another but in carriages of pleasure. Yet we eat and drink, or strive to eat and drink, like the hunters and huntresses, the farmers and the housewives of the former generation; and they that pass ten hours in bed, and eight at cards, and the greatest part of the other six at the table, are taught to impute to tea all diseases which a life unnatural in all its parts may chance to bring upon them."

"Tea, with the greater part of those who use it most, is drunk in no great quantity. As it neither exhilarates the heart, nor stimulates the palate, it is commonly an entertainment merely nominal, a pretence for assembling to prattle, for interrupting business, or diverting idleness. They who drink one cup, and they who drink twenty, are equally punctual in preparing or partaking it; and indeed there are few but discover by their indifference about it, that they are brought together not by the tea, but the tea-table.

Three cups make the common quantity, so slightly impregnated, that perhaps they might be tinged with the Athenian *Cicuta*, and produce less effect than these letters charge upon tea."

Cumberland relates the following anecdote of Johnson's behaviour at the tea-table. "At the tea-tables he had considerable demands upon his favourite beverage, and I remember when Sir Joshua Reynolds at my house reminded him that he had drunk eleven cups, he replied, 'Sir, I did not count your glasses of wine, why should you number up my cups of tea?' and then laughing in perfect good humour, he added, 'Sir, I should have released the lady from any farther trouble, if it had not been for your remark; but you have reminded me, that I want one of the dozen, and I must request Mrs. Cumberland to round up my number.' When he saw the readiness and complacency with which my wife obeyed the call, he turned a kind and cheerful look upon her, and said, 'Madam, I must tell you for your comfort, you have escaped much better than a certain lady did awhile ago, upon whose patience I intruded more than I have on yours; but the lady asked me for no other purpose, but to make

a zany of me, and set me gabbling to a parcel of people I knew nothing of: so, Madam, I had my revenge of her; for I swallowed five and twenty cups of her tea, and did not treat her with as many words.' I can only say, my wife would have made tea for him as long as the New River could have supplied her with water."

Dr. Aikin observes, "The introduction of tea, as the beverage of a man of letters, is a curious circumstance in dietetical history; I cannot but regard it as a very valuable discovery; and I think the literary tribe are much indebted to those who contribute to familiarize them with the 'cups that cheer but not inebriate.' I scarcely ever knew a person fond of study, who was not also fond of tea, unless he had contracted a relish for less innocent refreshment. It is not my purpose here to enter into a medical discussion of the qualities of this herb; but from experience I can affirm, that unless taken too strong, or of too high a quality, its effects are perfectly salutary, and peculiarly favourable to sedentary habits."

Huet, Bishop of Avranches, who wrote a Latin poem on this vegetable, acknowledges in his Life, (written by himself,) that he re-

ceived great benefit from tea-drinking, which was, when it was first known in France, about the year 1670. He says, "it deserves the title of Brusher to the understanding, for its salutary leaves, with their benign vapours, as it were sweep the brain."

It is justly observed by Dr. Leake, "that weak tea drunk too hot will enervate, and if very strong, may prove equally pernicious, by affecting the head or stomach; but when it is drunk in moderation, and not too warm, with a large addition of milk, I believe it will seldom prove hurtful, but, on the contrary, salutary."

Lewis says, an infusion of tea in water is a grateful diluent in health, and a salutary drink in sickness.

No other plant is known whose infusion more readily passes off by the emunctories, or more speedily excites the spirits.

Most people have felt and acknowledged its refreshing and reviving powers after serious study, or fatiguing journeys. It has been observed, that the cheerful and pleasing society in which we often partake of it, is no inconsiderable inducement to the drinking of tea; and whatever affords rational pleasure

to the mind, will always contribute to bodily health.

The most important observation with respect to this vegetable, is that which has been made by Raynal, who says, that tea has contributed more to the sobriety of this nation, than the severest laws, the most eloquent harangues of Christian orators, or the best treatises of morality. It must be observed by all, that tea is an antidote against intemperance. In the higher ranks it is an inducement to leave the bottle for the polishing society of females; and in the lower classes, it detains the husband from the alehouse, to enjoy the society of his family. Some affirm that green tea is mildly astringent, others say it is relaxing. Some say it is narcotic; while others contend, that taken before bed-time, it assuredly prevents sleep.

The tea-plant, like most other evergreen shrubs, when in its fresh state, is of a poisonous quality. According to Kempser, it possesses a clammy acrid juice, which is so corrosive as to excoriate the hands of those who prepare it for use; that it causes nervous tremblings, and even affects the brain. This same traveller adds, that the torrefaction does not

entirely take away the narcotic quality, but that it is lost by time. The Japanese never use it under ten or twelve months, and then they mix it with old tea. It is only by perfect exudation that the leaves of the tea lose all their bad qualities.

In order to correct the noxious quality of tea, and to cause it to be more easily rolled up or curled, it is (in some parts of China) either steeped in water, or steamed, by being put into a hot kettle just emptied of boiling water; in which the leaves are kept closely covered up until they become cold. They are then rolled up and dried on plates of iron, but never on copper, as some have supposed and have thence deduced the injurious qualities of tea. After all the preparations, and when time has softened the acrimony of the tea-leaf, a strong extract of the juice has been attended with the most fatal consequences, and even the effluvia of the dried herb, when long and frequently inhaled (as the tea-brokers have repeatedly experienced,) will occasion palsy, apoplexy, and other nervous disorders.

Adair, in his "Essay on Diet and Regimen," observes, that in proportion as it has become general, many diseases, especially

low fevers, hysteric, hypochondriac, paralytic, and dropsical, have become more common; to which green tea has chiefly contributed.

It is possible that so great a change of living as that of substituting tea for breakfast, instead of malt-drink, may have so changed our constitutions as to produce some of the effects stated by Adair; but, on the other hand, it may be asked, have we not avoided many of the diseases which afflicted our forefathers? We hear no more of the leprosy, that scourge of past ages; and if we may judge from the writings of old authors, the stone and gravel is certainly less frequent than formerly.

Prejudices of opposite natures receive in turn the ephemeral sanction of fashion; but the true way to appreciate this diet drink, and to ascertain, if it really has enervated the constitutions of Englishmen, and relaxed their physical powers, is to advert to some of the actions of the last war, where athletic strength and manly prowess shone alike conspicuous in our armies and marine! And should that prove insufficient, let us ask, if our yeomanry are less vigorous, or the labours of the field worse performed, since the

introduction of this temperate beverage? The answer is too obvious to need farther commentary.

Dr. Lettsom (who published the Natural History of the Tea-Tree,) made several experiments to determine its chemical qualities. He found an infusion of it preserved beef fresh; this proves it to be an antiseptic; and from its striking a purple colour with the salt (sulphate) of iron, he justly concludes that it is an astringent. He observes also, that the essential qualities of tea reside in its fragrant and volatile parts.

There is no history of China, that the author knows of, from the time of Kircher to the present day, but what informs us that the infusion made with tea-leaves, is the common drink of the country, from the emperor down to the lowest labourer; and that its use is not confined to artists and studious persons, but that it is the common beverage of all the labouring people in China: one scarcely ever sees them represented at work of any kind, but the tea-pot and tea-cup appear as their companions. Every husbandman has these attendants. Tea is sold ready-made in China and Japan, as beer is sold at our public houses. The porter

lays down his load, refreshes himself with tea, and pursues his way. If it were so pernicious as some have pretended, the ill-effects must have been felt by the Chinese, who, on the contrary, tell us that it is from their custom of drinking tea, that they are exempt from the gout, the scurvy, and the stone. We are told also, that no people are more free from inflammatory disorders. They pronounce it diuretic, and therefore good for the dropsy; but they acknowledge that it prevents sleep in those who are not accustomed to it. In Japan it is considered the best antidote against weakness of sight, and most complaints of the eyes. Valmont Bomare observes, "that tea taken in substance, or infused in water and milk, is useful in fluxes and dysenteries, and that it excites perspiration; on the other side he observes, that the great drinkers of water tea, both in India and in Europe, are generally thin, and have sometimes convulsive movements; but that those who only take tea as a remedy are very much relieved in colds.

Those who take it regularly for breakfast, should add plenty of sugar and milk: it may then afford nourishment as well as refreshment.

To make tea, and to serve it in a genteel and graceful manner, is an accomplishment in which people of both sexes in Japan are instructed by masters, in the same manner as Europeans in dancing, and other branches of polite education.

The Chinese pour hot water upon the tea, and draw off the infusion in the manner now practised in England, excepting that they seldom add either sugar or milk. Their neighbours the Japanese reduce their tea to a fine powder, by grinding the leaves in a hand-mill; it is then mixed with hot water into a thin pulp, in which form it is sipped, particularly by persons of consequence. In their parties, the tea-table furniture, with the powdered tea inclosed in a box, is set before the company, and the cups are then filled with hot water, and as much of the powder as would fill a common tea-spoon is taken out of the box, and put into each cup, and then stirred and mixed together with a curious denticulated instrument, till the liquor foams, in which state it is presented to the company, and sipped while warm. The common people, who can only obtain a coarser tea, boil it for some time in water. Early in the morning they put a large kettle of water over

the fire, with the tea inclosed either in a bag or a kind of basket, to prevent an impediment in drawing off the liquor; and this forms their drink for the day. The water in China is said to be nauseous and unwholesome, and, without this corrective, to be unfit for the purposes of life. Thus, we see, Providence has in every instance provided a remedy for evil.

The celebrated traveller Kalm observes, that in such long journeys as his, through the deserts in hot countries, where the water is unfit for use and full of insects, tea is almost as necessary as food, as it relieves a weary traveller more than can be imagined. Dr. Clarke, in his Travels (vol. ii. p. 533), says, "The exhausted traveller, reduced by continual fever, and worn by incessant toil, without a hope of any comfortable repose, experiences in this infusion the most cooling and balsamic virtues; the heat of his blood abates, his spirits revive, his parched skin relaxes, and his strength is renovated."

We shall not presume to give our fair countrywomen a receipt for making tea, but lay before them such observations as we have made and met with on the subject. To avoid adulterated tea, it is safest to purchase it of

those respectable houses who are above such injurious practices; although it is to be feared, that the enormous demand we make on the Chinese for this leaf may tempt them occasionally to send us a mixture.

As the adulteration of tea has lately been carried to such an extent both in England and Ireland, it may not be thought irrelative to state the best means of detecting this fraudulent practice. We purposely omit mentioning the various leaves that have been substituted for genuine tea, and the method by which they are prepared. They are principally of a poisonous nature, and some of them of the most deadly kind; and they are, moreover, coloured with poisonous drugs.

If there is any suspicion of the tea having been adulterated, pour out a cup without sugar or milk, to which put a grain and a half of blue vitriol or copperas: if it is a genuine tea, the infusion will become a dark blue, nearly black; but if it is of a greenish yellow or yellow-black, it may be concluded not to be genuine tea.

The counterfeit black tea produces a deeper colour by infusion than the real tea. A little copperas put into this tea will turn

it to a light blue, which otherwise ought to be of a deep blue inclining to black.

If green tea be adulterated, put a bit of gall into the liquor, which will turn it to a deep blueish colour; this it will not do unless there be either vitriol or copperas in it; as galls do not tincture the genuine tea.

The expcsures lately made in this country, we trust, will prevent repetitions of such poisonous frauds.

We have experienced that tea will retain its flavour when kept in glass or china jars, better than in wood or metal, silver excepted.

As tea contains volatile parts that should be preserved, and in which its better qualities exist, the tea-pot should be handed to each person on a tray, with the cups and sugar, for when made out of the room, all its reviving spirit has evaporated before it reaches the guest. It is not the bitterness, but the fragrance of tea that is cheering.

It has been observed that the infusion made in silver is stronger than that which is produced in black earthenware. Polished surfaces retain heat better than dark rough surfaces, consequently the caloric being confined in the former case, must act more pow-

erfully than in the latter. It is farther remarked, that the silver when filled a second time, produces worse tea than the earthenware; and that it is advisable to use the crockeryware, unless a silver vessel can be procured sufficiently large to contain at once all that may be required. These facts are readily explained, by considering that the action of heat, retained in the silver vessel, so far exhausts the herb, as to leave little flavour for a second dilution; whereas the reduced temperature of the water in the earthenware, by extracting only a small portion at first, leaves some for the action of subsequent dilutions. It is supposed that the infusion is stronger in a globular vessel, than in one of a different form; and this must be the case, since it is demonstrated that a sphere contains a given measure under less surface than any other solid; from which it follows, that where there are two vessels of equal capacity, one globular, and the other square, oblong, elliptic, or cylindric, the spherical vessel, having less surface than the other, must throw off less heat; and that, consequently, the effect will be greater in the former case than in the latter.

The reason for pouring boiling water into

the vessel before the infusion of the tea, is, that, being previously warm, it may abstract less heat from the mixture, and thus admit a more powerful action. It is with equal facility explained why the infusion is stronger, if only a small quantity of boiling water be first used, and more be added sometime afterwards. If we consider that only the water immediately in contact with the herb can act upon it, and that it cools very rapidly, especially in black earthenware, it is clear that the effect will be greater where the heat is kept up by additions of boiling water, than where the vessel is filled up at once, and the fluid suffered gradually to cool. When the infusion has once been completed, it is found that any farther addition of the herb only affords a very small increase of strength, the water having cooled much below the boiling point, and consequently acting very slightly: therefore it is better to make fresh tea in a second vessel, than to add it to the exhausted and cool leaves.

It is by the application of philosophic principles to the ordinary and even trivial occurrences of life, that science diffuses her benefits, and perfects her claim to the gratitude of mankind; therefore, if one principle

of making tea is preferable to another, it should be attended to, however trifling it may be considered.

We need entertain no fear of having our tea too new, as the East India Company have generally in their warehouses a supply for three years, and by an act 13 Geo. 3. cap. 44, no licence can be granted to that Company to export tea, unless there remain in their warehouses a quantity not less than ten millions of pounds weight.

The rapidity with which the East India Company has obtained territories, and the stability of its government, is unparalleled in the history of any age. Dominion over an extent of more that 300,000 square miles, containing a population that exceeds forty millions, has resulted from an establishment in its commencement purely commercial, and confined to a few obscure individuals. Such are the wonderful consequences of commercial enterprise. It is commerce that civilizes mankind, and imparts happiness to the remotest quarters of the globe. The savage of the other hemisphere feels its beneficial effects, while the enlightened European, by its aid, circumnavigates the globe in safety, increasing the stock of knowledge, as well as

comfort; thus placing modern achievments infinitely above the most glorious of antiquity. We believe very little, if any, of the Imperial tea reaches this country, as it is most religiously preserved for the family of the emperor and his court. It grows only on a mountain in Japan, near Ud-si, a small village, situated close to the sea, and not far distant from Meaco, where the climate is said to be pure and extremely favourable to its culture, which is here attended to with a delicacy unheard-of in Europe. The mountain is surrounded by a vast ditch and hedges, that render it impenetrable to all approach. The first purveyor of the Imperial Court keeps commissioners here, who watch the culture of the shrubs, which are planted in regular avenues and alleys, daily watered and swept to prevent the possibility of dust falling on the leaves. Others are employed to protect the plants from any inclement change of the weather. The persons who are appointed to gather and collect this tea, are previously kept for several weeks in a sort of training, and are not allowed to eat fish, or any gross food, lest their breath or perspiration should affect the leaves. They are obliged also to wash themselves in the

river, or a warm bath, twice every day during the time of gathering, which is done with such scrupulous nicety, that they never touch the leaves but with very fine gloves. The whole process of its preparation is attended with the same ceremonious delicacy. It is then packed up in costly vases, and escorted with great pomp by the superintendent of the mountain, and a strong guard, to the emperor's court.

There is a secondary sort of this Imperial tea, which comes from China by land to Europe, and is brought by the caravans to St. Petersburgh. This is the most agreeable tea we have met with; and, although it is some years since we received a present of it, its flavour is now familiar to our recollection, as being between that of the black and green, and having a soft violet smell, which the teas brought by sea have not, and which was very different from the taste or perfume of those teas which the Chinese make up by putting orris root and other chaplets into the packages.

The Chinese distinguish four principal tea shrubs, viz. the Song-lo, the Wou-y, the Poucul and the Long-an. The varieties of tea which we receive in this country originate

from the different stages in which the leaves are gathered, or from the manner in which they are prepared, as each province has a peculiar method of curing the tea. In this country we distinguish them generally into two kinds; green and black, of each of which there are many varieties. Among the green the gunpowder bears the highest price, and is the strongest green tea imported: it is a small leaf and rolled up quite round, whence its name is derived. Hyson tea is also of a small leaf and closely curled, of a bluish-green colour. It is called Hyson from the name of the merchant who first imported it.

The Bloom tea is of a light green or sage colour, of a faint delicate smell and large loose leaf. Singlo tea is named after the place in China where it is cultivated.

The black teas are, Souchong, which imparts a yellowish green colour by infusion. Camho, so called from the place where it is prepared; this tea has a fragrant violet smell. Congo; this tea has a larger leaf than the souchong, resembling the common bohea, and its infusion is somewhat deeper.

Pekoe tea is known by a whitish kind of floss or down on the leaf before infusion. This is an excellent tea when added to either

green or black, in the proportion of one to three, but when used without mixing, it is by no means agreeable, yet it was at one time the fashionable tea in Ireland. In France, the Pekoe tea is only used as a medicine.

The Chinese in the province of Fokin, extract an oil from the fruit or berries of the tea-tree, which they use in their aliment, and also for drying paintings. This fruit remains a year on the shrub before it comes to maturity.

We are informed by the Chinese, that the word Tea is derived from the language of the Mandarins in Fokine, where they call this shrub *Theh*, and that we ought to pronounce it *Teha*.

The cultivation of the tea, we may naturally conclude, forms an important part of the husbandry of the Chinese, since it is a vegetable in such demand by the natives, for their home consumption, and also in so great request for exportation. It is therefore cultivated with much attention, although it is often found in its natural state, particularly on the rugged banks of steep mountains, where it cannot be gathered without the greatest difficulty and danger. In order to obtain this tea where access is impracticable,

the inhabitants have recourse to a singular expedient. A great number of monkeys generally resort to these steep places, and being irritated and provoked, tear off the branches and shower them down upon those who have teased them; the aggressors collect these branches and strip them of their leaves.

The tea shrub does not thrive well in either a sandy or a fat soil, although the Japanese plant it as a border to their fields without regard to the soil.

It is raised in China from seeds, but it is said, that not more than one out of five are found to vegetate, therefore they put from six to twelve into each hole, which is made about five inches deep. Whole fields and vallies are planted in this manner, which only require to be kept free from weeds for about three years, when they begin to gather. In seven years the shrubs get about six feet high, when they are cut down to the stem, to give the roots strength to produce fresh shoots and numerous leaves.

Near the end of the first month of the Japanese year, that is about the beginning of March, the mothers of families with their children and servants, go with their baskets into the tea plantations, when the weather is

hot and dry, and gather the small tender leaves, that are not above three or four days old, and previous to their being unfolded; these are picked off one by one, taking great precaution not to break them or injure the shrub. However tedious this may appear, yet they will gather from four to ten, or fifteen pounds in a day. This first gathering is called *ficki tsiaa*, or tea-powder, because it is used pulverised. Towards the evening, they carry these leaves to the house or building erected for the purpose, containing a number of small stoves, where they are put on a hot polished iron-plate immediately, before they have time to ferment, in which case they would turn black; they continue to turn them about until they are withered, when they are removed on to mats, or paper, and left to cool, after which the leaves are folded and curled in the palm of the hand: they are then placed on a second hot plate, and turned as before with the hand till they are tolerably firm. They are then cooled suddenly a second time, by agitating the air. This operation is repeated three or four times in order to extract all the moisture from the leaves. The principal object of cooling the leaves quickly is to preserve the curl, which

must also preserve much of the flavour. The more curious are put into glass bottles well corked, others into square boxes varnished and lined with lead and then neatly papered. In about six days, this tea is again spread on a table and all the leaves that have been over dried or scorched, are taken out and put with common tea. It is often dried a fifth time, to make it more secure for keeping.

The second gathering takes place about the end of March, or beginning of April, when part of the leaves have attained their full growth, and others not half above their size; they are however gathered indiscriminately, and afterwards sorted into different parcels according to their size, the young leaves being esteemed next to those of the first gathering: this crop is called *Too-tsiaa*, or Chinese tea.

By the end of May, or the beginning of June, other leaves have opened, and become thick, and full grown. This is the tea least esteemed, and is called *Ben-tsiaa*. This generally undergoes a selection, and the larger and coarser leaves are sold to the common people. The coarsest and most acrid tea in China is sold to the neighbouring Tartars, who find it facilitates the digestion of the

raw meats which they are accustomed to eat.

As the Chinese in different provinces vary in their mode of preparing tea, so do they in regulating the time for gathering the leaves; in some provinces they make but one harvest; in others two, according to the demand they have for fine or common tea. These people also distinguish the quality of their tea, by the age of the shrub, and whether it be cultivated or not.

In France the lower class of people, when they take tea, which is principally medicinally, boil the leaves. But the decoction is very inferior in point of flavour to the infusion in boiling water.

The Dutch, with all their boasted cleanliness, have a disgusting practice in drinking tea; for instead of adding sugar to their cup, they generally suck a piece of sugar-candy, which they take out of their mouths when they drink. We hear of instances in that country, where one piece is said to answer the purpose of the whole family.

Persons of quality in China make use of the extract of tea; and also of aromatized pastilles, made from fine tea, and which are of an agreeable taste.

It has been the fashion in this country for some years, in the higher circles, to serve tea-ices, or rather tea-creams frozen; for evening parties and hot rooms, it certainly is the most agreeable way of taking this refreshing extract. These ices should be made of the finest green tea, without any mixture of black.

THYME.—THYMUS.

Natural order, Verticillatæ. A genus of the Didynamia Gymnospermia class.

This aromatic herb derives its name from a Greek word, signifying courage or strength, it having been supposed to revive the spirits, which is noticed by Virgil, in the second Eclogue of his Bucolics:

> "*Thestylis et rapido fessis messoribus æstu*
> *Allia, serpyllumque, herbas contundit olentes.*"
>
> And Thestylis wild thyme and garlic beats,
> For harvest hinds, o'erspent with toil and heats.
>
> Dryden.

Thyme grows in its natural state, most abundantly on arid, hilly situations within reach of the sea air, and on the slopes facing the sun. It always denotes a pure atmosphere wherever it grows spontaneously, and it is thought to enliven the spirits, where it perfumes the air.

"O'er fringed heaths, wide lawns, and mountain steeps,
With silent step the artful Thyma creeps,
Unfolds with fragrant bloom her purple flow'rs,
And leads with frolic hand the circling hours."

ROWDEN.

Greece was celebrated for its thyme, on account of the excellent honey which it afforded. The honey of Athens was esteemed the best in the world, on account of the thyme which grew on the surrounding hills and mountains, particularly that of Hymettus, which being often washed off by heavy rains filled the valleys with this fragrant herb. "For the sake of honey," says Pliny, "we have brought thyme out of Attica, but there is great difficulty in raising it from seed; for it is the nature of the Attic thyme, not to thrive or live, but within the air and breath of the sea. This opinion," he continues, "was also generally entertained by our forefathers, that no thyme would do well, except it be near the sea, and which they assigned as a cause for its not growing in Arcadia." He also observes that thyme begins to flourish when the bees begin to gather honey, and accordingly as it flourished more or less, they judged what sort of season there would be for honey; the honeymasters and those that

kept bees, expected a good year when the thyme blossomed abundantly.

The use of honey has gradually lessened in Europe, since our intercourse with the Indies has furnished sugar in such abundance.

Sweets being among the natural luxuries of man, honey must have been of great importance to the ancients prior to the knowledge of sugar. They therefore studied the nature of bees, and the plants which produced the best and the greatest quantity of honey. In Spain they carried their bees and hives upon the backs of mules into the country, or on the hills wherever they found the best nourishment for their industrious colonies.

Pliny observes, that if honey were not so common that every person is supplied with it, it would be as highly esteemed as *Laser*, which was the most rare and expensive drug.

The honey made in some parts of Pontus, was of so hurtful a nature, as to cause madness, on which account the Greeks called it *Mœnomenon*. This poisonous quality was thought to be owing to an abundance of Oleander trees in that district. On this account they could not sell their honey; nor would the Romans receive it as tribute, but

compelled the inhabitants to pay an extra quantity of wax in lieu thereof.

"No more, my goats, shall I behold you climb
The steepy cliffs, or crop the flow'ry thyme."

DRYDEN.

In ancient times, flocks of goats and sheep were sent from many remote parts, to feed on the thyme which grew so abundantly on the rocky parts of Languedoc and Narbonne, and this pasturage yielded a great revenue to the inhabitants of that country, during the height of Roman luxury, on account of the high flavour it gave to the thousands of cattle which were sent to that province.

"Where the wild thyme perfumes the purpled heath,
Long loit'ring there your fleecy tribes extend."

SHENSTONE.

A long residence on and near the South Downs of Sussex, gave the author of this work an opportunity of ascertaining, that those flocks which fed on hills most abounding with thyme, produced mutton of a very superior relish; and it cannot have escaped the notice of the epicures in haunches, that the highest flavoured venison is always from arid hilly parks, wehre this penetrating "pun-provoking" herb abounds.

The Romans made great use of thyme in medicine. It was given as a sovereign remedy to melancholy persons, and to those who were troubled in mind or lunatic, as also to such as were afflicted with epilepsy, or falling sickness. The very perfume and smell of thyme was said to raise them out of a fit; however, they inform us, that thyme should be used with proper moderation, as it is apt to heat the body. It was likewise considered an antidote against the poison of scorpions, and all venemous creatures of the sea.

The inhabitants of Seville use a decoction of Thyme, in washing out and cleansing their wine vessels, because of its grateful smell; and it is of no less service in giving a good scent to those vessels in which they preserve their grapes.*

This plant was thought excellent in suffumigations to revive the spirits; and by its extraordinary fragrancy, it was deemed comfortable to the brain, and highly exhilarating to the heart. A little thyme mixed with wine, gives it a most grateful savour, and both the smell and taste of it are very penetrating; whence it becomes sudorific, inciding, penetrating, healing, and opening; is

* Raii Hist. Plant.

of service in the flatulent colic, and restores a decayed appetite.*

All the varieties of thyme have an agreeable aromatic smell, and a warm pungent taste: its qualities are said to be diuretic, tonic, and stomachic; when used internally, it fortifies the brain, rarifies vicious humours, and facilitates digestion. It appeases epileptic paroxisms, relieves head-aches, and is said to be salutary to old persons of phlegmatic habits.

In its external use we are told, that it relieves the sciatic gout, and the decoction is a good fomentation for weak and nervous muscles.

It yields a species of camphor in distillation with water. The essential oil of thyme is stomachic, diuretic, and carminative; it eases the pain caused by decayed teeth, if it be dropped on cotton and applied to the part decayed. This oil is anti-apoplectic, and excites appetite and perspiration.

The culinary use of thyme is principally for broth and ragouts; also to savour meats and make them more relishing. Dioscorides tells us, that used in food, it helps dimness of sight.

* Hist. Plant. adscript. Boerh.

The lemon-thyme is less pungent than the common garden thyme, but much more grateful; therefore, it is used as a seasoning for veal and other meats, where lemon-peel would be used, thus answering the purpose of two distinct spices.

Thyme makes a neat border for cottage-gardens, and if kept cut like box, it will last for many years, and is very agreeable when in blossom; but as an ornament, it is better calculated for openings in wildernesses or on banks or artificial hills, where it should be sown in clumps about the size of mole-hills, and so arranged as not to have the appearance of cultivation. Shakspeare, who observed plants as closely as he did men, says in his Midsummer Night's Dream,

> "I know a bank whereon the wild thyme blows,
> Where ox-lip, and the nodding violet grows,
> O'er canopy'd with luscious woodbine,
> With sweet musk-roses, and with eglantine."

Thyme that is intended for winter use, should be cut when in blossom, and dried in the shade.

The Romans called the wild thyme *Serpyllum, à serpendo*, alluding to its creeping along the ground.

The thyme of Crete or Candia, abounds in most of the Islands of the Mediterranean; but it is with difficulty we rear it in our moist climate. Evelyn observes, that in his day, extensive grounds in the neighbourhood of Sandwich and Deal, were sown with thyme for seed only; and that it was sown in tufts on a light sandy soil.

TOBACCO.—NICOTIANA.

Natural order, Luridæ. A genus of the Pentandria Monogynia class.

Among the vegetable productions of the New World, none have been so highly esteemed by the inhabitants of Europe as this plant; nor is there any vegetable from which human ingenuity has extracted gratification by such singular and extraordinary means as from the tobacco-leaf. Amongst all the luxuries of the ancients, we discover none of so curious a nature as that of drawing smoke into the mouth, or of feeding the head through the cavities of the nose. The use of this herb, as a masticatory, would appear fully as unaccountable, had we not daily instance of the palate's becoming familiarized to obnoxious tastes, by habit. Gerard, in describing its use soon after its introduction into this country says, "Some vse to drinke it for wantonnesse, or rather custome, and cannot forbeare it, no, not in the middest of

their dinner." There is no doubt but that it was first used medicinally, and, like other intoxicating and stupifying medicines, which revive and enliven the senses for the moment, it became by degrees almost one of the necessaries of life; and thus it seems ordained by Nature, that one man should create wants, in order that his fellow may be employed in supplying them.

This plant, which affords medicine to some, and amusement to others, has by fashion, or its supposed luxury, seduced all nations to spread it, from America to Japan; and it is become the poor man's opium, from the burning sands of Africa to the icy shores of the North.

Locke says, "Bread or tobacco may be neglected; but reason at first recommends their trial, and custom makes them pleasant."

Tobacco was first discovered by the Spaniards in South America, and in a province of Yacatan, called Tobacco, from whence it obtained the name, and not from the Island of Tobago, as several authors have stated. Its first introduction to Europe was about the year 1560, when Hermandez de Toledo sent it into Spain and Portugal.

Monsieur Jean Nicot, or Nicotius, who was then residing at the court of Lisbon, as ambassador from Francis II. obtained some of these plants, which he took to France, and presented them to Catharine de Medicis, as a production of the New World. It was this ambassador who first sent the seeds of the tobacco-plant to the Island of Tobago; and it is from him that this vegetable received the generic name of Nicotiana. It was called Petun and Picielt by the Americans; and at the first discovery it was named *Sacra Herba, Sancta Herba,* and *Sana Sancta Indorum;* by others it was called *Hyoscyamus Peruvianus,* or Henbane of Peru.

Nicolaus Monardis seems to have been the earliest author who called it tobacco. We learn that its stupifying quality was known to the native Americans previous to our knowledge of the plant, although neither so generally cultivated, nor so well manufactured as since in the hands of the Europeans; as an old author of that day relates, "that the priests and inchaunters of that hot countrie do take the fume therof vntill they be drunken; that after they haue lien for dead three or fower howers, they may tell

the people what woonders, visions, or illusions they haue seene, and so giue them a propheticall direction of foretelling (if we may trust the diuell) of the successe of their business."

Tobacco was brought to England by Sir Francis Drake, in 1570, who that year made his first expedition against the Spaniards in South America. Lobel informs us, that it had been cultivated in this kingdom previously to that date. Sir Walter Raleigh brought the Virginia tobacco to this country about the year 1586, and it is related that he was the first who brought tobacco into repute; but, by the caution he took in smoking it privately, it appears he did not intend that it should be copied. But sitting one day in a deep meditation, with a pipe in his mouth, he inadvertently called to his man to bring him a tankard of small ale: the fellow coming into the room, threw all the liquor in his master's face, and running down stairs, bawled out "Fire! help! Sir Walter has studied till his head 's on fire, and the smoke bursts out of his mouth and nose." After this, Sir Walter made it no secret, and took two pipes just before he went to be beheaded.

Snuff did not come into fashion until after the Restoration, from which we presume it was a French invention.

It is stated in most botanical works, that the tobacco of Virginia was introduced in 1570. This was prior to the discovery of that part of America; but the date agrees with the year that the tobacco of Peru was obtained.

It appears by Lord Bacon's account, that the tobacco of the former country was not held in so great esteem in his time as that of the latter: he says, "The English tobacco hath small credit, as being too dull, and earthy: nay, the Virginian tobacco, though that be in a hotter climate, can get no credit for the same cause."

Gerard was of opinion, that the tobacco of our own growth would best suit English constitutions, as that of America would agree with the health of Americans: he adds, "notwithstanding, it is not so thought nor received of our tabackians: for, according to the English prouerbe, Far fetcht and deere bought is best for ladies." Some biographers state, that Queen Elizabeth had no objection to the tobacco-smoke, while others insinuate that *she preferred the smokers!*

James the First wrote a treatise expressly against it, entitled, A Counterblast to Tobacco. By a bull of Pope Urban the Eighth, such are excommunicated as take tobacco in churches.

The smoking of tobacco is carried to such an excess by the Turks, that they are rarely to be seen without a pipe, and never enter into business without smoking, which often gives them an advantage over the Christians with whom they have either commercial or political transactions, as they smoke a considerable time and reflect before giving a reply to any question. To visit them on business previously to their morning pipe, would only subject the intruder to their caprice and ill-humour. An ingenious friend, who has resided several years in Constantinople, and had opportunities of associating with the higher classes of that city, assures us that two thousand pounds is no uncommon price for a Turk to give for the amber mouth-piece of a tobacco pipe, exclusive of the bowl or the pipe, the latter of which is made of a branch of the jasmine tree, for the summer use, while those for winter smoking are uniformly made of the branches of the cherry tree. In order to obtain them of a regular

size without being tapering, the young shoots of these trees have a weight affixed at their extremities to bend them downwards, which prevents the sap from returning to the body of the tree, and causes them to swell equally in all parts. The rind or bark is carefully preserved to prevent the escape of the fume through the pores of the wood. The wealthy Turks pride themselves on the beauty and number of their pipes; and the principal servant in their establishment has no other charge than that of attending to the pipes and tobacco, which are presented to the master or his guests by a servant of an inferior rank. These pipes are so regularly and effectually cleaned, as always to have the delicacy of a new tube, while the German pipe, on the contrary, is enhanced in value by the length of time it has been in use. We are told by the same friend that he has seen among the lower class of Armenians and Jews in Turkey, some smokers who could consume the whole tobacco of a bowl twice the size of those used in England, and draw the entire fumes into their bodies at one breath, which they discharge from their ears as well as the mouth and nostrils.

Tobacco is one of those rank and poisonous

weeds which only grow on rotten soils and dunghills, such as fresh woodlands, and will not thrive well on any others. It was, therefore, a proper plant to exhaust the abundant vegetable manure that many parts of America afforded, when first it began to be cultivated. It is a tall herbaceous plant, growing erect with a fine foliage, and rising with a strong stem from six to nine feet high. The seeds of this plant are extremely small; but so numerous that it has been calculated that a single plant will produce about 350,000, each capsule containing about a thousand! It thrives best in a warm, kindly, rich soil, light and inclined to be sandy; it likes the southern declivity of a hill. It thrives well in most parts of Europe, and the writers of the sixteenth century state, that it prospered in England. Lord Bacon says, "Tobacco is a thing of great price, if it be in request; for an acre of it will be worth, (as is affirmed) two hundred pound by the year towards charge." He adds, "The charge of making the ground, and otherwise, is great, but nothing to the profit."

Ministerial policy has prohibited its cultivation in this country, as well as in France. It seems an extraordinary stretch of power

for any government to interfere with what seeds a landed proprietor may sow, or what plants he may cultivate on his own soil; yet individuals must be satisfied with the axiom, that private benefit must give place to public good.

Coles says, in 1657, "It prospers well about Winscomb, in Glocestershire, where I think the planting of it is now discontinued, because the store that came from thence was an hinderance to the publick revenue coming in for the custome of that which is brought from beyond seas."

By various acts passed in the reign of Charles the Second, tobacco is forbidden to be planted in England, on forfeiture of forty shillings for every rod of ground thus planted, excepting in physic gardens, where it is allowed in quantities not exceeding half a pole of ground. Justices of Peace have power to issue warrants to constables to search after and destroy the same. It appears that walnut-tree leaves have been used as a substitute for tobacco; 5 Geo. c. 11, forbids the cutting of walnut-tree leaves, or other leaves (not being tobacco leaves) or colouring them so as to resemble tobacco; or selling the same, mixed or unmixed for tobacco; under a penalty of forfeiting five shillings a pound, &c.

A French Natural Historian* relates, that in 1750 Maryland and Virginia produced to England more than one hundred thousand tons of tobacco; of which, he says, the English kept one half for their own consumption, and exported the remainder to France; for which the latter country paid annually the sum of 9,200,000 livres, or about 383,333*l.* English money.

This vegetable still continues to form so considerable a branch of commerce in this country, that a store-room has lately been erected in the London Docks, for the exclusive purpose of housing tobacco, which covers with one roof a space of nearly six acres of ground, and which is perhaps the largest room ever built. This immense store-room is, when empty, an object of wonder; but on seeing it full of tobacco our amazement must be increased, by reflecting on the extent of our trade, and on the singular destination of such an enormous heap of half-putrefied leaves.

The old writers attribute so many wonderful medicinal virtues to this plant, that we are unable to name a complaint for which they did not make it a cure. Burns, scalds,

* Valmont Bomare.

poisons, dropsy, agues, complaints of the head, breast, lungs, &c.—even hunger and the gout, were all to be relieved by this vegetable. "Tobacco," says Lord Bacon, "comforteth the spirits, and dischargeth weariness; which it worketh, partly by opening, but chiefly by the opiate virtue, which condenseth the spirits."

This narcotic herb has not wanted the poet's praise: Phillips, when he sang the Gifts of *Pomona*, "in Miltonian verse," said,

> "The Indian weed, unknown to ancient times,
> Nature's choice gift, whose acrimonious fume
> Extracts superfluous juices, and refines
> The blood distemper'd from its noxious salts;
> Friend to the spirits, which with vapours bland
> It gently mitigates, companion fit
> Of pleasantry, and wine; not to the bards
> Unfriendly, when they to the vocal shell
> Warble melodious their well-labour'd song."
>
> *Cider, book* i.

Of late years it has been spoken of by the generality of medical writers in such a manner as has almost occasioned its dismissal from modern practice; at least from internal use: but this circumstance has not deterred Dr. Fowler, a physician of eminence in Staffordshire, from commencing an inquiry into its medical effects. He has pub-

lished the result of his experiments, which seem to be accurately and faithfully related. That tobacco, under proper regulations, may be administered internally, not only as a safe but an efficacious remedy, especially as a diuretic in cases of dropsy and dysury, seems certain. The form in which Dr. Fowler ordered it was by infusion, tincture, or pill.

Infusion. —Take of tobacco-leaves dried, one ounce; boiling water one pound; infuse them for an hour in a close vessel, set in a warm place, and steam off about fourteen ounces. Then add two ounces of rectified spirit of wine.

Tincture. —Take of dried tobacco-leaves an ounce, of rectified spirits, Spanish white wine, or vinegar, one pint; to be infused four days.

Pills. —Take of dried tobacco-leaves in powder, one dram, of the conserve of roses, enough to make it in a mass; which is to be divided into sixty pills.

Of the infusion or tincture Dr. Fowler gave from six to one hundred drops twice a day in water, or in a cordial julap, or other proper vehicle, sufficient to produce the effects in adults; but in irritable habits he

seldom exceeded twenty-five drops. To a patient of ten years old he gave fifty drops; to a child five years old, twenty drops; but to patients under that age he never ventured to prescribe it.

The first effect of the infusion is a transient heat of the stomach and throat, as if the patient had taken a dram. The next general effect in a moderate dose is diuretic, with or without a slight vertigo and giddiness, and frequently nausea. In painful cases, it proves anodyne, and in some cases occasions drowsiness and sleep; in others drowsiness, with a sense of heat and restlessness.

Dr. Fowler gave this medicine in one hundred and fifty cases; in ninety-three of which it proved diuretic; and in forty of them cathartic. Seventy-nine of these patients complained of vertigo; and in fifty-two of the number it excited nausea.

After all, it appears that the internal use of tobacco should be very limited, and can only be safe in the hands of skilful and attentive practitioners. Tobacco is often used externally in unguents, for destroying cutaneous insects, cleansing old ulcers, &c.; and is generally and successfully used for

cleansing and destroying vermin in the sores of cattle and horses.

The distilled oil is of a poisonous nature; a drop of it, taken inwardly, will destroy a cat.

Tobacco beaten well with vinegar or brandy into a mash, and applied in a linen rag to the stomach, occasions strong vomiting, and has sometimes very good effects in removing hard tumours of the hypochondria. "I know," said Dr. James, "two instances of its making a complete cure."

The most common uses of this plant, however, are either as a sternutatory, when taken by way of snuff; as amasticatory, for chewing in the mouth; or as effluvia, by smoking it; and, when taken in moderation, it is not an unwholesome amusement; but it is a dangerous one for young people, who will always find it not only difficult to leave off its use, but extremely hard to avoid its rapid increase.

The tobacco ashes are said to form an excellent dentifrice, and corrective of putrid disposition in the gums. The leaves chopped up in corn, and given to horses, bring off botts.

Tobacco has been the staple commodity of

Virginia since we first planted colonies in that part of the world. Wynne says, in his History of that province, published in 1770, that the Virginians export annually above forty thousand hogsheads of this leaf, each hogshead containing eight hundred weight. This author says, "wherever they have planted this article, their lands are so exhausted by it, that they will hardly produce the bare necessaries of life, and much less such an exhausting weed. It is for this reason, that most of our tobacco plantations are broken up, and the people have been obliged to quit them, and retire to the mountains, where they find fresh lands fit to produce this plant, which is the support of their trade, and has been of more importance to them than all the other productions of North America put together, so long as their lands were fresh and fertile."

Traders distinguish two sorts of tobacco; Aranookoe from Maryland, and the northern parts of Virginia, is strong and hot in the mouth, but sells well in the markets of Holland, Germany, and the north. The other sort is called sweet-scented, the best of which comes from James's and York river, in the southern parts of Virginia.

The tobacco seeds are first sown in beds,

from whence they are transplanted, the first rainy weather, into a ground disposed into little hillocks, like a hop garden. In a month's time they become a foot high; they are then topped, and the lower leaves pruned off; in about six weeks after they attain their full growth, and begin to turn brownish, by which mark the tobacco is judged to be ripe. The plants are cut down as fast as they ripen, heaped up, and laid all night to sweat; the next day they are carried to the tobacco house, which is built to admit as much air as is consistent with keeping out rain, where they are hung separately to dry, for four or five weeks, and are then taken down in moist weather, otherwise they would crumble to dust. After this they are laid upon sticks, and covered up close to sweat for a week or two longer; and are then stripped and sorted, the top being the best, the bottom the worst tobacco; and are then made up in hogsheads, or formed into rolls. Wet seasons are carefully laid hold on for all this work, else the tobacco will not be sufficiently pliable.*

* Wynne's British Empire in America.

TRUFFLE.—TUBERA TERRÆ.

THIS subterraneous vegetable, or underground mushroom, is in the Linnæan system considered a species of the *Lycoperdon* or puff-ball.

The name of Truffle is derived from the Latin *Tuber*, or *Tuberculum*. The ancients called it *Lycoperdon*, because they thought it sprang from the dung of wolves.

Truffles were so highly esteemed by the Greeks, at their first introduction at Athens, that the children of Cherips had the right of citizens granted them because their father had invented a kind of ragout made of truffles. The Romans seem to have held them in equal estimation, and their great Naturalist has not omitted to furnish us with an account of the places from whence they were procured. Pliny mentions the truffles found in the province of Cyrenaica in Africa, as being the most agreeable in taste and smell; the best in Asia, says he, are those of Lampsacum and Alopeconnesus, and the best that Greece

yields, grow in the neighbourhood of the city of Elis.

Pliny did not consider truffles as plants, but thought them only an excrement of the earth. He says, that Lartius Licinus, who was prætor and governor in the Spanish provinces, while he was at Carthage, in eating a truffle, bit upon a Roman silver denarius that was within it. But this is no proof that the truffle is a mere bubble of the earth, as was anciently supposed; as the plant in its formation might have enveloped the denarius.

This highly flavoured vegetable substance was used in France much earlier than in England; as appears by the verses of Eustache Deschamps, who, in the time of Charles the Sixth, was made ill by eating them, and took the same revenge that Horace took on the garlic, by writing an ode against it.

The use of truffles does not appear to have been known to the English epicures in the time of Queen Elizabeth, as Gerard only notices them in saying, "There is a kind of mushroom, with a certain round excrescence growing within the earth, vnder the vpper crust or face of the same, in drie and grauelly grounds in Pannonia, and the prouinces adioining, which do cause the ground to swell,

and be full of hills like molehils. The people where they grow, are constrained to digge them vp and cast them abroad like as molehils vnto our soil: these haue neither stalk, leaves, fibres, nor strings, annexed or fastened vnto them, and for the most part are of a reddish colour, but within of a whitish yellow." "We call them in English," says this author, "Spanish Fussebals."

Evelyn noticed them when he was on the Continent, in the year 1644, as if they were then not known in this country. He says in his diary, 30th September, amongst other dainties which he had for supper at Vienne in Dauphine, "was a dish of truffles, an earth-nut found out by a hogg trained to it, and for which those animals are sold at a great price."

Truffles were formerly called swine's bread, as these animals are exceedingly fond of them, and by their assistance the beds of truffles were often discovered.

In Italy, the usual method of finding truffles, or subterraneous mushrooms, called by the Italians *Tartufoli*, is by tying a cord to the hind leg of a pig, and driving him, observing where he begins to root.*

* Ray.

The present method of obtaining truffles is by small dogs of a peculiar breed, called truffle dogs, who hunt them by their scent; and an attentive truffleman will be sure to discover them. Naturalists have also found the means of knowing where to dig for them by the appearance of a much smaller animal, which is never seen but in the neighbourhood of truffles: this is a beautiful little fly of a violet colour. These plants are subject to be eaten by a worm, that afterwards changes into a chrysalis that remains in the body of the truffle, from whence it escapes and becomes the fly described. Truffles are covered with animalculæ, and soon become full of worms, if not cut and dried.

It is observed that the earth that produces truffles rarely affords any other plants, those either taking up all the nourishment it can afford, or destroying vegetation by their strong odour, by which they are easily found out by those animals that carry their nose near the ground. They are most abundantly produced in dry fields of a reddish loamy earth, not very poor. Those found in England are all inclosed in a studded bark or coat, and the inner substance is of the consistency of the fleshy part of a young chesnut,

of a whitish colour, and of a rank smell much stronger than that of mushrooms.

By a chemical analysis, truffles are found to abound in a volatile alkaline salt mixed with oil, upon which their smell depends. They never rise out of the ground, but are found about six inches beneath the surface of the earth. Their extreme rich taste is owing to their not putting forth any stalks: in fact, their principle being united and concentrated in a bulb, must yield a richer and higher flavour than if the juice were dispersed by vegetation, as in other roots and plants.

Dr. Hatton states, that he has observed little fibres issuing out of some truffles, and insinuating themselves within the soil, which in all probability do the office of roots: they grow of a globular shape, and are supposed to receive their nourishment all round them, which they suck through the fibres mentioned, or the pores of their bark or rind. Truffles are tenderest in the spring, but more easily found in the autumn, although they are then small and deficient in flavour; the wet swelling them, and the thunder and lightning disposing them to send forth their scent, so alluring to swine: from this cause the ancients thought them produced by

thunder, and called them *ceraunia*, thunder roots.

The heat in August and September bringing them to a degree of maturity, they are then of a fine flavour and agreeable smell, and ready to yield what has been thought their seed; but M. Builliard considers the edible truffle as a viviparous vegetable, and asserts that the grains found within the cells of the fleshy substance are not seeds, as has been supposed, but small truffles already formed, as they have the same figure and colour as the parent plant; that they have, like it, their surfaces covered with little pointed eminences; and that, in arriving at their complete size, they do not develope themselves like seeds, but grow by a simple extension of parts, by means of the minute points which cover their surface, and which become prolonged into short threads or fibres, by which they draw from the parent truffle the juices necessary to their growth: "in all these respects, (says the ingenious authoress of Sketches of the Physiology of Vegetable Life) curiously and accurately resembling the well-known progress of the viviparous Polype." By the fibres, through which the young truffles have drawn their nourishment,

they are thought to fix themselves in the earth, after they are separated from the mother plant; the young truffles still visibly preserving those fibres, which only disappear by age. From these observations it will be seen that, if they are not taken up at a proper season, they burst and rot: which accounts for those found late in the autumn being small and possessing less flavour: from whence it is also plain, that they are annual plants, which only exist till they have perfected their young.

If the place where the old truffles have decayed be carefully examined, the young plants will be found after some time to have vegetated, and a great number of young truffles may be seen in the place: these, if not destroyed by the frost, are what in the ensuing summer furnish the young white truffles. It is the general idea that truffles, once displaced, will never thrive again, even by replacing them in the same earth from whence they have been drawn; but we are of opinion that they could be propagated, were proper attention paid to the soil; and if the earth where they have burst in the autumn, was removed to a genial situation. A premium offered from the Horticultural Society might

induce some truffle-men to make the experiment, which, if successful, would enable us to cultivate truffles in our houses and gardens, as we have already done mushrooms.

It is thought that truffles are not aboriginals of England, but that they were brought from France among the roots of trees: this opinion seems to be confirmed from the circumstance of Dr. Hatton's first finding them only in one situation, near Rushton in the county of Northampton, a place stocked with trees that were formerly brought from Languedoc. Dr. Tancred Robertson assures us that they are the true French truffles. The author of this work found the same kind of truffles in the neighbourhood of Michelgrove, the ancient seat of the Shelly family, between Arundel and Worthing, and observed also that this estate had been planted formerly with foreign timber-trees. If their introduction really arose from this circumstance, it is a sufficient proof that they may be cultivated.

The ancients were exceedingly divided as to the use of truffles: some affirmed that they were wholesome, and others that they were pernicious. Avicenna, who wrote about the year 1000, says they cause apoplexies. M. Lemery, a French physician, who lived in the

seventeenth century, says they are both good and evil in their effects; they restore and strengthen the stomach, but when used too freely, they attenuate and divide the juices immoderately, and by some volatile and exalted principles occasion great fermentations.

Truffles are sometimes roasted under the ashes, sometimes stewed whole, or mixed in ragouts and sauces. In Italy and France they are much used as a dainty, either sliced and fried in oil, salt, and pepper, or stewed in their own broth. When dried for winter use, they lose a great portion of their flavour: with care they may be kept whole for some months; but, when exposed, they are often blown by flesh flies.

Savoy produces a kind of truffle which sometimes weighs two pounds, and which has the taste of garlic; but it is agreeable to some palates.

Dr. Bisset says, that one species of this plant forms, when externally applied, the most powerful vegetable styptic yet known. Gooch prefers it to the agaric of the oak, and even to all fungous substances.

Boerhaave enumerates eleven species of truffles.

M. Langsdorff, the Russian Consul at Rio

de Janeiro, has discovered in his grounds, in that country, another phenomenon in natural history, which is a plant (as he states) having the singular property of producing not only its roots and stem, but also its flowers and seed-vessels, entirely under the surface of the earth.

TURNIP.—RAPA.

Natural order, Siliquosa. A genus of the Tetradynamia Siliquosa class.

The Greeks called this vegetable Γογγύλη, *Gongyle*, from the roundness of its root.

The native country and the origin of the English name of this vegetable are unknown. Some authors affirm it to be an indigenous root of France, while others rank it among the native bulbs of England; and as turnips are found in a wild state in both countries, it may be considered an aboriginal of both kingdoms. We have no plant either native or exotic, that exhibits a more striking instance of the benefits of cultivation than the turnip; for in its wild state it is of little value either to man or beast; but under the management of the husbandman, it not only affords nourishment for the human species, but becomes a most advantageous crop to the farmer, by furnishing his cattle with winter food.

To this country turnips are among the

most valuable of vegetables, for they thrive best in arid, sandy, and gravelly soil, where most other plants would perish. They enrich the impoverished soil, while they nourish our flocks, and afford a crop on lands that must otherwise rest unproductive. That the English agriculturists have availed themselves of this important branch of husbandry, must strike the most superficial observer of the improvements of our lands; for he cannot pass through the country in autumn without seeing the spring-like green of the turnip fields, intermixed with those of amber-coloured corn; while the more attentive noticer of husbandry sees how judiciously the modern farmer has suited his seed to the soil and season: one field proclaims the Scotch variety, while the bluer cast tells its hardy Swedish origin; the tankard proclaims a deep soil, and the lover of boiled mutton, rejoicing, sees the yellower tint of the Dutch or stone turnip, which he desires to meet with again in the market.

Turnips were of great consequence to the poor of this island before the introduction of potatoes. In Wales, a few years since, they formed a considerable portion of the food of the lower classes.

Turnips were used in armorial bearings to represent a person of good disposition, who relieved the poor.*

Democritus banished turnips altogether from the table, on account of their engendering flatulencies; while Diocles, on the other hand, extolled these roots as much as the former philosopher had condemned them.

When the Samnite ambassadors visited M. Curius, they found him at the fire preparing his frugal meal of turnips: here they displayed the treasures which were intended to bribe him, but the truly great man pointing to the pot in which his vegetables were boiling, answered with contempt: "I prefer my earthen pots to all your vessels of gold and silver, and it is my wish to command those who are in possession of money, while I am deprived of it and live in poverty."

Turnips were used by the ancients to recover frozen or benumbed feet, being first boiled in water and then applied as a fomentation. This root, pounded in a mortar with salt, was also esteemed a remedy for all diseases of the feet, such as corns, swellings from cold, &c. Dionysius recommended them to be baked or roasted under the ashes, and then

* Guillim.

mixed with suet or lard, as a good cataplasm for the gout and pain in the joints.

From the remarks of Gerard it would appear, that turnips were not much grown in his time, except for domestic purposes. He says of this root, "It groweth in fields and diuers vineyards, or hoppe-gardens, in most places of England. The small turnep groweth by a village neere London, (called Hackney,) in a sandie ground, and are brought to the Crosse in Cheapside by the women of that village to be sold, and are the best that euer I tasted. The bulbus or knobbed roote, which is properly called rapum or turnep, and hath given the name to the plant, is many times eaten raw, especially of the poor people in Wales, but most commonly boiled."

Turnips were also eaten either baked or roasted in the ashes, in the time of Henry the Eighth; and the young shoots were used as a spring salad in those days, although they were sometimes boiled as at present.

The use of turnips at our modern tables is principally with boiled meats: they are esteemed in broths, and make one of our best white soups. In France we often met with them served up with ducks, to which they make an excellent sauce. This root is

also much used in decorating tongues, hams, stewed beef, &c. being cut into roses and other devices.

We observed that Paris was entirely supplied with a long tap-rooted turnip, shaped like our carrot, and which they call *Navette de Virtu,* from the place in France where they were first cultivated; they are certainly sweeter than the generality of our turnips, and far superior for pottage and other vegetable dishes. As a summer turnip, we found them less stringy than the common variety. They naturally require a deep and light soil, but may be sown much thicker than the round turnip; the proper seasons for sowing this variety are about the 15th of March and the 15th of August. The author has now (Nov. 1st 1821,) an exceeding good crop of well-shaped roots from seeds which were sown at the latter date.

Turnips may be preserved for a considerable time in the earth, in a hole dug in soil not too damp, if they be covered with lime, and then earthed up so as to throw off the rain.

The young green sprouts which the winter turnips throw out in the spring, are an excellent vegetable with salt meats.

Purchas relates in his Pilgrimage, that the first colonists who settled in Virginia in 1612 were greatly afflicted with scurvy, until they were able to relieve themselves by the turnips they cultivated.

It will be seen from medical reports that, however serviceable turnips may be in some cases, they are not to be taken by all constitutions alike. We should endeavour to make choice of such vegetables in our diet as may rather tend to assist than thwart the skill of those who prescribe for our maladies.

Turnips are considered detergent, laxative, and diuretic; but in weak stomachs they produce flatulencies, and are sometimes not easily digested. Lemery says, they agree at all times with young bilious persons, and those whose humours are sharp and thin, provided, however, they have a good stomach. On the contrary, they are found hard of digestion, windy, and sometimes cause obstruction; because, their substance being very compact and close, they continue a long time in the stomach before they are wasted, ferment there, and easily stop in the small channels through which they pass.

Turnips contain much oil, and a little essential salt; and are very nourishing, soften-

ing, and diuretic, having an oily balsamic juice, proper to correct the sharp salts of the humours, and to recruit the solid parts.*

The liquor pressed from them after boiling, or a decoction, taken with sugar, at going to bed, is good for a cough and hoarseness. Or the syrup of turnips being extracted by baking, and mixed with honey, has the same beneficial effect.

Neither the ingenuity of the agriculturist, nor the attention of the husbandman, has yet been able to find the means of destroying an enemy to the crops of this vegetable, which often ruins the hopes of the farmer and the expectation of the shepherd. These ravages are committed by a small insect that eats the first leaves and heart of the plant; but, as these flies droop after the middle of August, turnips sown after that period are less liable to the depredations of these voracious insects.

If the sowing of hemp-seed in belts around plantations of cabbage will protect them from insects, may it not have the same effect on the turnip? Evelyn observes, that in his time it was the custom about Sandwich and Deal, to edge and fence the fields with flax

* James.

and hemp, about twenty feet deep into the field, which was said to keep out cattle, being bitter.

The turnip-seed, like that of all the tribe *Brassica*, sends the whole of its oily particles into its seminal or first leaves, which being exposed on the surface of the earth for the purpose of nourishing the germ until the root has acquired strength for that purpose, their emollient qualities attract the fly, which greedily devours the nutriment designed by Nature for the plant. We have therefore to learn the most effectual method of protecting the plants of these oily seeds from the ravages of those little animals, and which we are of opinion can only be prevented by some more alluring seed being sown on the borders, or some plant offensive to these depredators being scattered over the fields at the critical moment when the seminal leaves are performing their office. This observation is given with a hope that it may induce the cultivator of turnips to make such remarks and experiments as will lead to a remedy for so serious an evil.

It is said that if parsley be sown with turnip or rape seed, intended to be fed off by sheep, it will prevent the rot in these animals.

WATER-CRESS.—NASTURTIUM AQUATICUM.

Natural order, Siliquosæ. A genus of the Tetradynamia Siliculosa class.

This species of the numerous family of the cress is not only the most agreeable, but the most wholesome of the nasturtium tribe. We may emblematically compare it to friends, who visit us in the hour of affliction, and are retarded neither by the fear of contagious disease, nor repelled by the more chilling disaster of poverty; for this aquatic plant waits not for the splendour of the warmer sun, which produces vegetable offerings as numerous as the friends who crowd about those on whom prosperity shines. It visits us singly in a dreary season, and proffers its service without requiring a return of attention or manure. It rides the driven flood regardless of the piercing blast of Boreas, and offers its abstersive leaves through the congealed waters.

The ancients ate cress with their lettuce

to counteract the cold nature of that salad. The name of Nasturtium alludes to its warm stimulating qualities, which were thought to put life into dull and stupid persons, and to brighten the understanding of those who ate of it, and which gave rise to the Greek proverb, Κάρδαμον ἔσθιε, "eat cress, and learn more wit."

Xenophon strongly recommended the Persians to feed their children with water-cresses, which, he said, would cause them to grow of better stature, and of more active habits.

The Romans recommended cress to be eaten with vinegar, as a remedy for those whose minds were deranged. Pliny mentions the Babylonian cress as being the best, and the Arabian as the largest. He dwells much on the medical virtues of this plant.*

Dodoens recommends water-cresses, as a diuretic that relieves the stone and gravel; and the best vegetable that can be taken by those who are troubled with the strangury. This physician observes, that the sweetest milk, and the best butter, are produced from cows that feed in pastures abounding with the wild cress *Cardamine*, meadow-cress, cuckoo-flower, or lady's smock.

* Book xx. chap. 13.

Dr. Baker recommends to physicians the trial of the meadow-cress as an antispasmodic remedy.*

This meadow-plant should be noticed in natural history, for the power it has of propagating its species at a considerable distance from the mother plant. The seeds are contained in a long, compressed, cylindrical pod, with two cells opening in two valves which twist spirally, and cast out the seeds when ripe by their elasticity.

The Dutch eat great quantities of cress in the spring as an antiscorbutic. As the English eat more animal food than any other nation, it is peculiarly requisite that they should take a proper mixture of vegetables, to counteract its ill effects, and prevent their blood from being tainted with scurvy, and its afflicting train of consequences, as indigestion, low spirits, hypochondria, &c. Water-cresses are mentioned by our oldest herbalists as a salad

"Ere verdant food adorn'd the garden beds."

Gerard says, the eating of water-cresses restores the wonted bloom to the cheeks of young ladies.

* Medical Transactions, vol. i. page 442.

Lord Bacon tells us, that the water-cress is an herb that while young is friendly to life.

The water-cress is not so powerfully acrid as the land-cress, and therefore a more agreeable breakfast salad; but its attenuant and resolvent virtues are the same; and from the detersive quality of the plant, it is recommended in all chronical diseases, which arise from glandular or viscerous obstructions. It has been known to remove jaundice, and relieve those who suffer through complaints of the liver. Water-cresses were formerly thought good against malignities in the measles and small-pox.

In comatose or lethargic affections nothing has been found more effectual than water-cresses, either boiled or in salads.*

A good cook, who has a chemical knowledge of the virtues of culinary vegetables, will not fail to serve the table of his employer with spring soups and broths, in which this herb forms a principal ingredient; nor will he neglect the good old custom of garnishing the winter capon with a nest of water-cresses.

* Forestus, Observ. Med. lib. 10 Obs. 39.

Create a demand and you raise a supply, is a proverb exemplified in the manner by which the industrious mechanics of the immense metropolis of England are furnished with this purifying plant; for scarcely is there a street so obscure, or a court so humble, where the first chaunt of a March morning is not heard to announce, "Fine spring water-cresses."

These are brought from distant counties, and often sold by the sack; they are re-sold in baskets, then in bunches, which are again divided to accommodate those who have only the lowest copper-coin to offer in exchange.

We have omitted entering generally into a botanical description of familiar plants, as being useless to the learned botanist, and unintelligible to general readers; but as the gatherers of this herb often send to market, through ignorance, or some worse motive, the creeping water-parsnip, which is of a pernicious quality, it may not be deemed useless to describe the general appearance of the water-cress, and distinguish it from the plant that is often substituted in its place. The leaves of both plants are winged like those of the rose, or the ash; but the water-

cress leaf is of a roundish heart-like shape, with few indentures on the edges, much resembling the first leaves of the radish. The upper part of the plant is of a reddish brown colour, and of a dark green on the under side of the leaves; whereas those of the water-parsnip are of a light green, and of an oblong shape, ending in a point, and regularly serrated on their edges.

Water-cresses are most esteemed when grown on running streams, and a gravelly soil; those who can introduce water through their gardens plant the roots in the spring, in a kind of canal, through which they pass from six to twelve inches of water. After these plants have been suffered to seed, the bed will become one mass of cress for many years. If the descent is considerable, it becomes necessary to form little dams to keep a few inches of steady water, to prevent the current from washing up the roots.

Those who have large pieces of water on their grounds, may obtain cress by the simple process of throwing the plants on the surface of the water. They will mature their seed, and soon propagate an abundant supply.

WHEAT. TRITICUM.—*In Greek*, Πυρὸς.

Natural order, Gramina. A genus of the Triandria Digynia class.

The Latin name *Triticum*, which we give to our common wheat, signifies also any kind of corn, which is thrashed from the ears, and made clean by winnowing, &c. Bread corn was called by the Latins *Cerealia semina.*

"Of golden wheat, the strength of human life."
PHILLIPS.

This corn, which is so essential to the support of man, seems to have blessed the land where the Almighty, in his infinite goodness and wisdom, placed him after his disobedience. That we have not discovered any part of the world where wheat grows spontaneously, is an additional proof of the truth of the Scriptures, if proofs were wanting. For the Lord God said unto Adam, "In the sweat of thy face shalt thou eat bread, till thou return unto the ground."

Cain was a tiller of the ground, and Noah,

after he left the ark, began to be an husbandman. We also read* that Isaac sowed in the land, and received in the same year an hundred fold, which clearly proves, that men in those early days found the necessity of attending to agriculture, and that corn was not to be procured without labour.

Many authors aver that Egypt is the country from whence corn sprang; and assure us that it grows spontaneously in that part of the world. This supposition is in all probability drawn from Homer:

"Then the far country waves with golden corn;
The soil untill'd a ready harvest yields,
With wheat and barley wave the golden fields!"

Odyss.

But we have better authority, which informs us that corn was sown in Egypt as far back as 3500 years; for when Joseph had purchased all the land of Egypt for Pharaoh, with the corn he had preserved, he made a farther agreement with them, and said, "Lo! here is seed for you, and ye shall sow the land. And it shall come to pass in the increase, that ye shall give the fifth part unto Pharaoh, and four parts shall be your own, for seed of the field, and for your food."†

* Gen. chap. xxvi. † Gen. chap. xlvii. 23, 24.

It appears by the ancient mythology, that agriculture was attended to in Egypt at a very early period. Osiris, son of Jupiter and Niobe, and king of Egypt, was regarded as the inventor of this art; and Isis, his queen, as the discoverer of wheat and barley.

That wheat was cultivated in Syria, as well as other corn, more than 3000 years back, we have distinctly stated in the book of Ruth, where we find that Ruth gleaned with the maidens of Boaz, unto the end of barley-harvest, and of wheat-harvest.

Happy is it for the poor that with the introduction of wheat to this country, came also the humane custom of the East, of allowing the needy to gather the scattered ears; and happy are those farmers who, like Boaz, join in the harvesters' rural repast!

"And Boaz said unto her, At meal-time come thou hither, and eat of the bread, and dip thy morsel in the vinegar: and she sat beside the reapers: and he reached her parched corn, and she did eat, and was sufficed, and left."

Pliny, speaking of the wonderful fruitfulness of wheat in Africa, remarks that Nature has so gifted it, because it was intended to be the principal nourishment of mankind. He

states* that in the champain country about Byzacium in Africa, wheat had been known to yield 150 fold. He informs us, that a procurator-general of that province, under Augustus Cæsar, sent the emperor from thence a plant of wheat which had near 400 straws springing from one grain, and meeting all in one and the same root. Likewise one was sent from the same country to the emperor Nero, which had 340 straws, which all sprang from one corn. But, he adds, to go no farther than Sicily, within the territory about Leontini, there have been certain fields known wherein one grain has put forth 100 stalks with ears upon them; and this, he says, is ordinary throughout the kingdoms of Granada and Andalusia in Spain. But, above all, the land of Egypt boasts of rendering great interest to the husbandmen. Of all the kinds of wheat, says this author, these two are in the greatest repute; viz. the one which branches, and the other which is called *Centigranum*, or the wheat that beareth 100 grains.

The Greeks made great account of the wheat which grew in Pontus. Italy soon became famed for her wheat; for we find it no-

* Book xviii. chap. 10.

ticed by Sophocles, the Greek tragedian, as far back as the time of Alexander.

Pliny says, that, in his time, of all the kinds of wheat imported into Italy, that which came from France was the lightest: that wheat growing about Lombardy beyond the Po, weighed from 25 to 26 lbs. the modius. The Sardinian wheat was half a pound in a modius heavier than the French; and that of Alexandria exceeded it about two-thirds of a pound. The Bœotian wheat was a full pound, and that of Africa, a pound and three-fourths, heavier than that of Gaul.

This author observes, that as wheat is subject to mildew, the wiser husbandmen in the country sow principally barley, and no more wheat than will serve for the provision of their household.

The wheat sown near the Thracian gulf was said to be ripe in forty days after it was sown. This wheat yielded no bran, and was the heaviest of any known.

Sicily is said to be the first country in Europe where grain was cultivated. Ceres was not only worshipped in that island, but is often represented on the ancient Sicilian coins. She taught the art of tilling the earth, and sowing corn; therefore, they sacrificed to

her before harvest, either swine, as being great destroyers of the productions of the earth, or a cow-calf; and garlands of ears of corn were offered to her before they began to reap.

To Ceres bland, her annual rites be paid,
On the green turf, beneath the fragrant shade;
When winter ends and spring serenely shines,
Then fat the lambs, then mellow are the wines:
Then sweet are slumbers on the flowery ground;
Then with thick shades are lofty mountains crown'd.
Let all the hinds bend low at Ceres' shrine;
Mix honey sweet, for her, with milk and mellow wine.
Thrice lead the victim the new fruits around,
And Ceres call, and choral hymns resound.
Presume not, swains, the ripen'd grain to reap,
Till crown'd with oak in antic dance you leap,
Invoking Ceres; and in solemn lays
Exalt your rural queen's immortal praise.

Pitt's Virgil.

The poet informs us, that the art was carried from Sicily to Athens by Ceres.

She halts at Athens, dropping like a star,
And to Triptolemus resigns her car.
Parent of seed, she gave him fruitful grain,
And bade him teach to till and plough the plain;
The seed to sow, as well in fallow fields
As where the soil manured a richer harvest yields.

Ovid.

It is reported, says Pliny, that in the same year that the great goddess Cybele was brought to Rome, there was a more plentiful harvest, and corn was at a lower price, than had been known for ten years before.

In ancient times it was thought a great reward for captains and soldiers who had been valiant, to receive at the hands of the people half-a-pint, or at most a pint of corn.

The chaplet of corn is as old as the foundation of Rome; for it is related that Acca Laurentia, the foster mother of Romulus, wove and twisted together a garland of the ears of corn, which she gave to this king, as the most sacred badge and ensign of the first priesthood which he instituted in the new city. This order consisted of twelve priests or wardens over corn-fields; and, to give greater honour to the company, he caused himself to be called the twelfth brother among them. This chaplet was worn with great reverence, and was the first crown known at Rome.

Numa ordained that no prayers or supplications should be made to the gods without an oblation of corn, or cakes made of meal and salt; and to induce the people of Rome the better unto it, he allowed them to parch

their corn in their sacrifices; for the corn thus parched was supposed to be more wholesome and better food than any other. This was so religiously attended to, that in time no other corn was counted pure or good to be used in divine service. The growers of corn in these days were so scrupulous, that they would not so much as taste of new corn before the priest had taken a say of the first fruits. They believed that corn was under the special care of several divinities: Seia watched over it when it was committed to the earth; it sprang up and ripened with the protection of Segesta or Segetia; and Tutilina took charge of it in the granary.

At what period wheat was first cultivated in England, we can only conjecture: Cæsar found corn growing on the coast, but of what kind we are not informed. But, that with the earliest intercourse with other nations it was brought to Britain, there can be but little doubt; and, as the inhabitants became civilized, we may presume they turned their attention to the cultivation of grain, though the frequent wars among themselves must have prevented its being carried to any extent. Indeed, we have many dreadful instances of the neglect of agriculture, and the

want of precaution in providing stores; for a wet season caused a famine in the year 1270; and in the reign of Henry the Third, wheat was so scarce that it sold for six pounds eight shillings the quarter; which, when we make an allowance for the difference in the value of money at that time, would be equal to twenty-five pounds the quarter, or one hundred and twenty-five pounds the load in these days!—the citizens of London not only ate dogs and other carrion, but if the authority of old writers may be relied on, many of the poorer people were reduced to the dreadful necessity of eating their own children! *

Wheat appears not to have been cultivated in all parts of England even so late as the reign of Mary, as Tusser writes,

"In Suffolke again, where as wheat neuer grew,
good husbandry used, good wheatland I knew:
This proverb experience long ago gaue,
that nothing who practiseth nothing shall haue."

About the beginning of the seventeenth century, when wheat was first cultivated in North America, some of the petty kings

* Lambert's History of London.

would mortgage their whole kingdoms, which were as large as the counties of England, for four or five hundred bushels of this grain, to be paid the following harvest.

It was observed by ancient, as well as modern writers, that wheat would grow with cultivation in almost every part of the world; and as it is the plant most necessary to mankind, so it is the most general. It is found to grow well not only in our temperate clime, but also in very hot and very cold ones. The abundant crops of wheat in America, Peru, and Chili, prove this, as it was unknown in those countries until introduced by the Europeans. In Lapland it is cultivated as far as sixty-eight or seventy degrees north latitude; and from "Humboldt's Personal Narrative of Travels to the Equinoctial Regions of the New Continent," we learn, that in the vicinity of La Vittoria, at the moderate elevation of two hundred and seventy-three toises above the level of the ocean, he found some fields of wheat mingled with plantations of sugar-canes, coffee, and plantains. Except in the Island of Cuba, this is almost the only instance of wheat being cultivated in the equinoctial regions in large quantities on so small an elevation. An acre near Vittoria yields

from three thousand to three thousand two hundred pounds weight of wheat, the acre being about one and a quarter English. The average produce here, as at Buenos Ayres, is three or four times as much as that of France and Northern countries. He observes that the produce of grain augments sensibly from high latitudes towards the equator with the mean temperature of the climate, in comparing spots of different elevations.

The inhabitants of the New World now not only grow an ample quantity for the supply of that quarter of the globe, but are always ready to pour their surplus into every European kingdom where scarcity requires it to be imported.

ON THE PRODUCE OF CORN.

M. Buchoz says in his fifth letter on vegetables, that he has seen in Castlenaudary in Languedoc, a root composed of one hundred and seventeen stalks of corn: it appeared to be of the species *Triticum aristis longioribus, spica alba ;* the stalks were about five feet in height, and larger than the common wheat, each ear containing sixty grains, making the produce of this single root 7020 grains.

"We have seen" says Valmont Bomare, "in a small spot of ground in the Faubourg St.

Antoine, at Paris, wheat which had been steeped in vegetable liquor, produce from sixty to eighty ears each. We may therefore conclude, that the moistening the grain opened the conduits of the germ, and rendered them more ready to receive nourishment." This author says, that in France a bushel of wheat sown in indifferent land, is calculated to yield two or three bushels, in good soil eight or ten, in superior lands twelve, and in extraordinary ground fifteen.

The method of feeding off young wheat with sheep was practised by the ancients, as Virgil has informed us

" Luxuriem segetum tenerâ depascit in herbâ."

M. Duhamel, the zealous promoter of agriculture in France, recommended particularly to his countrymen to adopt the practice of drilling wheat, as is the custom in England, (which is now become the great school of agriculture.) This enlightened author states, that corn sown after this manner will produce one-third more, and sometimes double the quantity of grain to that which is sown in the ordinary manner.

Wheat is subject to a variety of maladies that no human prudence can prevent, one of

which proves in the most positive manner the necessity of the sexual impregnation of plants; for when the corn is in blossom, if heavy rains, or tempestuous winds carry off the farina from the male stamina, the ears become abortive and destitute of meal, or partly so, according to their situation, or to their state of fitness to receive the pollen.

Dr. Cartwright, during his investigation of the effects of salt upon vegetables, was led to apply it as a remedy for the mildew in wheat. The mode of applying it is to sprinkle the corn with a solution of the salt, the object being to wet the straw in which the mildew exists. The experiments, upon trial, were very successful, scarcely any remains of the disease being to be found forty-eight hours after the sprinkling. Six or eight bushels will suffice for an acre, and the expense of the salt will be repaid by the improvement of the manure made from the salted straw. Two men, one to spread, and the other to supply him with the salt, will get over four acres in a day. The effect of the remedy arises from this circumstance, that though the solution of salt has no injurious action on the stem and fibrous parts of vegetables; yet, on getting to the roots in

sufficient quantity, they languish and die. The salt is considered as acting on the fungus which forms the mildew, in the same manner as on weeds.*

It is said that the Smyrna wheat is less susceptible of blight than other varieties.

The Sicilian corn has long felt the vengeance of its goddess.

" Ceres the token by her grief confess'd
And tore her golden hair, and beat her breast.
She knows not on what land her curse should fall,
But, as ingrate, alike upbraids them all,
Unworthy of her gifts ; Trinacria most,
Where the last steps she found of what she lost.
The plough for this the vengeful goddess broke,
And with one death the ox and owner struck.
In vain the fallow fields the peasant tills,
The seed, corrupted ere 'tis sown, she kills.
The fruitful soil, that once such harvests bore,
Now mocks the farmer's care, and teems no more.
And the rich grain which fills the furrow'd glade,
Rots in the seed, or shrivels in the blade ;
Or too much sun burns up, or too much rain
Drowns, or black blights destroy the blasted plain :
Or greedy birds the new-sown seed devour,
Or darnel, thistles, and a crop impure
Of knotted grass, along the acres stand,
And spread their thriving roots through all the land."

It is well known that wheat derives advantage from frost, the harvest is generally more abundant after a tolerably severe winter, as

* Phil. Mag. lvi. p. 395.

the blades are retarded, which gives time for the roots to strengthen. We read in the Memoirs of the Academy of Stockholm, that it is observed that the wheat which has passed the winter beneath beaten or trodden snow, yields the finest and most abundant harvest. It would be useful to try the experiment of rolling a part of a field of wheat when covered with snow; as it seems probable that the frost would, in that case, sooner penetrate to the corn than when the snow remained untrodden.

The quality of wheat is known by its weight, bright colour, and compact and perfect shape. When damped to make it swell, it obtains a dull whitish cast; and it is remarkable, that corn is so much heavier than water, that twelve bushels of it dry, will weigh forty pounds more than the same quantity that has been damped. M. Duhamel invented a curious kind of granary for preserving corn, a description of which may be found in his *Traité de la Conservation des Grains*, and which deserves the most serious attention for its utility.

The principal use of wheat is for

"Bread, that decaying man with strength supplies."

POPE.

Arbuthnot says, "Mankind have found the means to make grain into bread, the lightest and properest aliment for human bodies." Meal was called *farina* in Latin, from *far*, wheat.

The art of making bread appears to have been known very early in the eastern countries; for Jacob gave Esau bread and pottage of lentils. We read also in the sacred volume that Pharaoh cast his chief baker into prison. We have the clearest evidence in the book of Exodus, that the Jews made bread in the time of Moses: "And unleavened bread and cakes, &c. of wheaten flour shalt thou make them." Leavened bread was also made in the time of Moses; but the art was not known by the Romans in the early period of their Republic. Pliny informs us* that the Romans lived for many ages on a kind of batter or gruel made of meal, and not on bread: "this is very evident," he says, "by old records and chronicles; and on this account, in our sacred and ceremonial feasts which we observe in commemoration of our birth-days, we use furmenty, gruel, fritters, and pancakes."

Even when bread was known at Rome, it

* Book xviii. chap. 10.

was long before they had public bakers. Pliny says, it was not until 580 years after the foundation of the city. Previous to that time it appears to have been baked under a large pan. Parched corn was also a common food with them.

The Egyptians made sieves of reeds to separate the bran from the meal: and the Spaniards invented those made of linen and tammy. The French were the first who made bolting-cloths of hair.

Barley bread was used by the Romans before that made of wheat was known to them; this was rendered lighter by the addition of the meal of chick peas.

The unleavened bread was made of flour mixed with water.

Leavened bread is made thus: a portion of dough is left till it ferments and becomes sour; this is mixed with other dough, which it causes to rise; carbonic acid gas is evolved, a vinous smell is perceived, and an active fermentation goes on. Bread is made in this manner in France and all countries where beer is not used; but it is neither so agreeable, nor so wholesome, as that which is lightened with yeast.

The yeast bread is of great antiquity, and

originated with the French and Spaniards before vines were cultivated in their countries; for Pliny relates, that when the brewers had steeped their wheat or furment in water, and mashed it for their drink of various sorts, they took the scum or froth that gathered at the top by the working of the wort, and used the same instead of leaven to make their bread; and which, says he, is the reason that their bread is higher and more heaved up than any other. Pliny condemns the practice of using sea-water to wet bread, which, he says, is the fashion of those who live near the sea-shore.

Bread is highly nutritious; and as, among the animal fluids, the *saliva* is essentially necessary, dry food is required as a stimulus to draw it forth: to effect this, we eat bread with meat, which would otherwise be swallowed too quickly. Bread serves as a medium to blend the oil and water of food in the stomach, which it stimulates; and being bulky without too much solidity, and firm without difficulty of solution, it is peculiarly proper for that purpose.

Dr. James says, "It is certain that bran has an abstersive virtue: bread, therefore, which is made of flour not thoroughly cleansed from

the bran, provided it be duly fermented, seems to us to be more wholesome, and also more savoury, than that which is made of pure flour."

The materials of which loaf bread is principally made, are the seeds of farinaceous vegetables: wheat, rye, and barley, are the only gramineous substances of which loaf bread can be made. Potatoes, oats, beans, peas, rice, maize, millet, buck-wheat, &c. containing no gluten, cannot be converted into bread without the admixture of a certain quantity of flour. The component parts of wheaten, barley, and rye flour, are starch, gluten, and saccharine mucilage. First, amylaceous fecula, or starch of wheaten flour, forms the most nutritive part of grain: Secondly, gluten is the principal substance contained in wheaten flour, and is absolutely necessary for the production of good, well-risen, light and porous bread, the quality of the bread being exactly in proportion to the quantity of gluten contained in the flour: no other flour but that of wheat contains it in any considerable quantity. Flour could not be made into bread without gluten, and the dough rises in consequence of this substance. Thirdly; saccharine mucilage is soluble in

cold water, and is separable from it by evaporation. The saccharine part is convertible into an ardent spirit; but the mucilage in bread that has been kept some time, tends to acidity and mouldiness.

We are beholden to the island of Chios for the invention of starch. Starch flour was called *Amylum* by the Greeks, as it was made without going into a mill, or being ground upon stones. The next starch in esteem with the ancients was that of Candia and of Egypt; their method of procuring it was simply that of putting the wheat in a wooden vessel, and covering it with fresh water, which was changed five times a day; it was then well mixed and incorporated into a kind of paste before it became sour or bitter. This being done, it was laid to dry either upon linen cloths, or in wicker baskets; afterwards it was put upon tiles that had been smeared over with leaven, and was placed in the sun to harden.

To enumerate the various uses of this corn would be to dwell long on a subject that is generally known. Both the meal and the chaff were used medicinally by the ancients; and it is recorded that Sextus Pompeius, a Spanish noble, whose son was afterwards

Prætor of Rome, having been suddenly seized with a fit of the gout, while sitting in his barn to see the corn winnowed, he thrust his legs above the knees into the heap of wheat, either by accident, or in a rage from the extreme pain, where he soon found himself wonderfully eased, and his legs much dried thereby, from which time he never used any other remedy, but so soon as he found a fit of the gout coming, he plunged his feet and legs into a heap of wheat. This corn is said to be of such a desiccative nature that it will dry up the wine, or any other liquor in a barrel, which is buried within it.

PROPAGATING OF WHEAT BY DIVIDING AND TRANSPLANTING ITS ROOTS.

In the Philosophical Transactions for 1768, we meet with an account of a very extraordinary experiment, of which the following is an abstract:

On the 2d June, 1766, Mr. C. Miller sowed some grains of the common red wheat; and on the 8th of August a single plant was taken up and separated into eighteen parts, and each part planted separately. These plants having pushed out several side shoots, about the middle of September some of them were

taken up and divided, and the rest between that time and the middle of October. This second division produced sixty-seven plants. These plants remained through the winter, and another division of them made between the middle of March and the 12th of April, produced five hundred plants. They were then divided no farther, but permitted to remain. The plants were in general stronger than any of the wheat in the fields. Some of them produced upwards of one hundred ears from a single root. Many of the ears measured seven inches in length, and contained between sixty and seventy grains. The whole number of the ears which, by the process above mentioned, were produced from one grain of wheat, was twenty-one thousand one hundred and nine, which yielded three pecks and three quarters of clear corn, the weight of which was forty-seven pounds seven ounces; and from a calculation made by counting the number of grains in an ounce, the whole number of grains was about five hundred and seventy-six thousand, eight hundred and forty.

By this account we find, that there was only one general division of the plants made in the spring. Had a second been made,

Mr. Miller thinks the number of plants would have amounted to two thousand. The ground was a light blackish soil, upon a gravelly bottom, and consequently a bad soil for wheat. One half of the ground was well dunged, the other half had no manure. There was, however, no difference discoverable in the vigour or growth of the plants. It is evident, that the expense and labour of setting in the above manner by the hand, will render it impracticable upon a large scale. A correspondent of the Bath Society, therefore, (Robert Bogle, esq. of Daldowin, near Glasgow,) to extend the practice, has proposed the use of the harrow and roller until some better implements be invented. This method occurred to him from attending to the practice usual with farmers, of harrowing their fields after the grain is sprung up. Upon investigating the principles upon which these practices are founded, they said "that after very heavy rains, succeeded by excessive dry weather, the surface of their lands was apt to be caked, the tender fibres of the young roots were thereby prevented from pushing, and of course the vegetation was greatly obstructed; in such instances they found very great benefit from harrowing and rolling.

These principles he owns to be well founded, but contends that the benefit arising from harrowing and rolling is not derived from pulverising the soil alone, but from subdividing and enabling the plants to "tiller," as it is termed. "The harrow (he observes) certainly breaks the incrustation, and the roller crumbles the clods; but the harrow removes many of the plants from their original stations; and if the corn has begun to tiller at the time it is used, the roots will be, in many instances, subdivided, and then the application of my system of divisibility comes into play. The roller then serves to plant the roots which have been torn up by the harrow." But on this the Society observe, that the teeth of a harrow are too large to divide roots so small and tenacious as those of grain; and whenever such roots stand in the line any tooth makes, they will, if small, be only turned on one side, by the earth yielding to their lateral pressure; or, if large, the whole root will be drawn out of the ground. The principal uses, therefore, derived from harrowing and rolling these crops are, opening the soil between the plants, earthing them up, breaking the clods, and closing the earth about their roots.

Mr. Bogle, without contesting these points, urges the scheme of propagating wheat by dividing and transplanting its roots. "I have conversed," says he, "much with many practical farmers, who all admit that my plan has the appearance not only of being practical but advantageous. I have also seen in the 9th number of Mr. Young's Annals of Agriculture, the account of an experiment, which strongly corroborates my theory. It was made by the Rev. Mr. Pike, of Edmonton. From this, and other experiments which have been made under my own eye, I foresee clearly, that the system is practicable, and will certainly be productive of great benefit, should it become general. Besides the saving of nine tenths of seed in the land sown broad-cast, other very important advantages will attend the setting out of wheat from a seed-bed: such as an early crop; the certainty of good crops; rendering a summer fallow unnecessary; saving dung; and having your wheat perfectly free from weeds, without either hand or horse-hoeing; five hundred plants in April produced almost a bushel of grain. My gardener says, he can set one thousand plants in a day, which is confirmed by the opinion of two other gardeners."

On this letter the Society has the following note: "Mr. Bogle will see, by the Society's premium book this year, that by having offered several premiums for experiments of the kind he so earnestly recommends, we wish to have his theory brought to the test of practice. Our reason for this, as well as for printing Mr. B.'s letter, was rather to excite decisive trials by ingenious persons, than from any expectation of the practice ever becoming general. General, indeed, it never can be. A sufficient number of hands could not be found to do it. Unkindly seasons at the time of transplanting and dividing the roots would frequently endanger and injure, if not destroy the crops. But, admitting the mode generally practicable, we doubt whether all the advantages he has enumerated would be derived from this mode of culture. Why should dividing and transplanting the roots of wheat cause the crop to be early, or afford a certainty of its being a good one? We cannot think that less manure is necessary in this method, than either in drilling or broad-cast; nor can we admit that such crops would be perfectly free from weeds, without either hand or horse-hoeing. We readily

agree with Mr. Bogle, that by this mode of culture on a general scale, an immense quantity of seed corn would be annually saved to the nation; and in this we believe, the advantage, were it practicable, would principally consist."

Mr. Bogle afterwards communicated to the Society his thoughts more at large on this subject, with authentic accounts of experiments, which were made at his instance, and which were attended with very great success. The Society, conceiving his system may be attended with considerable advantages, if brought into general practice, have given, at the end of the volume, a few of his leading principles. Mr. Bogle states, 1. That he has known many instances of very great crops having been obtained by harrowing fields of corn after they were sprouted. 2. That he has also received an authentic account of one instance, where the same good effects were produced by ploughing the field. 3. On the system of transplanting, he states that a very great proportion of the seed will be saved, as a farmer may have a nursery, or small patch of plants, from which his fields may be supplied; he calculates that one acre will yield plants sufficient for one hundred acres. 4.

That a very great increase of crops may be obtained by this method, probably a double crop, nay perhaps a triple quantity of what is reaped either by drilling, or by the broadcast husbandry. 5. That a great part of the labour may be performed by infirm men and women, and children who are at present supported by the parish charity. 6. That the expense will not exceed from twenty to thirty shillings per acre, if the work be performed by able-bodied men and women; but that it will be much lower, if that proportion of the work, which may be done by employing young boys and girls should be allotted to them. 7. That in general he has found the distance of nine inches every way very proper for setting out the plants at; but recommends them to be tried at other spaces; such as six, eight, or twelve inches. 8. That he conceives an earlier crop may be obtained in this manner than by any other mode of cultivation. 9. That a clean crop may also be procured in this way, because if the land be ploughed immediately before the plants are set out, the corn will spring much quicker from the plants, than the weeds will do from their seeds. 10. That such lands as are overflowed in winter and spring, and are

of course unfit for sowing with wheat in autumn, may be rendered fit for crops of wheat by planting them in spring or summer. 11. That he has known instances of wheat being transplanted in September, October, November, February, March, April, and even as late as the middle of May, which have all answered very well. 12. That he has known an early kind of wheat, sown as late as the middle of May, which has ripened in very good time; and hence he conceives, if the plants should be taken from that early kind, the season of transplanting might be prolonged at least till the 1st of July, perhaps even later. 13. That he has reason to think wheat, oats, and barley, are not annuals, but perennials, provided they are eaten down by cattle, and sheep, or are kept low by the scythe or sickle; and are prevented from spindling or coming to the ear. 14. That one very prevalent motive with him in prosecuting this plan is, that he is of opinion it may enable government to devise means of supporting the vagrant poor. Lastly, he has hinted that from this mode of cultivation, the real and intrinsic value of different kinds of grain may be more accurately ascer-

tained, by making a comparison with a few plants of each kind set out at the same time, than can be done when they are sown in drills or broad-cast; and when the most valuable kinds of wheat, oats, or barley, are discovered, he states, that in a very short time a sufficient quantity of that valuable kind may be procured to supply the kingdom with seed from a single grain of each kind; for he calculates, that forty-seven thousand grains of wheat may be procured by division, in two years and three months.

Upon these propositions the Society observes, "That although Mr. Bogle appears to be too sanguine in his expectations of seeing his plan realized in general practice, it certainly merits the attention of gentlemen farmers. We wish them to make fair experiments, and report their success. Every grand improvement has been, and ever will be, progressive. They must necessarily originate with gentlemen: and thence the circle is extended over provinces and countries. At all events, Mr. Bogle is justly entitled to the thanks of the Society, and of the public, for the great attention he has paid to the subject."

WORMWOOD.—ARTEMISIA.

Natural order, Compositæ Nucamentaceæ. A genus of the Syngenesia Polygamia Superflua class.

The generic name of this plant is said to have been conferred by Queen *Artemisia*, a Carian princess, who adopted the plant, and changed the appellation from *Parthenis*, to that of her own name.*

"Some," says Pliny, "attribute the name of this herb to Diana, who in Greek bore the title of *Artemis Ilithya*, as the ancients believed that this goddess (the moon) presided over the diseases of women, which they thought could not be cured without this herb."

The Pagan priests, according to Apuleius†, called it *Bubasteocordium*, that is, the heart of Bubastus, which was a town in Egypt, in which the worship of Diana, and of dogs greatly prevailed. Antonius Musa tells us,

* Plin. book xxv. c. 7. † Herb. c. 10.

that the dogs, who are great lovers of this plant, use it as a medicine against their natural diseases. This has caused a dispute among the learned, whether Diana or the dogs first discovered the virtues of one species of this plant called Mugwort.

Although we now cultivate thirty distinct species of this plant in our gardens, its virtues were never less called into action, or its qualities less generally known, than at present. The bitter cup is too often met with by accident to induce us to seek it, and the sweets of this life are found too few to be neglected; yet the constitution may be benefited, and the appetite renewed, by an occasional draught of wormwood.

The Egyptians made great use of wormwood in their worship of Isis. Branches of it were carried by the priests of this goddess in their solemn and religious processions, when they recited in verse the arts which had been taught by this deity.

The Romans used this vegetable in their solemnities and sacrifices, particularly during the festival holidays called Latinæ, when those who gained the prize in the chariot-race or other games had a draught of wormwood presented to them; and I believe, says

Pliny, that our ancestors devised this honourable reward, to secure the good health of the victorious charioteer, as judging him worthy to live, who should gain the prize. This author says, there is not a decoction of any herb of so great antiquity as that of wormwood. It was in great esteem as a common drink in his days, and was considered both astringent and diuretic; it was said to prevent sea-sickness, and to cleanse the stomach of those humours which cause loathing of food, and thereby to restore the appetite. The smell of wormwood was thought to procure sleep to invalids. The ancients also put it into their ink to prevent mice from eating their writings; they laid it in wardrobes to keep off the moth; and it was burnt to drive gnats away by the smoke. The ashes of this plant were mixed with the oil of roses to blacken the hair of the head, and a decoction of wormwood and parsley was given as a remedy for the jaundice. Wormwood was also given to those who had eaten poisonous mushrooms. It was mixed with honey and nitre for the quinsy. Chilblains were also bathed with a decoction of this herb.

Pliny mentions the wormwood of Gaul, but says that of Pontus is the best, being

much more bitter than that of Italy ; and yet, he observes, the pith or marrow is sweeter than that of the wormwood of his own country. This naturalist tells us, that the sheep of Pontus, which fed on this herb, became fat and were without gall.

Ovid also notices the bitterness of the Pontic wormwood. Dioscorides recommends wormwood to be boiled with rice, and eaten with honey, to destroy worms.

Galen prescribes the seed as good to be given to children against worms. Gerard states, that it is proper to add rhubarb to the seeds for this purpose.

This plant derived its English name of Wormwood from the virtue it possesses in destroying worms.

Tusser notices the use made of this aromatic bitter, in days of less refinement than the present.

" While wormwood hath seed, get a handful or twain,
to save against March, to make flea to refraine :
Where chambers is sweped, and wormwood is strown,
no flea for his life, dare abide to be known.
What sauor is better, if physick be true,
for places infected, than wormwood and rue ?
It is a comfort for hart and the braine,
and therefore to have it, it is not in vaine."

Gerard has left us representations and de-

scriptions of ten species of wormwood that were cultivated in the London gardens previous to 1597; the principal of which is the common English wormwood. We have now discovered five other species of this plant that are indigenous to this kingdom.

All the authors we have consulted, from Dioscorides down to Gerard, notice that cattle, and particularly sheep that feed near the coast where the sea-wormwood *(Maritima)* grows, fatten very rapidly; and as we all know, that the feeding on savoury herbs gives a relish to the flesh of animals, it is worthy the trial of those who feed flocks on the coast to sow a plot with this hardy plant. It may be raised upon any soil, either by seeds or slips planted in March; and it is a singular fact, that if it be eaten by hogs, when the seeds are ripe, the seeds, passing through their bodies, germinate and come up quickly, and will soon over-run the ground where the manure is spread. The seed ripens in August.

Rembert Dodoens writes fully on the many medical qualities of this plant, and says it is an excellent remedy against all pains of the stomach. When taken in wine, he says it resists all venom, particularly that

of hemlock, as well as that occasioned by poisonous insects and reptiles.

The French distil this herb, from which they make a *liqueur* that is greatly admired in that country, where we observed that the lower classes preferred it of a grass green colour. It is to be feared, that this colouring would often injure, as much as the herb would benefit the body.

The oil of wormwood being rubbed on furniture, prevents, it is said, the worm from injuring it, and likewise keeps off all kinds of flies and insects; on this account, the herb was formerly put into clothes-presses, and wardrobes of woollen garments.

Wormwood shares with all other bitters the virtues of an abstersive deobstruent, and is in some degree purgative, as all bitters are. The essential salt of wormwood is afforded in great quantity, and possesses in many respects the virtues of the plant. These plants, as well as most others, should be gathered when in seed; they are fullest of juice when in shoot, but their virtues more abound when they have their seeds on them. Bulbs and roots contain their virtues in greatest abundance when the stalks are decayed, or are out of leaf.

Wormwood very powerfully resists putrefaction, and was often made a principal ingredient in antiseptic fomentations. It is a moderately warm stomachic and corroborant.

The roots of this plant, says Dr. Lewis, promise to be applicable to some useful purposes: their virtue resides chiefly in the cortical part; and rectified spirit extracts their flavour more perfectly than watery liquors. The ashes of wormwood afford a more pure alkaline salt than most other vegetables, excepting bean-stalks, broom, and the larger trees.

Linnæus mentions two cases in which an essence, prepared from this plant, and taken for a considerable time, prevented the formation of stones in the kidneys or bladder; the patient forbearing the use of wine and acids.

Wormwood was in great use before the hop had acquired so much celebrity in the composition of beer. When properly managed, wormwood has been found to give a flavour to malt liquor, that many have preferred to that given in the common way by hops. For this purpose the plant should be gathered when fully ripe, and the seeds upon it, and in this state hung up in small bunches to dry. When thoroughly dried, a certain

quantity of good, strong malt liquor is to be impregnated with it. This is to be set by for use, to add to beer when brewed, agreeably to the taste, or the time it is required to be kept.

The wormwood for this purpose should have its seeds carefully preserved in the drying, and it is best when not used till the year after it is gathered.*

We presume the *Artemisia vulgaris* obtained its common name of Mugwort, from being in demand to preserve ale. This species of wormwood was formerly called *Cingulum Sancti Johannis*, because it was foolishly imagined, that, if a crown was made of this herb, and worn upon the eve of St. John, and then thrown into the fire, while mumbling some unintelligible verses, it would secure the person from spectres, diseases, and misfortunes, for the following year.

It was generally called *Zona Divi Johannis*, St. John's girdle, by the inmates of monasteries, who believed that St. John the Baptist wore a girdle of it when he was in the wilderness.

We relate some of the fabulous accounts of this plant to shew the great veneration

* Phil. Trans. No. 124.

people had for it in superstitious times. It was said that the Devil could do no harm to those who had mugwort in their house; and that placing a piece of this herb over the door, would secure the house from all unlucky accidents. If hung up in the entry or hall of a house, it was thought to banish all witches; but, as old hags have long ceased to exert any influence over man, and he shews no desire to disentangle himself from the enchantment of young and beautiful sorceresses, this herb is no longer seen in our halls.

Mugwort was also carried by travellers in former times, as it was thought to prevent weariness. Casp. Hoffman notices this superstition, and wittily says, he will not soon weary who has in his journey *Beyfuss*, which is the German name for this plant, and signifies at the same time, another foot: that is, adds he, the four feet of a strong horse.

Philodemus* states that this herb was used by Isis against weariness, when wandering through Egypt in quest of the body of Osiris.

Some authors are of opinion that these fabulous and superstitious opinions originated from virtues that this plant seems cer-

* L. de Fuga Isidis.

tainly in some degree to possess; as it is affirmed that a bath of wormwood, restores strength and soundness to feet that are weakened or galled by travelling, and that it is efficacious against weariness.

We have often tried its effect in crowded theatres and stage coaches, and found great relief and refreshment from the smell of the common wormwood. A gentleman at the bar, to whom we recommended it, tells us that he has experienced its reviving qualities in heated courts, as being nearly equal to a change of air. It is said to purify even a pestilential air. Helmont says, it is the grateful reliever of the mother in child-birth.

Mugwort is said to take away the pain occasioned by the heat of gunpowder, either in its fresh or dried state, if boiled in an equal quantity of wine and water, of which the patient should drink morning and night, and the wound should be washed with the same.

Th. Tabernæmontanus, in the siege of Oketz, and in several other campaigns, acquired a very great reputation by means of this medicine; and he assures us that it never failed him.

YAM.—DIOSCOREA.

Natural order, Sarmentaceæ. A genus of the Diœcia Hexandria class.

The yam appears to have been known to the Romans, although it could not have been cultivated in Italy, as it is said to have been named *Dioscorea* in honour of Pedicius Dioscorides, who was physician to Antony and Cleopatra, though some suppose he lived in the age of Nero. He wrote a book upon medicinal herbs, which is still extant.

The Rev. G. Hughes, in his Natural History of Barbadoes, says, "That this very serviceable root was formerly the peculiar growth of Africa; and the most common food of its inhabitants. In all probability, it derives its name from the verb *yam*, to eat; which is a word made use of, and equally understood, by all or most of the nations on the coast of Guinea, though differing otherwise in their language, customs, and manners."

The yams grow wild in the woods in the

Island of Ceylon, and on the Coast of Malabar; and they are supposed to have been brought from the East to the West Indies, where these roots seem to be as useful as the potatoe is to the British. The yam was first cultivated in England in 1733; but as it requires the assistance of the stove, and we have a better root in the potatoe, it is not worth the expense of growing, more particularly as we are so easily supplied by our West India merchants.

Lunan mentions six varieties of them in Jamaica. 1st. *Sativa,* cultivated, with leaves *cordate; alternate;* stem even and round. This is commonly called Negro yam. The roots of this kind frequently weigh ten or eleven pounds, and form a very valuable article of food, either boiled or roasted. There are two kinds of negro yam, known by the names of *Cassada yam* and *Man yam ;* the latter is considered the best, as being of a mealier, better taste, and drier texture, but not so productive. The inside of both these yams is white, of a viscous clammy nature; when roasted or boiled, they are a very pleasant and nourishing food; in much esteem among the negroes.

When this yam is dug, a small piece of the top is cut off, and left upon the vine, which is carefully moulded up, and in three months it produces another yam, commonly called the head; from which the plant is propagated by cutting it into pieces, taking care to leave an eye on each cutting, by which they germinate. These are planted on little hillocks of earth, from January to April, and the yams are fit for digging in August, September, and October. In each hillock a pole of about eight feet high is planted for the vine to run upon; hence a field of yams has the appearance of a hop-garden. Those that grow wild in the Liguanea mountains are yellow within, and so bitter that they are seldom eaten.

The *Alata*, winged, is called the white or *bockra* yam; these are much more delicate and agreeable food than the former, and on account of their lightness, and easy digestion, are preferred to bread by many inhabitants of the West Indies. If well dried in the sun, and covered with ashes, they will keep in a dry situation for several months. They are generally called white yams, from the superior whiteness of their inside; some of

them have a red skin, and a little purple tint within, varying as our potatoes.

Triloba, three-lobed. This is called the Indian yam in Jamaica, and is the most delicate and the smallest of all the yams, seldom exceeding eight or nine inches in length, and two or three inches in diameter. It is planted from cuttings, and is very productive, each plant producing five or six yams or even more. These are of a purplish colour, and have a pleasant sweetish taste, very agreeable to most palates. They do not keep well. The Guinea yam is also cultivated in Jamaica and other islands. It is thought, says Lunan, that all these species of *Dioscorea* have been originally imported into Jamaica, with the exception of the wild variety of the *Sativa*, which is the only one found in the island not in a state of cultivation.

Hughes describes them in his History of Barbadoes, as growing from half a pound to twenty pounds in weight, but says, the most common size is about two or three pounds. They are justly esteemed to be a very hearty nourishing food, either taken as bread or pudding. A kind of flour is made from them in Barbadoes. This author mentions

the prickly yam vine, which produces yams all the year round in Barbadoes.

Barham says, the juice of the leaves is good against the sting of scorpions; and they make a good fomentation for ulcers, &c.

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THE END.

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