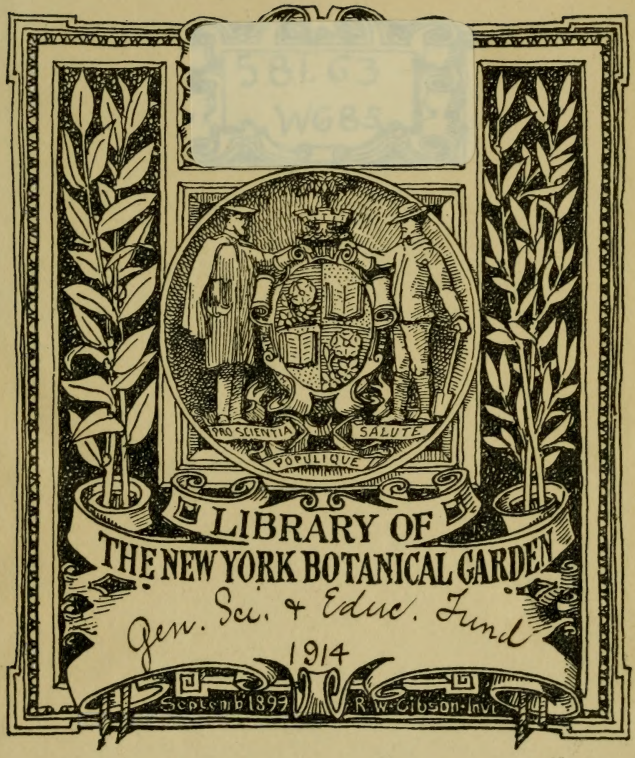
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OBSERVATIONS

ON THE

POISONOUS VEGETABLES

WHICH ARE EITHER

INDIGENOUS in GREAT-BRITAIN,

OR

CULTIVATED for ORNAMENT.

By B. WILMER, SURGEON.

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MDCCLXXXI.

1781

TO

Sir WILLIAM WHELER, Bart.

THE FOLLOWING

OBSERVATIONS

ON THE

VEGETABLE POISONS

OF

GREAT-BRITAIN,

ARE ADDRESSED,

By his moſt obedient, and

moſt humble Servant,

Coventry,
April 14, 1781.

BRADFORD WILMER.

PREFACE.

IN the vegetable world, the attentive obſerver of nature hath for his contemplation a ſcene, which is large and greatly varied. The mountain, the valley, the field, and the foreſt, produce their peculiar plants; yet each of theſe ſituations bears ſuch as are of qualities oppoſite to thoſe of others that ariſe from the ſame ſpot of earth. United in the place from whence they derive their nouriſhment, there is all imaginable diſtance between their qualities: and whilſt ſome act with a kind influence upon the human frame, others undermine the ſecret ſupports of life. From the healing to the deſtructive, there are many degrees in the ſcale; yet numerous

as theſe gradations are, there probably may be found amongſt our various vegetables thoſe whoſe virtues, or whoſe baneful qualities, would fill up every rank.

Some botanical authors, in deſcribing the powers of plants, ſeem to have been guided only by imagination. They aſcribed to them qualities which nature never gave them, and ſwelled beyond all probability thoſe which they really poſſeſs. Almoſt every plant which they treat of, would be a certain remedy for half the diſorders in the world, or a moſt fatal poiſon, if the character they give to it were true. But experience is now believed, in frequent oppoſition to Gerard and Parkinſon; and many herbs which were celebrated by them for their medicinal virtues, no longer make

make a part of the materia medica; whilſt others are found perfectly innocent, which they had deſcribed as poiſonous in their nature. It is happy for men when they increaſe their knowledge by an obſervation of facts, and no longer receive implicitly the traditions of ignorant ages.

But it is uſual for thoſe who find they have been miſled, to give themſelves up too much to doubt. Thus more than is true has been ſaid of the virtues of plants, and now perhaps leſs than is true is believed. It was found that the writings of botaniſts were largely ſupplied with miſtakes; and amidſt the crowd of errors which ſtood ready to miſlead him, the unexperienced practitioner did not know what he might ſafely

truſt to. He perceived in theſe works that all was not to be credited, and therefore he almoſt rejected all; not recollecting that truth was probably ſomewhere between the two extremes.

It is fortunate that the number of poiſonous herbs is very ſmall. Even of theſe the dreadful effects may be prevented, by an immediate and proper attention, or removed, though they have partly taken place. They appear to act by an impreſſion upon the nervous ſyſtem, rather than by an inflammation of the ſtomach and duodenum, as mineral poiſons do, which from this beginning produce thoſe other intervening ſymptoms, that uſually end in death. In vain would their offending ſubſtances be removed from the ſtomach by emetics,

tics, if the diſorder they occaſioned there had arrived at a certain degree of violence.

Poisonous herbs in different conſtitutions will have various and ſometimes oppoſite effects. This I ſpeak from my own knowledge, having ſeen the moſt contrary ſymptoms produced in ſeveral perſons who had taken the ſame poiſon under equal circumſtances. They exhibited a proof, that both the utmoſt irritation, and appearances which indicated that the office of the nerves was deſtroyed, might ariſe from the ſame cauſe working its effects in different conſtitutions.

The vegetable poiſons might perhaps be properly ſeparated into the two following diviſions. The firſt including

including thoſe from which maniacal ſymptoms may be expected, or the various nervous affections, from a vertigo to a fatal apoplexy. Hither might be referred the ſoporiferous plants, which more ſlowly bring on dangerous appearances, and are ſeldom fatal in a ſhorter ſpace than twenty-four hours, affording during that time opportunities for the uſe of emetics, the vegetable acids, and proper ſtimuli, which will generally have the deſired effect.

In the other claſs may be placed ſuch as produce epileptic ſymptoms. A loſs of underſtanding, of ſpeech, and of all the ſenſes, will take place in a few minutes after theſe poiſons are in the ſtomach: the muſcles will be much convulſed, and death will cloſe

close the scene in the short period of one hour or two.

The danger of these poisons is very great. They do not offend the palate, and therefore may pass unsuspected into the stomach: when there, they usually occasion no sickness, and therefore are not likely to be discharged without the assistance of art: and they produce their effects so hastily, that they scarcely permit any opportunity for that assistance to be given.

There are only three plants of this nature known in Great-Britain, two of which are natives of our island. They are the oenanthe crocata, cicuta aquatica, and lauro-cerasus. The last is most fatal, and requires a chemical preparation. Its poison may therefore

therefore in ſome meaſure be ſaid to be an invention of art.

SHOULD it be aſked whether poiſonous plants have any uſe among the works of nature, it might be replied, that in judicious hands they become effectual remedies for many complaints. They are likewiſe innocent food to various animals. Quails will thrive upon hellebore, and goats upon water-hemlock: ſtarlings and other birds feed upon the ſeeds of the cicuta major. It might be added that there are tribes of inſects nouriſhed and protected by them, which ſerve as a prey to other creatures that are more conſiderable in the aſcending climax of the creation.

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OBSER-

OBSERVATIONS

ON

VEGETABLE POISONS.

CLASS I.

COMMON HENBANE.

HYOSCYAMUS foliis amplexicaulibus ſinuatis, floribus ſeſſilibus. *Lin. Sp. Plant.* 257.

HYOSCYAMUS vulgaris & niger. *C. Bauhine,* Pin. 169.

HYOSCYAMUS niger. *Gerard. Hiſt. Pl.* 353.

THE root is long, tough, white, and when recently cut through, ſmells like that of liquorice.

THE ſtalks are thick, round, woody, irregularly branched, and covered with a hairy down.

THE leaves ſurrounding the ſtalk at their baſe, ſtand irregularly. They are large, ſoft, and downy, pointed at the ends, and very deeply indented at the edges. Their colour is a greyiſh green, and they have a viroſe, diſagreeable ſmell.

THE flowers are monopetalous. They are numerous, ſingular, divided into five obtuſe ſegments, and when accurately examined, are not without beauty, although they have an unpleaſant appearance on the plant: they are large, of a dirty yellowiſh colour, reticulated with violet-coloured veins.

THE ſeed-veſſels follow one after every flower: they are large, and contain a great quantity of ſeeds: of a brown, rough, and irregular figure.

THIS is the only ſpecies of henbane that is a native of Britain. It is common by road-ſides and amongſt rubbiſh, and flowers in June.

DR. Withering obſerves, that this plant is refuſed by horſes, cows, ſheep, and ſwine *.

* Arrangement of Britiſh Vegetables, vol. 1. p. 119.

It

It appears to afford both protection and nutriment to some insects; these are the chrysomela hyoscyami, and the scarlet bug, *cimex hyoscyami*.

HENBANE is a very dangerous poison. The seeds, leaves, and root, received into the human stomach, are all poisonous. The root, in a superior degree, produces sometimes madness, and if taken in a large quantity, and the stomach does not reject it by vomiting, a stupor and apoplectic symptoms, terminating in death, are the usual consequences.

HENBANE is frequently found upon dunghills, and its roots mixt with muck, are introduced into our gardens. In their external appearance they much resemble those of parsnep, from the use of which we often hear of fatal effects; but it is very probable that the roots of henbane mixt with the parsnep, which they much resemble, are the unsuspected cause of the mischief.

MY friend Mr. Harrold informs me that he once saw two women, who from eating

the ſuppoſed roots of parſnep, became maniacal, and were ſo furious, that ſtrict confinement was neceſſary for ſeveral days.

IT has been aſſerted by medical authors of great reputation *, that the roots of parſnep continuing in the ſame ground for ſome years, contract pernicious qualities, ſo as to occaſion diſorders of the ſenſes. It appears, however, inconſiſtent with the ſimple and uniform operations of nature to ſuppoſe that the root of an wholeſome and pleaſant vegetable ſhould merely by continuing on the ſame ſpot, become noxious: it is ſurely much more reaſonable to conclude, that the roots or ſeeds of ſome poiſonous plant might be introduced with manure, or by ſome other means, into the garden.

ON the 10th of March, 1765, the family of a farmer at Loughton in Buckinghamſhire, conſiſting of ſix perſons, dined upon pudding, boiled meat, and the roots of parſnep. Soon after dinner they all became ill, and in two

* Ray, Hiſtoria Plantarum, i. 420. Dan. Hoffman, acta acad. cæſar. nat. curioſor. vol. vi. anno 1742. Obſ. 128. p. 426.

hours

hours I was a witneſs of the following ſcene. —Mrs. York (the farmer's wife) was upon a bed with all the ſymptoms of an apoplexy. Her pulſe was remarkably hard and full, her face was red, the ſenſes and voluntary motions were aboliſhed; the reſpiration was difficult, and much oppreſſed. Two of the children were ſtupid, and appeared like thoſe intoxicated with ſpirituous liquors. A man-ſervant and the maid, with uncommon agitation of mind, were dancing about the room, with all the appearance of maniacal perſons. A middle-aged man (the ſhepherd) had dined with the reſt, and after dinner went about his buſineſs in the fields. At my requeſt he was ſought for, and brought home by two men, who informed me that they fortunately arrived time enough to prevent the poor man being drowned in a marl-pit, near the banks of which he was ſtaggering like one (as they ſaid) dead drunk. I attempted to give an active emetic to the man-ſervant, but as ſoon as he received it into his mouth, he returned it into my face. Five grains of emetic tartar, diſſolved in water, were conveyed into the ſtomach, by means of a funnel, and he ſoon vomited up

large quantities of the roots, &c. In a ſhort time he recovered the uſe of his reaſon, and complained of nothing more than a ſlight head-ach. An emetic was given to all the reſt, except Mrs. York, and after the ſtomach had rejected the contents, they recovered in a very ſhort ſpace of time.

Mrs. York had never eat any parſneps before in her life, but being prevailed upon, unfortunately, to taſte them, ſhe took more than any one of the family. All attempts to convey medicine into her ſtomach were ineffectual. Acrimonious and purgative gliſters were injected, without producing any evacuation. The moſt powerful ſtimulants were applied to various parts of the body without any apparent effect; ſhe could not be awakened by any methods that were put in practice for that purpoſe. In the evening the apoplectic ſnoring increaſed, attended with a quick pulſe; her extremities were warm and moiſt with ſweat. During the night, the difficulty of reſpiration, was accompanied with a rattling in the bronchia; the noſtrils were compreſſed, her feet became cold, and at ſix o'clock in the morning ſhe died.

died. I could not obtain permiſſion to open the body.

SUSPECTING that the roots of ſome poiſonous plant were mixed with the parſneps, I deſired to ſee ſome of them. They brought me a ſpecimen from the garden, and upon an accurate examination, I perceived them evidently of two kinds. As the roots at that time were not furniſhed with leaves, I took them home, and planted them in a garden. Some of them proved to be the paſtinacha ſativa, or garden parſnep, and the other the hyoſcyamus niger, or common henbane.

A SPECIMEN of the leaves of the plant, and a deſcription of the caſe, were tranſmitted to the Royal Society.

MANY other well atteſted inſtances of the pernicious effects of henbane have been recorded.

IN the year 1729, a perſon came to conſult Sir Hans Sloane upon an accident that happened to four of his children, aged from

four years and a half to thirteen years, by their eating ſome ſeeds they had gathered in the fields, which they had miſtaken for filberts: by one of the capſules, Sir Hans Sloane inſtantly knew it to be that of the hyoſcyamus niger vulgaris (or the common henbane) which bears ſome groſs reſemblance to the huſk of a filbert, and the ſeeds are like thoſe of the poppy. The ſymptoms that appeared in all the four were, great thirſt, giddineſs of the head, dimneſs of ſight, ravings, and profound ſleep; which laſt in one of them continued two days and two nights. Sir Hans ordered them all to be bled, bliſtered* in ſeveral places, and afterward purged with a medicine compoſed of elect. linit. ol. amygd. dulc. flor. ſulphur & ſyr. flor. perſic. which operated both by vomit and ſtool, and by this method they perfectly recovered *.

The poiſonous effects of henbane are now ſo well eſtabliſhed, that no doubt of the fact can remain. In its operation and effects it

* Inſtances of the violent operation of henbane are given by Wepfer. De Cicuta Aquatica, p. 230, &c.

very

very much reſembles thoſe occaſioned by opium when taken in large quantities; and like opium alſo, in a proper doſe, and adminiſtered with judgment and care, it may become a very uſeful medicine in the hands of the cautious practitioner.

PREPARATIONS of henbane are not only ſedative, eaſing pain, and leſſening morbid irritability in a remarkable degree, but are likewiſe exempt from an inconvenience which always attends the uſe of opium. Opium occaſions coſtiveneſs, whereas the extract, or other preparations of the hyoſcyamus, are obſerved to keep the body regularly open.

DR. Storck evaporated the freſh expreſſed juice from the ſtalks and leaves of this plant over a gentle fire, to the conſiſtence of an extract.

Two drachms of this extract were forced down the ſtomach of a middle ſized dog. Soon afterward he ſeemed timorous, and lapped a great deal of water. In about half an hour he fell into a languor, kept his eyes open, and the pupils were very much dilated;

lated; he ſtaggered as he walked, ſtumbled againſt every thing in his way, and appeared to have loſt his ſight. Then he laid himſelf to ſleep, in which he diſcovered anxiety; and the pit of his ſtomach was often violently retracted. In about two hours he caſt up all he had ſwallowed, and when he ſtood he trembled; and was very feeble.

AFTER vomiting three times, he had five ſtools. The fœces were liquid, duſkiſh, and very fetid. His eyes continued immovable, the pupil very much dilated, and his ſight ſeemed to be almoſt gone. Then he began to ſleep again, the ſpaſms about the pit of the ſtomach abated, and gradually went off. He ſlept four hours, and lay very ſtill, nor did his limbs quiver as they had done a little time before. After this ſleep his eyes returned to their natural ſtate, and his ſight ſeemed to be perfectly reſtored: his ſtrength was good; he was briſk, and ſwallowed bread and fleſh with a good appetite.

THIS dog was kept ſeveral weeks, in all which time he was healthy, watchful, and briſk.

DR.

Dr. Storck after this ſwallowed every day during the ſpace of a week one grain of the extract of henbane, without any inconvenience. He obſerved that he had a better appetite, and his body was more ſoluble than uſual. Hence he concluded it might ſafely, in ſmall doſes, be adminiſtered to his patients.

A woman 37 years of age, in the hoſpital at Vienna, to which Dr. Storck was phyſician, had been for more than a year almoſt every day afflicted with violent convulſions. The moſt powerful antiſpaſmodics, which were either recommended by the beſt authors, or which in ſimilar caſes had been known to have been ſerviceable, were adminiſtered without any good effect. Opium only, in large doſes, ſhortened the duration of the paroxyſms, lulled the pains, but never prevented a return: and it brought on a very obſtinate and habitual coſtiveneſs. In this ſtate of the caſe Dr. Storck gave every day, at intervals, three grains of extract of henbane.

In

In four days time ſhe obſerved her appetite to return, her body was more open, and the convulſive fits were much abated in their violence and continuance. She then was ordered to take ſix grains of the extract. During ſeven ſucceeding days ſhe had no return of the convulſions, and enjoyed quiet and refreſhing ſleep. On the eighth day ſhe had ſome ſlight twitchings in her legs and feet, but they did not continue long. During the two following months ſhe took, each day, nine grains of the extract, but as no returns of the convulſions were perceived in that ſpace of time, ſhe forbore its farther uſe, and obtained a permanent cure.

Dr. Storck informs us that he afterwards adminiſtered the extract of henbane in twelve other caſes, ſome of which had obſtinately reſiſted the moſt efficacious medicines.

They were chiefly of the ſpaſmodic kind, and if his relation of them is to be depended on, they prove that henbane in guarded doſes is one of the moſt powerful ſedative medicines with which we have hitherto been acquainted, poſſeſſing the virtues of opium, without

without occaſioning the inconvenience which might ariſe from coſtiveneſs.

THE ſmoke of henbane conveyed to the part, through a ſmall tube, is ſaid to be a very certain cure for the tooth-ach.

THE leaves applied externally in the form of cataplaſm, fomentation, or unguent, are diſcutient, anodyne, and abate not only inflammatory but rheumatic pain *.

* Vide Lewis Mater. Med. p. 315. Lindeſtolphe, de Venenis, cap. v. p. 552. Konig. Regnum Vegetab. p. 869. Hoyer, Act. phyſico-med. nat. curioſ. vol. v. p. 260. Hoffman Phil. Corp. Human. cap. vii. Haller, Stirp. helvet. p. 513. Wepfer, de Cicut. Aquat. Hiſtor. & Noxæ.

DEADLY NIGHTSHADE.

Belladonna. *Ray's Syn.* 265.

Solanum melano ceraſus. *C. Bauhine.*

Atropa caule herbaceo, foliis ovatis integris. *Lin. Sp. Pl.* 260. *Gerard. Hiſt. Plant.* 340. *Moris. Hiſt.*

Solanum lethale. *Park.* 346.

THE root is long, large, and creeping.

THE ſtalks are upright, firm, numerous branched, and herbaceous.

THE leaves are egg-ſhaped, entire, very large, ſmooth at the edges, pointed a little at the extremities, and of a beautiful green colour.

THE flowers ſtand on ſingle foot ſtalks: they are formed of one petal; bell-ſhaped, and very lightly divided into five ſegments at the edge. Their colour is a dark dead purple.

THE

THE berries which ſucceed the flowers are globular; they are firſt of a red colour, and afterward become black. They have a tempting appearance, and from that circumſtance many have been induced to eat them to their deſtruction. It flowers in July.

THE deadly nightſhade is found in woods, hedges, and where the ground is rich from manure, in the neighbourhood of towns and houſes. It is a native of England.

LIGHTFOOT * found it in the king's park at Stirling and Icolumbkill.

THE whole plant is poiſonous, and the berries † eaten by children, from their

* Flora Scotica, p. 142. vol. i.

† Buchanan, the Scotch hiſtorian, deſcribes the deſtruction of the army of Sweno, when he invaded Scotland. It ſeems the Scots, by a truce, had engaged to ſupply the army of their invader with drink, and in this they mixt the juice of the berries of deadly nightſhade. The Danes became ſo intoxicated, that the Scots fell upon them in their ſleep, and killed the greateſt part of them; ſo that there were ſcarcely men enough left to remove the king in ſafety. This account is probably fabulous.

beautiful

beautiful appearance, have often occaſioned the moſt fatal effects.

The works of medical authors abound with inſtances of the deleterious effects of the deadly nightſhade, and experience hath ſufficiently aſcertained the truth of their relations.

This plant has a faint ſmell, ſomewhat of the poppy kind, which is loſt when it is dry; whether freſh or dry, there is no peculiar ſenſation conveyed, when the leaves are applied to the organs of taſte.

Mr. Ray informs us of a remarkable effect which a ſmall part of the leaf of Belladonna had when applied to a ſmall ulcer, which a lady was afflicted with beneath the eye. In one night the iris was ſo much relaxed, that it became paralytic, and did not contract the pupil at the approach of the ſtrongeſt light. It was dilated to four times its natural ſize, till the leaf being removed, the parts gradually recovered their tone.

The

The application was repeated three ſeveral times, and always produced the ſame effect *.

Dr. Hill † obſerves, that he once ſaw an unhappy inſtance of the fatal effects of this poiſon.

In the year 1743, a labourer found the berries of the deadly nightſhade in a nobleman's park, where he was repairing the pales. He gave ſome of the berries to his children, and ſwallowed a large quantity himſelf. The ſymptoms came on in the following manner. The man after two hours became light-headed, giddy, and unable to ſtand; but not thinking of the cauſe, ſat down to ſupper. He drank greedily, but could ſcarce ſwallow any thing ſolid. He went to bed, and preſently grew worſe. He complained of a dreadful pain in the breaſt, and difficulty of breathing. It was about five in the afternoon when he eat the berries. Theſe ſymptoms came on between ten and eleven at night: and at twelve, ſeven hours from the

* Hiſt. Plant. p. 680. † Brit. Herb. p. 329.

eating them, he fell into the moſt dreadful ravings. Once in a quarter of an hour his ſenſes would return for a moment; but he relapſed immediately, and every time with more violence. During the intervals of reaſon, his breathing was difficult, and he complained of a dreadful tightneſs croſs his breaſt. Towards morning the ravings went off, but he became fooliſh. He was faint, breathed with difficulty, and ſtared and ſlabbered, anſwering foreign to queſtions, and ſeemed a perfect idiot. All this time he was affected with a moſt violent ſtrangury; but by degrees this went off, and he recovered without the help of medicines. Before the country apothecary could be had, he was growing better; and he not knowing what to adviſe, left the family to their own management. The children both died in the courſe of the night. The father, when perfectly recovered, and queſtioned about the nature of the caſe, anſwered that he had been in the condition of one very drunk, but ſaw and underſtood all that was doing, even when he anſwered in the wildeſt manner.

THE accounts given by other authors agree with the above deſcription: and we read of men who have continued in a ſtate of madneſs from nightſhade ſeveral days. To children it generally proves fatal. When adults die of this poiſon, the ſcene is uſually cloſed within 24 hours *.

SOME boys and girls perceiving in a garden at Edinburgh the beautiful berries of the deadly nightſhade, and, unacquainted with their poiſonous quality, eat ſeveral; in a ſhort time dangerous ſymptoms appeared, a ſwelling of the abdomen took place, they became convulſed: the next morning one of them

* Wepfer de Cicut. Aquat. p. 226. has given an account of ſome dangerous ſymptoms which affected three children from eating the berries of the ſolanum vulgare, common or garden nightſhade; but as they all recovered, and as I have not met with an inſtance where that ſpecies of nightſhade proved fatal, I have on that account omited a deſcription of it. Beſides the ſolanum commune, there are other plants in this kingdom which are ſuſpected to be poiſonous; theſe are aconitum hyemale, colchicum vulgare, alkekengi multiflorum foliis hirſutis, ſuppoſed to be the ſolanum ſomniferum of the ancients.

died, and another in the evening of the ſame day, although all poſſible care was taken of them *.

On the twenty-fourth of September, 1771, Dr. Lambert was deſired to viſit two children at Newburn in Scotland, who the preceding day had ſwallowed ſome of the berries of the deadly nightſhade. He found them in a deplorable ſituation; the eldeſt (10 years of age) was delirious in bed, and affected with convulſive ſpaſms. The younger was not in a much better condition, in his mother's arms. The eyes of both the children were particularly affected. The whole circle of the cornea appeared black, the iris being ſo much dilated as to leave no veſtige of the pupil. The tunica conjunctiva much inflamed. Theſe appearances, accompanied with a remarkable kind of ſtaring, exhibited a very affecting ſcene. The ſymptoms came on about two hours after they had eaten the berries: they appeared at firſt as if they had been intoxicated, afterwards loſt the power of ſpeaking, and continued the whole night

* Lond. Mag. Sept. 1747.

ſo

ſo unruly, that it was with much difficulty they were kept in bed.

Dr. Lambert gave them 15 grains of white vitriol, which ſoon occaſioned a ſickneſs. The emetic was repeated, and they vomited plentifully; they were ordered to drink an oily emulſion. Cathartic medicines were given by the mouth, and a common clyſter was adminiſtered. At twelve o'clock at night, the purgative medicines produced the wiſhed-for effect, and the ſtools appeared purple like the juice of the berries, intermixed with their black ſkins: after this they were ſoon relieved: they ſpoke, and became ſenſible; but their eyes continued ſeveral days in a weak ſtate, and the laſt ſymptom which remained was a vertigo.

It appears from the hiſtory of this caſe, that emetics were of no uſe, and the reaſon is very obvious. Dr. Lambert was not called till twenty-one hours had elapſed from the time the children eat the berries, and the ſtomach had probably long before paſſed them into the inteſtines.

THE dangerous effects of the deadly night-ſhade were known to the ancients. Theophraſtus called this plant ſtrychnos, and the ſymptoms which it produced were called ſtrychnomania. Subſequent authors have ventured to recommend the internal uſe of it in very ſmall quantities in obſtinate diſeaſes; and if we believe the teſtimony of Mr. Ray *, the external application of the leaves in the form of a cataplaſm, have been found efficacious in cancerous complaints. An infuſion of the berries given internally has been ſaid to have been ſucceſsful in inflammations †, and dyſenteries ‡. Juncker informs us, that two cancerous caſes were cured by it, and recommends its farther uſe §.

IN the year 1754, Dr. Lambergen printed at Groningen an inaugural diſſertation, to which was added an account of a cancer in a woman's breaſt, that had been radically cured by the infuſion of the leaves of deadly night-ſhade. This caſe was publiſhed eight years

* Ray's Hiſt. Plant. p. 680.

† Tragus, Stirp. Hiſt. p. 305.

‡ Ray's Hiſt. Pl. Lin. Mat. Med. § 95.

§ Conſpect. Chirurg. p. 314.

after

after the cure was perfected, and the woman is ſaid to have continued perfectly well.

FROM reading this caſe, the late Mr. Gataker determined to try the effects of nightſhade in St. George's hoſpital. He adminiſtered it in a variety of cancerous caſes, as well as ſcrophulous and ſcorbutic ulcers, but his ſucceſs was in the ſequel by no means equal to the ſanguine expectations he had formed of it. In the firſt paper he communicated to the Royal Society upon this buſineſs, he gave an account of ſome caſes wherein it appeared to have been attended with ſucceſs. From the recommendation of Mr. Gataker, the ſolanum was alſo tried in moſt of the public hoſpitals of London. By the concurrent teſtimony of ſeveral ſurgeons, under whoſe inſpection it was adminiſtered, it was at length agreed, that the nightſhade was by no means poſſeſſed of any ſpecific properties either againſt cancerous or ſcrophulous diſeaſes; that moſt of the patients in whoſe caſes it appeared at firſt to be ſerviceable, relapſed; that it was, except in ſmall dozes, unmanageable in its effects; that it was extremely uncertain in the mode

of its operation, ſometimes violently purging the patient, ſometimes ſtimulating the kidneys, or increaſing greatly the cuticular diſcharge, and ſometimes producing no evacuation of any kind; that, in ſhort, no conſequence of its adminiſtration was with any certainty to be expected, except the miſchief it did to the organs of viſion. Moſt of thoſe who took it complained either of giddineſs, violent throbbing pain in the eyes, with a diſcharge of tears, and in all the pupil was as much dilated, and had the ſame appearance, as if the patient laboured under a concuſſion of the brain, or paralytic ſtate of the optic nerve: and it was much ſuſpected that the uſe of the ſolanum haſtened the death of ſeveral who took it *.

Mr. Gataker, however, in a publication ſince the obſervations he communicated to the Royal Society, ingenuouſly acknowledges, that his expectations were not anſwered; that the event of ſome caſes diſappointed his firſt hopes, either by the cure proving incomplete, or only temporary; that he found

* Bromfield on Nightſhade, p. 69.

from

from further experience, the operation of the medicine to be irregular, and the uſe of it in ſome inſtances, if perſevered in, attended with troubleſome ſymptoms. He obſerves alſo, that nightſhade is a medicine not ſo much calculated for general uſe, as for particular caſes, where the common remedies have failed, and where this ſeems, *upon trial*, to be free from the principal inconveniences which ſo often attend the uſe of it *.

* Gataker's Eſſays, p. 87.

BLUE MONKSHOOD.

ACONITUM foliorum laciniis linearibus, ſuperne latioribus, linea exaratis. *Lin. Spec. Pl.* p. 538.

ACONITUM cæruleum, ſive Napellus. *J. Bauhine.*

Napellus verus. *Lobel.*

ACONITUM ſpica florum pyramidali. *Moriſ.*

THE root is divided into ſeveral parts: it is long, thick, and has many fibres.

THE leaves riſe from the root very early in the ſpring: they appear firſt in a globular form, and when they expand, become large, of a beautiful green colour, and are divided into numerous, long, narrow ſegments. This plant is four feet high. The leaves from the ſtalk are placed irregularly, they are ſmaller than thoſe which immediately ariſe from the root, but like them they are ſubdivided into numerous ſegments.

THE

THE flower is extremely ſingular; it has five petals, one of them is uppermoſt, and is hooded, two are placed on the ſides, and two below: the lateral petals are broad, and incline to each other; the inferior ones are longer than thoſe on the ſide, and droop downward. Within the flower are two nectaria. The flowers ſtand on long ſpikes, on the ſuperior part of the branches; they are large, and of a full beautiful blue. Three capſules, incloſing the ſeeds, ſucceed every flower.

BLUE Monkſhood is ſpontaneouſly produced in Germany, and ſome other northern parts of Europe, and is very common in our gardens, where it is cultivated for ornament.

THIS is certainly a poiſonous plant, and many inſtances have been adduced of its dangerous effects. Dodonæus gives an account of five perſons who eat the root of blue monkſhood in their food at Antwerp, and they all died. It has probably obtained the name of wolf's-bane from a tradition that wolves, in ſearching for particular roots which they in part ſubſiſt upon in winter, frequently

frequently make a miſtake and eat the roots of napellus ceruleus, which generally proves fatal to them.

In the year 1764, John Crumpler, a weaver in Spitalfields, having ſupped upon ſome cold meat and ſallad, was ſuddenly taken ill; and when Mr. Bacon, the Surgeon employed upon this occaſion, viſited him, he found him in the following ſituation. He was in bed, with his head ſupported by an aſſiſtant, his eyes and teeth were fixed, his noſtrils compreſſed; his hands, feet, and forehead cold; no pulſe to be perceived; his reſpiration ſhort, interrupted, and laborious.

Mr. Bacon was informed, that ſoon after his patient had ſupped, he complained of a ſenſation of heat, affecting the tongue and fances: his teeth appeared looſe; and it was very remarkable, although a looking-glaſs was produced, and his friends attempted to reaſon him out of the extravagant idea, yet he imagined that his face was ſwelled to twice its uſual ſize. By degrees the heat, which at firſt only ſeemed to affect the mouth and adjacent parts, diffuſed itſelf over his body and

and extremities; he had an unſteadineſs and laſſitude in his joints, particularly of the knees and ancles, with an irritable twitching of the tendons, which ſeemed to deprive him of the power of walking; and he thought that in all his limbs he perceived an evident interruption to the circulation of the blood. A giddineſs was the next ſymptom, which was not accompanied with a nauſea. His eyes became watery, and he could not ſee diſtinctly: a kind of humming noiſe in his ears continually diſturbed him, until he was reduced to the ſtate of inſenſibility before deſcribed.

Before Mr. Bacon's arrival, ſome of his friends, believing he had been poiſoned, had forced down ſome oil and water, and afterward ſome carduus tea, in conſequence of which, the ſtomach threw up its contents; but notwithſtanding this precaution, the ſymptoms increaſed.

Mr. Bacon, by the repetition of carduus tea, &c. encouraged the vomiting, and in the intervals adminiſtered ſome ſpoonfuls of a ſtimulating cordial medicine. After ſome time

time the patient ſeemed relieved, and by degrees recovered.

Mr. Bacon was informed that the ſallad which the patient had eaten for ſupper, conſiſted of common herbs bought at a ſtall in the market, except ſome celery picked out of their own garden. He deſired to ſee ſome of the celery: a ſpecimen was brought to him, which Mr. Bacon perceived was the blue Monkſhood, or aconitum cæruleum.

Dr. Storck, of Vienna, reduced to powder the leaves and ſtalks of blue monkſhood: ſome of this applied to his tongue, occaſioned ſome tranſient, although pungent pains in his mouth, accompanied with a ſenſation of heat. With a view to aſcertain whether the powder had any corroſive effects, he ſprinkled ſome of it upon the ſurface of a fungous ulcer. The patient complained neither of heat nor pain; and although the application was ſeveral times renewed, the fungous fleſh was neither conſumed nor reſtrained in its progreſs. Dr. Storck after this evaporated the expreſſed juice to the conſiſtence of an extract. Some of this applied upon the tongue,

tongue, occaſioned a ſlight titillation. He inſinuated a grain of the extract between his eye-lids, without obſerving the effects of any preternatural irritation. He afterwards prepared the following powder:

℞ Extract. Napel. cærul. gr. ii.
Sach. puris. ʒ ii. M. & contrite in mortario marmoreo.

The Doctor took ten grains of this powder without any apparent operation. He then ſwallowed twenty grains. Throughout the whole day, a very profuſe perſpiration was the conſequence. Hence he inferred, that as the extract of monkſhood increaſed ſo very remarkably the cuticular diſcharge, it was adapted to diſeaſes in which the morbid matter might be expelled by the ſudoriferous pores.

Dr. Storck and Dr. Colin, we are informed, adminiſtered the extract of monkſhood to fourteen different patients in the hoſpital at Vienna, with aſtoniſhing ſucceſs. It relieved in a ſhort time the violent pains of the gout and chronic rheumatiſm, by occaſioning a plentiful diaphoreſis; it ſoftened and even diſſolved

diſſolved chalk-ſtones, nodes, tophi, and cured exoſtoſes. Unfortunately however it happens, that experiments made upon the napellus in this country, do not confirm all that has been ſaid of it by Dr. Storck. I evaporated the juice expreſſed from the leaves and ſtalks of blue monkſhood to the conſiſtence of an extract. I tried it with two patients who had the chronic rheumatiſm, and it was adminiſtered in the doſes recommended by Dr. Storck. After having given it (what I thought) a fair trial, and finding it do neither good or harm, I threw it aſide for the uſe of more efficacious remedies.

The napellus is ſaid by authors not to be poiſonous in Sweden and ſome other countries. In the Ephemer. Medic. Phyſ. Curioſ. An. 11. Obſ. 42. p. 79. is a treatiſe under the following title: D. Martini Barnardi à Bernz. Napellus in Polonia non venenoſus, wherein ſome inſtances are given to prove that the napellus mentioned by Linnæus is not poiſonous in Poland.

It muſt be obſerved, however, that the kind of napellus mentioned by Linnæus not to

to be poiſonous in Sweden, is not the blue monkſhood, but the aconitum lycoctonum luteum majus. Bauhin. or yellow monkſhood, which Linnæus ſaw a family in Sweden mix and eat with their ſoup, without any bad conſequences.

LIGHTFOOT * found this plant in Scotland, in ſeveral places, about Hoddamcaſtle, in Annandale, &c. but always near houſes, ſo that he ſuſpected it was not indigenous.

* Flor. Scot. vol. i. p. 485.

DOGS MERCURY.

Mercurialis caule ſimpliciſſimo, foliis ſcabris. *Lin. Sp. Plant.* 1465. (*Gerard.* 333. f. 1. *Pet. Herb.* t. i. f. 5 & 6. *Moris. Hiſt.* ſ. 5. t. 34. f. 3 & 4.)

Mercurialis perennius repens Cynocrambe dicta. *Ray's Syn.* 138.

Cynocrambe mas & fœmina. *Gerard.* 333.

Mercurialis montana ſpicata. *Bauh. Pin.* 122.

Mercurialis ſylveſtris Cynocrambe dicta vulgaris, mas & fœmina. *Park.* 295.

THE root is creeping, light-coloured, and fibrous.

THE ſtalk is a foot high, erect, green, juicy, and unbranched.

THE leaves are oval, ſerrated, pointed at the extremity, placed in pairs oppoſite to each other.

THE

The flowers grow at the tops of the ſtalk, and in thin ſlender ſpikes out of the alæ of the leaves, and are of a light green. The flowers are of two kinds, male and female. The furrows of the *germen* receive a barren filament, terminated with a gland, marked with two dark-coloured ſpots.

It is found very common in woods, ſhady places, upon ditch banks, and flowers very early in ſpring.

Lightfoot * found it in many parts of Scotland, both in the Highlands and Lowlands.

This plant is poiſonous. It is of a ſoporific deleterious nature, and is ſaid to be noxious both to man and beaſt. Many inſtances are recorded of its fatal effects.

Mr. Ray acquaints us with the caſe of a man, his wife, and three children, who were poiſoned by eating the cynocrambe fried with bacon.

* Flor. Scot. vol. ii. p. 621.

A MELANCHOLY inſtance is related in the Philoſophical Tranſactions, N° CCIII. of its pernicious effects upon a family who eat at ſupper the herb boiled and fried. It produced at firſt nauſea and vomiting, and afterwards comatoſe ſymptoms. Two of the children ſlept twenty-four hours: when they awakened, they vomited again and recovered. The other girl could not be awakened during four days, at the expiration of which time ſhe opened her eyes and expired.

DR. Withering * obſerves, that the cynocrambe is eaten by goats and ſheep, and refuſed by cows and horſes. When it is infuſed in water, it affords a fine deep blue colour. Lightfoot † ſays it is called in the iſle of Skye, lus-glen-bracadale; and that he was there informed, it is ſometimes uſed in a weak infuſion to bring on a ſalivation. The experiment, however, ſeems dangerous.

* Arrangement of Britiſh Vegetables, vol. ii. p. 616.

† Flor. Scot. vol. ii. p. 621.

THORN-

THORN-APPLE.

DATURA pericarpiis ſpinoſis, erectis ovatis. *Lin. Sp. Pl.* p. 179.

SOLANUM fœtidum, pomo ſpinoſo oblongo, flore albo infundibuli formi. *C. Bauh. Pin.* p. 168.

SOLANUM maniacum. *Diaſcor. Colum.*

SOLANUM pomo ſpinoſo oblongo, flore calathoide, ſtramonium vulgo dictum. *Ray's Syn.* 266.

STRAMONIUM ſpinoſum. *Gerard.* 349.

THE root is long, large, and fibrous.

THE ſtalk is of a pale green, ſtrong, and near three feet high.

THE leaves are large, of a lively green, placed on ſtrong peduncles; they are broad, pointed at the extremity, beautifully indented, and are placed without any regular arrangement.

The flower conſiſts of one petal, funnel-ſhaped, tubular, and folded at the border in five parts. They grow at the bifurcations of the branches, are large, and of a milk-white colour.

The ſeed-veſſel is oval, large, and covered with ſhort, ſharp, ſtrong thorns. The ſeeds are brown. It flowers in Auguſt.

It is a native of South-America, and is cultivated in our gardens either for its ſingularity or ornament.

Dr. Withering ſays, that cows, goats, ſheep, and horſes refuſe it *. He likewiſe acquaints us, that it is found common amongſt rubbiſh, in the neighbourhood of London.

I have likewiſe obſerved the ſtramonium flouriſh upon a bank on the London road near Coventry; but it is probable the ſeeds may have been conveyed thither from a large nurſery-garden in the neighbourhood, and where many foreign plants have been propagated. It is certain that the plant is not in-

* Arrangement of Engliſh Veg. vol. i. p. 119.

digenous

digenous in this kingdom, nor did Mr. Lightfoot meet with it in Scotland.

THE ſeed-veſſels of thorn-apple ſupply nouriſhment to many inſects; and it is very common to ſee the cup quite a ſkeleton, the fleſhy parts having been eaten away.

THE ſeeds and leaves of thorn-apple received into the human ſtomach, produce firſt a vertigo, and afterwards madneſs. If the quantity is large, and vomiting is not occaſioned, it will undoubtedly prove fatal.

BOERHAAVE * informs us, that ſome boys eating ſome ſeeds of thorn-apple, which were thrown out of a garden, were ſeized with giddineſs, horrible imaginations, terrors, and delirium. Thoſe that did not ſoon vomit, died.

THE plant has a diſagreeable, nauſeous ſmell, when rubbed between the fingers.

DR. Storck expreſſed the juice from the leaves and ſtalks of thorn-apple in a marble

* Acad. Lect. on the Nerves, publiſhed by Dr. Van Eems.

mortar, and afterward evaporated it to the consistence of an extract. He assisted in the process, from whence his head seemed much affected. He placed a grain and a half of the extract upon his tongue, and suffered it to dissolve. Although it produced a very nauseous taste, he swallowed it. It occasioned no particular effects, and thence he concluded it might, at least with safety, be given to patients. In looking over the writings of medicinal authors, he found they all agreed in the assertion, that thorn-apple disordered the mind, caused madness, and convulsions. By the introduction, however, of a new mode of reasoning, the Doctor made the following inference: that, as thorn-apple, by disordering the mind, caused madness in sound persons, it was probable, by disturbing and changing the ideas and common sensory, it might bring the insane, and persons deprived of reason, to a sound state of mind: and by a contrary motion, remove convulsions in the convulsed.

Dr. Storck, from this theory, proceeded to practice in the hospital at Vienna, and published several cases wherein extract of thorn-

thorn-apple, given in ſmall doſes, and continued a long time, produced a cure. They were maniacal and epileptic patients, who the Doctor ſays experienced the good effects of this mode of treatment.

The extract of thorn-apple, I believe, has not been tried in England, at leaſt to my knowledge; and the reaſon probably has been, that we have been much diſappointed in what Dr. Storck has ſaid relative to the medical effects of cicuta, and other poiſonous plants.

COMMON

COMMON HEMLOCK.

CONIUM, ſeminibus ſtriatis. *Lin. Sp. Pl.* 349.

CICUTA. *Gerard.* 1061. *Ray's Syn.* 215.

CICUTA major. *Bauh. Pin.* 160. *Moriſ. Hiſt. Pl.* vol. iii. 290.

CICUTA vulgaris major. *Park.* 933.

CICUTA vulgaris. *Phyt. Brit.* 27. *Hill. Brit. Herb.* 411.

CICUTA major vulgaris maculata fœtens. *Storck de Cicut.*

CONIUM ſeminabus ſtriatis foliolis tenuoribus. *Miller. Gard. Dict.*

THE root is white, perpendicular, and furniſhed with lateral fibres.

THE leaves, which early in the ſpring ariſe from the root, are of a very dark green colour: they are minutely divided and ſubdivided, and ſerrated at the edges.

THE

The ſtalk is fiſtulous, firm, upright, articulated, ſmooth, round, and ſix feet high: it is thickly ſtained with innumerable purple ſpots, of various ſizes, and indeterminate figures.

The leaves are placed irregularly on the ſtalk; they are, like the radical ones, minutely interſected, and of a ſtrong green colour.

The flowers are ſmall and white; each is compoſed of five petals, inflected, and heart-faſhioned. They are diſpoſed in large umbels, upon divided and ſubdivided branches.

The ſeeds are rounded, ſtriated on one ſide, and plain on the other, and are of a brown colour.

Hemlock flowers in July, and is very common under hedges in moſt parts of Europe. Where the ſoil is rich and moiſt, it is obſerved to be more luxuriant than in other places.

This plant has a viroſe, diſagreeable ſmell, but the freſh juice communicates no particular impreſſion to the organs of taſte.

If

If the expreſſed juice is placed in a ſtate of reſt until the feces ſubſide, and afterward poured off, it ſeems to loſe all the ſpecific flavour of the plant.

Hemlock received into the human ſtomach, has occaſioned death; but, like other plants of the poiſonous kind, it is not only innoxious to certain animals, but appears to furniſh them with food and nouriſhment.

Mr. Ray informs us, that he found the crop of a thruſh full of the ſeeds of hemlock, at a time when corn was plentiful *.

Dr. Withering obſerves, that hemlock is eaten by ſheep, and refuſed by horſes, cows, and goats †.

Like other plants of the narcotick kind, the deleterious effects of hemlock are much leſſened by vegetable acids ‡.

Although

* Nos quoque ventriculum otidis ſeu turdæ avis diſſectum cicutæ ſemine refertum invenimus, quatuor tantum aut quinque frumenti granis intermixtis: quod etiam meſſis tempore avis illa pro cicuta neglexerat: adeo delectatur cicuta. Hiſt. Plantar. vol. i. p. 451.

† Arrangement of Engliſh Veg. vol. i. p. 163.

‡ Cicuta, præſens illud venenum, ſi coquitur in aceto, ſine noxa comedi poteſt, quod probavi aliquoties, experimenti

ALTHOUGH the root of hemlock has by many been ſuppoſed to be the moſt active, and the moſt poiſonous part of the plant; yet it has been given in doſes of thirty grains in quartan agues, acute fevers *, and ſchirrous livers †, without any ill effect.

MR. Ray informs us, that his friend Mr. Pettiver eat half an ounce of the root of this plant; and that Mr. Henley, a friend of Mr. Pettiver's, in his preſence eat, without any inconvenience, three or four ounces of the ſame root §.

FROM theſe inſtances, and many others, the poiſonous effects of this plant have been much ſuſpected.

SINCE the cicuta was recommended by Dr. Storck as a certain cure for many of the

experimenti ergo, Lugduni Batavorum, ubi in foſſis extra urbem frequens creſcit. Lindeſtolpe, de Venenis, p. 431.

* Bowle apud Raium Hiſt. Plant. i. 451.

† Renealme, Obſerv. iii. and iv. Etmuller, Schræder. Diluc. par. i. ſect. ii. p. 111.

§ Synopſ. ed. 2. p. 326.

moſt

moſt terrible complaints to which the human body is ſubject, it has been in common uſe in every part of Europe; and when we conſider the great extent, and almoſt univerſality of its application, in every chronic diſeaſe which had withſtood the operation of other remedies, it appears ſurpriſing that we have not heard of a ſingle inſtance of its poiſonous effects. It has been given by the regular phyſician, as well as the apothecary's apprentice, in large doſes, in the forms of extract, powder, juice; and it has been applied externally in cataplaſms, fomentations, baths, and injections. It has been very liberally adminiſtered to men, women, and children, with impunity. Either our hemlock muſt be milder than that deſcribed by authors, or, which is much more probable, quite a different plant.

CARDANUS * mentions a man who was killed by eating a cake wherein hemlock was an ingredient: and Braſſavola aſſures us, that it is mortal not only to men, but alſo to geeſe and ſwine. Inſtances of the deleterious effects

* Phil. Tranſ. N° 473.

of

of hemlock may be found in many other authors *.

It is now generally underſtood that the Athenian poiſon (cicuta †), of which Socrates periſhed, was certainly not the plant we call hemlock. It muſt either have been the cicuta aquatica, or the oenanthe, ſucco viroſo.

Some have imagined, particularly Dr. Mead, that the celebrated poiſon of Athens, with which condemned criminals were put to death, was a compoſition ‡.

It is anciently recorded of the people of Marſeilles, that they had a poiſon kept by the public, in which cicuta was only an ingredient, a doſe of which was allowed by the magiſtrates to any one who could ſhew a reaſon why he ſhould deſire death. This very ſingular cuſtom, Valerius Maximus obſerves, came from Greece, particularly from

* Matthiolus, Scaliger, Kircher, Boccone, &c.

† Cicuta quoque venenum eſt, publica Athenienſium pœna inviſa. Plin. 26, 13.

‡ Mead's Works, 4to Edit. p. 111.

the

the iſland Ceos, where he ſaw an example of it *.

THEOPHRASTUS ſays, that Thraſyas, a great phyſician, had invented a compoſition, which would cauſe death without any pain; and that this was prepared with the juice of hemlock and poppy together, and did the buſineſs in a ſmall doſe †.

THE cicuta major was called conium by Dioſcorides and Theophraſtus. Linnæus has expreſſed his doubts with regard to the poiſonous effects of this plant, and has retained the old name conium. Contradiction and confuſion appear in the various accounts which authors give us of hemlock: and many accidents *ſaid* to have been the effects of cicuta, were certainly produced by water hemlock, or the oenanthe crocata. It appears extremely abſurd, that the ſame name ſhould be applied to two plants, which have ſo little reſemblance to each other, as the cicuta major, and cicuta aquatica. They bear their

* Valer. Max. lib. ii. c. 6. §. 8.

† Hiſt. Plant. lib. ix. c. 17.

flowers

flowers in umbels, and this is the chief circumſtance in which they agree.

LUCRETIUS by cicuta certainly means water hemlock, when he informs us, that goats eat it freely; thoſe animals have often been obſerved to feed upon the cicuta aquatica, and it is very well known that hunger itſelf will not prompt them to touch the cicuta major *.

TORRENTIUS obſerves, that Perſius has confounded cicuta with hellebore, or ſome other certain cure for madneſs †.

THE ſtalk of hemlock being hollow, light, and jointed: hence the poets often uſe its name for the reed, of which pipes were made ‡.

* ——————— "pingueſcere ſæpe cicuta
Barbigeros pecudes, homini quæ eſt acre venenum."
LUCRETIUS.

† "Calido ſub pectore maſcula bilis intumuit,
"Quam non extinxerit una cicuta." PERSIUS.

‡ "Et Zephyri cava per calamorum ſibila primum.
"Agreſtes docuere cavas inſtare *cicutas*." LUCRET.

"Eſt mihi diſparibus ſeptem compacta *cicutis* fiſtula."
VIRG. ECL. ii. 36.

THE only well-atteſted caſe of the poiſonous effects of the cicuta major in England, is the following:

DURING the rebellion in 1745, ſome Dutch troops were quartered at Waltham-abbey, in Eſſex. On Sunday, May 6, two of the ſoldiers collected in the fields, adjoining to that town, a quantity of herbs ſufficient for themſelves and two others for dinner, when boiled with bacon. Theſe herbs were accordingly dreſſed, and the poor men firſt eat of the broth with bread, and afterwards the herbs with the bacon. In a ſhort time they were all ſeized with violent vertigos: ſoon after they were comatoſe: two of them became convulſed, and died in about three hours. The people of the town were much alarmed at this accident; and Dr. Barrowby, a phyſician, being upon the ſpot, immediately attended, and ordered the other two, at that time almoſt dead, large quantities of oil, by which means they threw up moſt of what they had eaten, and afterwards became better. In all of them, the effects reſembled thoſe produced by a large doſe of opium.

THE

THE next day Dr. Watſon was at Waltham-abbey, and ſaw one of the men ſo much recovered, that he only complained of a heavineſs in his head; and the other was ſo well, as to be able to perform his regimental exerciſes. There was a fifth ſoldier, who informed the doctor, that he eat ſome of the bread out of the broth, but perceived very little inconvenience from it. It happened that the two men who gathered the herbs were thoſe that died.

A DUTCH officer attended Dr. Watſon to an inn where there were two other ſoldiers, who had ſeen and known the herbs which had been eaten. He alſo attended the doctor into the fields to ſhew the plants growing. They firſt gathered the cicutaria vulgaris of J. Bauhine, or cow-weed: then the myrrhis ſylveſtris, ſeminibus aſperis, of Caſper Bauhine, or ſmall hemlock chervil. They then gave the Doctor ſome cicuta major, and ſmelling it, immediately ſaid, that was the herb which killed their comrades; which there was no reaſon to doubt of, as the two former plants grow under almoſt every hedge, and are eaten by cows, and given to tame

rabbits for food; whereas cattle conſtantly refuſe to eat hemlock *.

THE reputation of hemlock, as a medicine, ſeems to be in a loſing ſtate. In conſequence of too much having been ſaid of its virtues, when it was firſt introduced into practice, two little may perhaps now be believed: and becauſe it will not cure cancers, it is ſuppoſed by ſome practitioners to be ineffectual in every diſeaſe whatever. As far as can be deduced from the different caſes in which it has been tried in England, hemlock poſſeſſes very conſiderable medical virtues; and it has been proved to be deobſtruent, and anodyne. It has been ſerviceable in ſcrophulous caſes. In painful ulcers, diſcharging an ichourous lymph, the internal uſe of this plant has been known to procure eaſe, to mend the diſcharge, and improve the complexion of the ſore. Whether theſe effects are obtained by any ſpecific alteration of the fluids, or are merely produced by the ſedative properties of cicuta, we are not certain. It is probable, however, it acts in this reſpect by eaſing

* Phil. Tranſ. N° 471. p. 21.

pain.

pain. Hemlock, like opium, leſſens morbid irritability in a very remarkable degree, but, like opium, it does not occaſion coſtiveneſs.

FONTANUS * aſſures us, that a patient recovering from the plague, and being unable to get any ſleep, had recourſe to cicuta with good effect. The remedy after ſome time was diſcontinued, and in a ſubſequent illneſs, endeavours were uſed to procure reſt by repeated doſes of opium, which had no operation; and the uſe of cicuta was again called in with the deſired ſucceſs.

WE frequently hear of people being ſuddenly taken ill after eating muſhrooms; and inſtances are recorded of their fatal effects. It is to be lamented, that upon theſe occaſions the particular ſpecies of fungus is ſeldom aſcertained. Dr. Percival, in the laſt volume of his eſſays, page 267, relates the caſe of a man who was poiſoned by eating a muſhroom, which Mr. Hudſon thinks was the fungus parvus, pediculo oblongo, of Ray. In the very numerous claſs of fungi, which Great-Britain produces, the agaricus muſcarius, and the fungus piperatus, may be reckoned the moſt poiſonous.

* Nic. Fontani Reſponſ. & Curat. Medic. p. 162.

BUG AGARIC.

AGARICUS Muſcarius.

AGARICUS ſtipitatus, lamellis dimidiatis ſolitariis, ſtipite volvato, apice dilatato, baſi ovato. *Lin. Sp. Plant.* 1640.

FUNGUS minor campeſtris rotundus, lamellatus, inferne albus, ſuperne purpureus. *Ray's Synopſ.* 3.

THE pillar or ſtalk is white, thick, and hollow; egg-ſhaped at the baſe, and ſurrounded at the middle with a pendulous membrane.

THE pileus, or hat, is large, almoſt flat, ſix inches or more in diameter, of a red or crimſon colour, ſometimes beſet with angular, white, downy warts.

THE lamellæ, or gills, are white, flat, and inverſely ſpear-ſhaped: the greater number extend from the rim of the pileus to the ſtalk, the reſt only half way.

WHEN

When the fungus is decaying, the gills become of a browniſh complexion.

In Scotland this and other fungi of the agaric kind, are called paddock-ſtools. It grows in woods, and frequently in paſtures.

Lightfoot obſerved it in Scotland, at Blair in Athol, and in the woods at the caſcades of Moneſs, near Taymouth *.

The agaricus muſcarius will deſtroy bugs, if rubbed upon the parts of the bed, where they retreat in the day. The inhabitants in the north of Europe, whoſe houſes at the end of ſummer are infeſted with flies, infuſe it in milk, and ſet it in their windows. As ſoon as the flies taſte it, they are inſtantly poiſoned.

Haller relates, that ſix perſons of Lithuania, in Poland, periſhed at one time by eating it; and that in Kamtſchatka it had driven others raving mad. Two or three of theſe fungi may perhaps be eaten without

* See Lightfoot's Flora Scotica, vol. ii. p. 1010.

danger, but more will intoxicate, and bring on a delirium. The Ruſſians, however, are bold enough to eat theſe, and almoſt every other kind of fungus. Perhaps they are pleaſed with their inebriating quality; for in the *natural* hiſtory of Kamtſchatka, (p. 208, 209) we are told that the inhabitants prepare a liquor from an infuſion of this agaric and the epilobium anguſtifolium, which taken in a ſmall quantity exhilarates the ſpirits, but in a larger doſe brings on a trembling of the nerves, intoxication, delirium, and madneſs *.

* Flor. Scot. vol. ii. p. 1010.

PEPPER

PEPPER AGARIC.

FUNGUS piperatus albus, lacteo ſucco turgens. *Ray's Synopſ.* 4.

FUNGUS albus acris. *Bauh. Pin.* 370.

AGARICUS ſtipitatus, pileo planiuſculo lacteſcente, margine deflexo, lamellis incarnato-pallidis. *Lin. Sp. Pl.* 1641.

THE ſtalk is about two inches high.

THE pileus is convex when young: as it expands, it becomes nearly flat: its colour is a dirty white, with a mixture of grey.

THE diſk is conſtantly bent inwards: when the fungus is decaying, the hat becomes depreſſed in its centre, and is ſometimes ſeen funnel-ſhaped.

THE lamellæ are cloſe, numerous, and of a pale freſh colour. When any part of this fungus is wounded, a cream-coloured liquid diſtils from the part, extremely acrid

in

in its nature, and very ſtimulating if applied to the tongue.

It is very common in woods, particularly near the roots of trees. Lightfoot obſerved it at Blair in Athol, and many other places in Scotland *.

This fungus, when freely taken, has been attended with fatal conſequences †. John Bauhine informs us, that after having handled it, he rubbed his eyes by accident, and brought on a violent irritation upon the eye-lids: and it is remarkable, that when this vegetable has loſt its acrid juice by exſiccation, its cauſtic quality remains.

The deleterious effects of ſome of the fungi were known to the ancients, particularly the boletus, mentioned by Juvenal, on account of the death of the emperor Claudius ‡. This circumſtance is alſo deſcribed by Pliny.

Some

* Flor. Scot. vol. ii. p. 1014.

† Vide J. and C. Bauhine, Ray, Moriſon, Tournefort, Vaillant, Dillenius, and Micheli, who have given inſtances of the pernicious effects of fungi.

‡ "Vilibus ancipites fungi ponentur amicis
"Boletus domino, ſed qualem Claudius edit.
"Ante illum uxoris, poſt quem nil amplius edit."
Sat. v.

"—— Minus

Some ſpecies of the boletus are now eaten in Italy, when young, and are eſteemed a great delicacy. The Germans alſo receive them as a dainty under the name of gombas and brat-biilz.

Mr. Lightfoot obſerves that deer, ſheep, and ſwine will feed upon the boleti, and are ſometimes diſordered by them. In cows and other cattle they have been known to create bloody urine, nauſeous milk, ſwellings of the abdomen, inflammation in the bowels, diarrhœas, and death. It is from hence obvious how cautious men ought to be in the uſe of them.

Scarabs, dermeſtes, and many other inſects feed upon and breed in them in abundance, and doubtleſs it is their proper food. It is pity men ſhould rob them of it.

The effects of the noxious fungi cannot be better deſcribed than in the words of the celebrated Haller.

" —— Minus ergo nocens erit Agrippinæ
" Boletus: ſiquidem unius præcordia preſſit
" Ille ſenis, tremulumque caput deſcendere juſſit
" In cœlum. Sat. vi.

" All

" ALL fungi are crude in their nature, of " ſpeedy growth, and ſudden decay. They " ſpring up, arrive at maturity, and periſh in " a few days, moſt of them diſſolving away " in a black corrupted liquor, of a fœtid " nauſeous ſmell. They are the food of " ſnails, beetles, flies, maggots, and the " nidus where they depoſit their young.

" THE Ruſſians, indeed, devour almoſt " every ſpecies, even thoſe which other na- " tions eſteem the moſt poiſonous, ſuch as " the agaricus muſcarius, piperatus, &c. but " all of them are a doubtful and ſuſpicious " food, and the moſt innocent have proved " ſometimes prejudicial.

" BY analyſis, it is found that ſeven parts " of eight in their compoſition are watery. " They yield, by fire, a yellow ſpirit like " hartſhorn, a yellow empyreumatic oil, " and a dry, volatile, chriſtalline ſalt: ſo " that their nature is evidently alkaline, ex- " tremely prone to corruption.

" THEIR fibres are tough, and very diffi- " cult to digeſt, ſwelling in the ſtomach like

" a

" a ſponge: and there are inſtances of their " remaining undigeſted for three days, be- " fore their bad effects have appeared. The " maladies they occaſion are a ſwelling of " the abdomen, reſtleſſneſs, heart-burns, " vomitings, colics, difficulty of reſpiration, " hiccoughs, melancholy, diarrhœas, accom- " panied with a teneſmus, and gangrenes. " To which dreadful complaints, the acri- " monious quality of ſome fungi bring on " beſides, inflammations in the mouth, " with dyſenteric ſtools.

" LASTLY, it is certain that ſome ſpecies " have an intoxicating quality, followed " often by deliria, tremblings, watchings, " faintings, apoplexies, cold ſweats, and " death itſelf.

" SOME have fancied that ſkilful cookery " would deprive them of their bad effects, " and that oils would ſheath their noxious " qualities; but theſe are fatal deceits, not " to be truſted. To perſons ſuffering from " eating any ſpecies of fungi, the moſt approv- " ed and ſpeedy remedy is to uſe emetics and " cathartics." *Haller. Helvet. Hiſt.* p. 2338.

THE

THE different vegetable poiſons, of which we have hitherto treated, reſemble each other very much in their effects. They all diſturb the functions of the nervous ſyſtem, producing either vertigo, faintneſs, delirium, madneſs, ſtupor, a paralytic ſtate of the muſcles, or apoplectic ſymptoms. Theſe appearances come on gradually; and if a vomit is given, or the ſtomach ſpontaneouſly rejects early the poiſonous ſubſtance, health ſpeedily returns. But if the poiſon ſhould have been taken in large quantities: if emetics cannot be conveyed into the ſtomach, or the nerves ſhould have been ſo deadened as to be inſenſible to their irritation, there is much reaſon to fear that the caſe will terminate fatally.

WHEN any of the narcotic vegetable poiſons have been unfortunately taken, the indications of cure will be,

1. To unload the ſtomach by the ſpeedy adminiſtration of an active emetic.

2. To procure ſtools either by proper cathartics, if the patient can ſwallow them, or by the injection of irritating clyſters.

3. To

3. To correct and counteract the ſedative effects of the poiſon, by giving from time to time draughts of ſome vegetable liquor, weak ſparkling cyder or perry *. And,

4. If any paralytic ſymptoms ſhould remain, or the muſcular action be much impaired, proper ſtimuli ſhould be applied, ſuch as ſynapiſms and bliſters; but more particularly the uſe of electricity is indicated.

By obſerving theſe rules, I once ſaw a patient who had taken two ounces of the tinctura thebaica perfectly recover in two days.

The poiſons conſtituting the firſt claſs, in general have a viroſe diſagreeable ſmell and taſte: on the contrary, thoſe which we are about to deſcribe, appear by the evidence of the ſenſes to be perfectly harmleſs. They ſpeedily occaſion epileptic ſymptoms. Of all epilepſies, theſe are the *moſt fatal*;—of all poiſons, theſe are the moſt deadly. Pleaſant

* Dr. Mead aſſures us, that he has given, with uncommon ſucceſs in theſe caſes, a mixture of ſalt of wormwood and juice of lemons.—Mead's Works, 4to edit. p. 128.

to

to the taſte, or inoffenſive to the palate, they paſs unſuſpected into the ſtomach; as ſoon as they take poſſeſſion there, they lock up both the doors; the upper and lower orifices are at the ſame time ſhut up by ſpaſms; nothing can be expelled, nor can any thing be got in: all poſſibility of relief is cut off; and ſhould that principle inherent in animal life, which tends to throw off every thing injurious to the machine, act, it produces thoſe ineffectual heavings and ſtruggles, which anſwer no other purpoſes than to accelerate and increaſe the effects of the poiſon.

SOMETIMES, by ſome ſecret mode of operation, which we ſhall probably never be acquainted with, they occaſion *inſtantaneous* death; and when this happens, no traces of the poiſon can poſſibly be diſcovered; but if epileptic ſymptoms take place, ſuch appearances as epilepſy, either with or without poiſon, neceſſarily and ſpecifically produces, may be expected.

AT a time when putrefaction is far advanced, and at a diſtant period from death, ſhould the face be diſcovered of an intenſe black

black colour, it may naturally be asked, from whence it arises. Does putrefaction occasion it? if it does, why does not putrefaction *always* give rise to this appearance? Why is not the body in general of the same complexion? Is putrefaction, different in kind or degree, dependent on the different texture of the parts? certainly not: putrefaction is universally the same, and nature is always simple and uniform in her operations. The blackness of the face is occasioned by putrefaction, but not by putrefaction only: if convulsions precede death, and the body becomes very putrid after it, the effect may be produced. I shall attempt to explain it, by first establishing two facts (clear and demonstrable as the two first propositions of Euclid) upon which I mean to reason.

The first proposition, then, which I shall make, is this: As soon as an animal has breathed, and the foramen ovale is consequently shut up, the blood must pass from the right side of the heart, *through the lungs*, to the left side of the heart, before it can circulate to any other part of the body.

THE ſecond is, That the human ſkin conſiſts of three parts: the cutis, or true ſkin, thick, porous, and vaſcular; the cuticle, or ſcarf ſkin, thin, compact, and denſe; and the rete mucoſum, a fine expanded mucous membrane between them, more vaſcular in the face than it is in any other part of the body, and the ſeat of colour in men of all complexions *.

IN an epileptic paroxyſm, reſpiration, which depends upon muſcular action, is by ſpaſms violently interrupted. Unleſs the lungs are expanded, the blood cannot circulate through the minute ramifications of the pulmonary artery, from the right ſide of the heart to the left. The vena cava, charged with all the returning blood from the head, will be unable to empty itſelf into the right auricle of the heart, already full: hence, an accumulation

* In the blackeſt negroe which the coaſt of Africa ever produced, the cutis is as white as the faireſt European, the colour reſides entirely in the rete mucoſum. I viewed the human cuticle lately by a ſolar microſcope, which magnified objects more than three million times, and no perforations were to be ſeen; ſo inconceivably minute are thoſe pores which give paſſage to our inſenſible perſpiration.

of

of blood will enſue in the head and face. The left ventricle of the heart, and the oſcillatory motion of the arteries, will exert a power to overcome the reſiſtance: but no more blood can be received by the vena cava, already overcharged. It muſt therefore either be propelled into a ſeries of veſſels, which in a ſtate of health refuſe admiſſion to red blood, or the ſmall arteries terminating in (what anatomiſts call) red veins, will be ruptured, and their contents conſequently thrown out into the cellular membrane under the ſkin. When a muſcle is in action, it becomes pale, the fibres ſwelling compreſs the interpoſed veins, and forcibly expel their blood, while that of the arteries is denied an entrance: and if *all* the muſcles in a violent epilepſy are affected with convulſive ſpaſms, the greateſt quantity of that blood which uſed to circulate through them, muſt be determined to other parts where there is leſs reſiſtance. The fluids, therefore, will either be propelled into the lymphatic ſyſtem, crowded into the veins, or extravaſated in the cellular membrane. The equipoiſe of the circulation will be deſtroyed; and the left ventricle of the heart, not receiving blood enough from

the lungs to excite irritation, contracts no more;——it ceaſes to beat. At the time, or ſoon after death, the extravaſated blood is not viſible through the ſkin: but when the proceſs of putrefaction takes place, an inteſtine commotion enſues; an elaſtic air, preſſing *quaquaverſum*, diſtends the body; the ſtagnant blood is rendered both thinner and blacker; it ſoaks through the cutis, is refuſed a paſſage by the minute pores of the cuticle, and ſpreading abroad, *dyes the rete mucoſum of a black colour*.

CLASS

CLASS II.

HEMLOCK DROPWORT.

OENANTHE foliis omnibus multifidis obtusis subæqualibus. *Lin. Sp. Plant.* 365.

OENANTHE cicutæ facie Lobelii. *Park.* 894.

OENANTHE chærephylli foliis. *Bauh. Pin.* 162.

FILIPENDULA, cicutæ facie. *Gerard.* 1059.

OENANTHE, succo viroso, cicutæ facie. *Lobel. J. B.*

OENANTHE maxima, succo viroso, cicutæ facie. *Morif. Hift.*

OENANTHE tertia. *Matthioli,* p. 629.

THE root is long, thick, and tuberous, extremely succulent, and on exposure to the external air, the juice becomes of a yellow complexion.

THE stalk is striated, round, branched, and three feet high.

THE leaves are of a pale green colour: they are large, ſingly and doubly pinnated; each foliolum is wedge-ſhaped, ſmooth, ſtriated with lines, and notched at the edges.

THE flowers are very ſmall and white: they are diſpoſed in ſmall umbels, placed upon the principal ſtalks, with ſhort ones at the ſubdiviſions. Each flower is compoſed of five petals; ſome of them are inflected and heart-faſhioned.

THE cup is large, and divided into five ſegments.

THE ſeeds are ſtriated on one ſide, and dented on the other.

THIS plant is found upon the banks of the Thames, and many other rivers in England. It flowers in July.

HEMLOCK dropwort is one of the moſt terrible poiſons which the vegetable kingdom produces.

MR.

Mr. Lightfoot * says, that he heard that celebrated botanic painter, the late Mr. Chriſtopher Ehret, declare, that while he was drawing this plant, the ſmell or effluvia only rendered him giddy, that he was ſeveral times obliged to quit the room, and walk out in the freſh air to recover himſelf: but recollecting at laſt what might probably be the cauſe of his repeated illneſs, he opened the doors and windows of his room, and the free air then enabled him to finiſh his work without any more returns of giddineſs.

Eleven French priſoners had the liberty of walking in and about the town of Pembroke: three of them being in the fields a little before noon, found and dug up a large quantity of a plant with its roots, which they took to be wild celeri, to eat with their bread and butter for dinner. After waſhing it while in the fields, they all three eat, or rather taſted of the roots †.

As they were entering the town, without any previous notice of ſickneſs at the ſtomach,

* Flor. Scot. vol. i. p. 162.

† Letter from Mr. Howell, Surgeon at Haverford-weſt, to Dr. Watſon. Phil. Tranſ. N° 480, p. 229.

or diſorder in the head, one of them was ſeized with convulſions. The other two ran home, and ſent a ſurgeon to him. The ſurgeon endeavoured firſt to bleed, and then to vomit him: but thoſe endeavours were fruitleſs, and the ſoldier died in a very ſhort time.

IGNORANT yet of the cauſe of their comrade's death, and of their own danger, they gave of theſe roots to the other eight priſoners, who all eat ſome of them with their dinner. The quantity could not be aſcertained.

A FEW minutes after, the remaining two, who gathered the plants, were ſeized in the ſame manner as the firſt, of which one died; the other was bled, and a vomit with great difficulty forced down, on account of his jaws being, as it were, locked together. This operated, and he recovered, but he was for ſome time affected with a giddineſs in his head: and it is remarkable that he was neither ſick, or in the leaſt diſordered in his ſtomach. The other eight, being bled and vomited *immediately*, were ſecured from the

the approach of any bad ſymptoms. Upon examination of the plant, which the French priſoners miſtook for wild celeri, Mr. Howell diſcovered it to be the oenanthe aquatica cicutæ facie of Lobel, which grows very plentifully in the neighbourhood of Haverfordweſt. It is called by the common people there, five-fingered root, and is much uſed by them in cataplaſms, for whitlows, &c. The perſons above referred to, eat only the root of the plant, without any of the ſtalk or leaves.

* EIGHT young lads near Clonmel † in Ireland, miſtook the roots of the oenanthe crocata, for the ſium aquaticum, or water parſnep, and eat plentifully of them. A little time afterwards, going home, the eldeſt, almoſt an adult, without the leaſt previous diſorder or complaint, fell down backward, and died in convulſions. Four more died in the ſame manner before the morning, not one of them having ſpoken a ſingle word from the moment the ſymptoms firſt appeared. Of the other three, one became furiouſly

* Phil. Tranſact. N° 238.

† In that part of Ireland, this plant is called Tahow.

mani-

maniacal, but recovered his ſenſes the next day. The hair and nails of another fell off. Only one of the eight eſcaped without any harm, who ran home above two miles, and drank warm milk, which cauſed a diaphoreſis.

A DUTCHMAN likewiſe was poiſoned with the leaves of this plant, boiled in his pottage. He took the herb for ſmallage, to which its leaves have great reſemblance *.

ALLEN † mentions an inſtance of four children who eat of the roots of the oenanthe cicutæ facie. They appeared all in great agonies, and afterwards were convulſed. Very fortunately, however, in their fits they vomited, which was encouraged by giving them large draughts of oil and warm water: and by great care and attention they all recovered.

STALPART Vander Wiel, in his Obſervations, takes notice of the fatal effects of

* Dr. Watſon's account to the Royal Society. Phil. Tranſ. N° 480. accompanied with an excellent plate of the plant.

† Synopſ. Medicin.

the

the roots of this plant, in two perſons who had miſtaken them for thoſe of the Macedonian parſley. Soon after eating the roots, they complained of violent heat in the throat and ſtomach, attended with a vertigo, ſickneſs at the ſtomach, and purging. One of them bled at the noſe: the other was violently convulſed. Both died: one in two hours, the other in three. This caſe is accompanied with figures of the plant, but not very well executed.

The ſymptoms which attended the above recited caſe, were different from thoſe of the French priſoners at Pembroke: as in the latter there was no complaint of heat in the mouth or throat, nor did any ſickneſs or diſorder of the ſtomach precede the convulſive paroxyſms.

The oenanthe is very common in Cumberland, where the common people call it dead tongue, and apply it boiled in cataplaſms to ſome diſeaſes in their horſes *.

The root of this plant has no ill taſte: hence it is the more dangerous to thoſe whoſe

* Threlkeld, Synopſ. Plantar.

curioſity

curiosity or hunger may prompt them to eat it.

THE well-authenticated cases we have produced, sufficiently demonstrate that, unless timely prevented, epileptic symptoms, convulsions, and death, will be the consequences of taking hemlock dropwort. If the root should have been swallowed in a large quantity, or the violence of the spasms prevent any thing being conveyed into the stomach, no hope seems to remain: but if an active emetic can be given, either before the symptoms come on, or soon after their appearance, the patient may probably recover. After he has vomited, he should drink, if possible, large quantities of oil and water.

WATER HEMLOCK.

CICUTA umbellis oppositifoliis, petiolis marginatis obtusis. *Lin. Sp. Pl.* 366.

CICUTA aquatica. *Gesner. Hort.* 254. *Wepfer. de Cicuta.*

CICUTA maxima quorundam. *Hort. Eyst.*

SIUM majus angustifolium. *Park.* 1241.

SIUM erucæ folio. *Bauh. Pin.* 154.

SIUM alterum olusatri facie. *Gerard.* 256. *Ray's Synopf.* 212.

SIUM alterum. *Dodon. Pempt.* 579.

SIUM foliis rugosis trifidis dentatis. *Morif. Umbel.* 63. tab. 5.

SIUM, pinnis laciniatis, pinnulis trifidis, nervo non folioso. *Haller. Helv.* 436.

PHELLANDRIUM aquaticum. *Hill. Brit. Herb.* 412.

THE root is large and hollow, divided into cells by transverse diaphragms; corresponding with which, the external surface

face is marked with circular depreſſions. At the beginning of winter, the root for the ſucceeding year is formed from the lower part of the ſtalk; and as the old root decays and rots, long white filaments are obſerved to extend themſelves from the new root, which ſhoot into the ſoil, and ſecure the ſituation of the plant. Before this proceſs takes place, the cells of the old root render it ſpecifically lighter than water: hence in winter, upon a ſudden riſe of the water, is is buoyed up to the ſurface, and frequently carried by the ſtream to a conſiderable diſtance from the place where it grew.

THE ſtalk is large, round, fiſtular, of a pale green colour, and divides near the top into numerous branches.

THE leaves are of a pale green: they are pinnated with ſingle, double, and triple foliola: each foliolum is ſpear-ſhaped, and finely ſerrated: the ſerratures are white at the tips.

THE flowers are ſmall and white: they ſtand upon large umbels at the tops of the branches.

branches. Each flower consists of five petals, heart-shaped and inflexed. The seeds are oval, and furrowed with three prominent meridians.

It flowers in June, and is common on the banks of several rivers in England: it is fond of the still, soft, muddy sides of lakes and stagnant waters *.

Although this plant is one of the most deleterious which the vegetable kingdom produces, yet like the other poisonous plants before described, it affords protection and nourishment to various insects.

The chrysomela phellandria, and the gilt leptura, are found upon the roots, and the curculio paraplecticus within its stems.

Dr. Withering † informs us, that early in the spring when it grows in the water, cows often eat it, and are killed by it: but as the summer advances, and its smell be-

* Dr. Parsons met with it on the side of Loch-End in Scotland. Lightfoot's Flor. Scot. vol. i. 165.

† Arrangement of British Vegetables, vol. i. p. 176.

comes

comes ſtronger, they carefully avoid it: hence the plant is ſometimes called cow-bane. Although it is a certain and fatal poiſon to cows, goats devour it greedily, and with impunity, and horſes and ſheep eat it with ſafety. Linnæus aſſures us, that he has known cattle die by eating the roots: and Wepfer ſays that one ounce of it threw a dog into convulſions, and two killed him.

SCHWENKE, a German writer, gives an account of four boys who had the misfortune to eat of it, three of whom died in convulſions *.

IN the month of March 1670, two boys and ſix girls found the roots of the cicuta aquatica in a meadow, and upon taſting them, perceiving they were not unpleaſant, they all eat ſome of them †.

THE two boys, who eat a large quantity, were ſoon after ſeized with pains of the precordia, loſs of ſpeech, an abolition of all the

* Schwenke, Catal. Stirp. & Foſſil. Sileſiæ.

† Wepfer, de Cicutæ Aquaticæ Hiſtoria & Noxæ, p. 7.

ſenſes,

ſenſes, and terrible convulſions. The mouth was ſo cloſely ſhut, that it could not be opened by any means. Blood was forced from the ears, and the eyes were horribly diſtorted. Both the boys died in half an hour from the firſt acceſſion of the ſymptoms. The ſix girls, who had taken a ſmaller quantity of the roots than the boys, were likewiſe ſeized with epileptic ſymptoms, but in the intervals of the paroxyſms, ſome Venus treacle diſſolved in vinegar was given them; in conſequence of which, they vomited and recovered: but one of them, the ſiſter of the boys who died, after ſhe vomited, had a very narrow eſcape for her life. She lay nine hours with her hands and feet out-ſtretched and cold: all this time ſhe had a cadaverous countenance, and her reſpiration could ſcarcely be perceived. When ſhe recovered, ſhe complained a long time of a pain in her ſtomach, and was unable to eat any food, her tongue being much wounded by her teeth in the convulſive fits.

Wepfer has very minutely deſcribed the ſymptoms which took place in the firſt boy, in the following words:

" JACOBUS Mæder, puer ſex annorum,
" domum rediit hilaris ac ſubridens, quaſi re
" bene geſta: paulo poſt conquerebatur de
" præcordiorum dolore, & vix verbum effa-
" tus, humi proſtatus urinam magno impetu
" ad viri altitudinem eminxit: mox terribili
" aſpectu, cum omnium ſenſuum abolitione
" convulſus fuit, os arctiſſime clauſit, ut
" nulla arte aperiri valuerit, dentibus ſtride-
" bat, oculos mire diſtorquebat, ſanguis ex
" auribus promanabat; circa præcordia tu-
" midam quoddam corpus pugni virilis mag-
" nitudine patris afflicti manum & miſeran-
" di pueri præcordia, maxime circa cartila-
" ginem enſiformem, validiſſime feriebat:
" ſingultiebat crebro: vomiturus quandoque
" videbatur, nihil tamen ore arctiſſime clauſo
" ejicere valuit: artus mire jactabat, & tor-
" quebat, ſæpius caput retrorſum abripieba-
" tur, totumque dorſum incurvabatur in ar-
" cum: ut puellus ſubtus per ſpatium inter
" dorſum & ſtratum inoffenſe repere potu-
" iſſet. Ceſſantibus convulſionibus per mo-
" mentum matris opem imploravit: mox
" pari ferocia illis redeuntibus nulla velli-
" catione, nulla acclamatione, nullove alio
" ingenio excitari poterat, donec viribus de-
" ficientibus

" ficientibus expalluit, & manu pectori ad-
" mota expiravit. Durarunt hæc sympto-
" mata vix ultra horam dimidiam. Post
" obitum imprimis abdomen, & facies intu-
" muerunt absque livore, nisi pauco circa
" oculos conspicuo. Ex ore cadaveris usque
" ad horam sepulturæ spuma viridis largissime
" emanavit, & quamvis sæpius a patre mæstis-
" simo detersa fuisset, mox tamen nova suc-
" cedebat *."

* De Cicut. Aquat. p. 6.

LAUREL.

LAURO-ceraſus. *Gerard. Cluſ. J. Bauh.*

CERASUS folio laurino. *C. Bauh.*

CERASUS trapezuntina, ſive lauro-ceraſus. *Park.*

THE root is large, tough, and furniſhed with many fibres.

THE branches are woody, numerous, brown on the outſide, and white within.

THE leaves are large, fleſhy, oblong, ſhining, pointed at both ends, and ſlightly ſerrated at the edges: their upper ſurface is ſmooth, and of a beautiful dark green colour; the under ſide is rough, ſtrongly marked with fibres, and of a light green complexion.

THE flowers appear toward the ſuperior part of the branches: they are pentapetalous, in

in five-leaved cups. They are followed by clusters of berries resembling cherries, and containing an oblong stone within the pulp of the fruit. It flowers in May, and ripens its fruit in September.

The plant was first brought from Trapezus, a city near the Euxine sea, to Constantinople, from thence into Italy, France, Germany, and England. This beautiful evergreen is now become very common in our gardens: it is easily propagated, and bears very well the cold of northern climates.

The leaves of laurel have a bitter taste, with a flavour resembling that of the kernels of the peach and apricot. They communicate an agreeable flavour to aqueous and spirituous fluids, either by infusion or distillation.

The distilled water applied to the organs of smelling strongly impresses the mind with the same ideas as arise from the *taste* of bitter almonds, or apricot kernels: it is so extremely deleterious in its nature, and sometimes so sudden in its operation, as to occa-

ſion inſtantaneous death *; but it more frequently happens that epileptic ſymptoms are firſt produced.

THIS poiſon was diſcovered by accident in Ireland in the year 1728. Before that time it was not an uncommon practice there to add a certain quantity of laurel water to brandy, or other ſpirituous liquors, to render them agreeable to the palate. In the month of September 1728, at Dublin, three women drank ſome laurel water, and one of them, Mary Whaley, a ſhort time afterward, became violently diſordered, loſt her ſpeech, and died in about an hour. Anne Boyce was ſeized in the ſame manner, and died in a ſhort ſpace of time. Neither of them vomited. Frances Eaton, who drank no more than a ſpoonful of the water, did not find herſelf indiſpoſed when the other

* A few ſpoonfuls of laurel water killed a large dog whilſt it was paſſing down the throat, before it could be ſuppoſed to have reached the ſtomach.——MEAD's WORKS, 4to. p. 128.

It was the cuſtom of the late Dr. Nicholls, when he wanted dogs for anatomical purpoſes, to give them ſtrong laurel water, as the moſt expeditious method of deſtroying them.—BROMFIELD ON NIGHTSHADE, p. 75.

women

women were taken ill, but to prevent any bad conſequence, took a vomit immediately, and no ill effects enſued *.

Dr. Madden ſaw Anne Boyce twenty-four hours after her deceaſe, but he could not obtain leave from her friends to open the body. She was about ſixty years of age, her countenance and ſkin appeared of a natural colour, and her features were not altered. The abdomen was not ſwelled, nor was there any other external mark of poiſon.

Another accident of the ſame kind happened in the town of Kilkenny: a young gentleman, ſon to Mr. Evans of that place, miſtook a bottle of laurel water for ptiſan. It is uncertain what quantity he drank, but he died in a few minutes. This affair was not much regarded at that time, becauſe he laboured under a diſtemper to which, or to an improper uſe of remedies, his death was attributed by thoſe about him †.

* Phil. Tranſ. N° 418. p. 84.

† Ibid. p. 48.

Dr. Rutty of Dublin, in a letter to Dr. Mortimer, dated May 17, 1732, after obſerving that ſome people doubt the poiſonous properties of laurel water, thus proceeds: "I can now confirm that it really is poiſonous by the following inſtance, the truth "of which you may be aſſured of. At Liſininy, in Weſtmeath, a girl of eighteen "years of age, very well and healthy, took "a quantity leſs than two ſpoonfuls of the "firſt runnings of the ſimple water of laurel "leaves; whereupon within half a minute "ſhe fell down, was convulſed, foamed at "the mouth, and died in a ſhort time, nor "was there any ſwellings in her body *."

Having procured ſome laurel water, I made with it the following experiments:

Experiment I.

March 17, 1781. In the preſence of Dr. Simſon, two ounces of laurel water were given to a large ſtrong dog. Two minutes after taking it, he appeared very uneaſy, and the muſcles of the back were affected with

* Phil. Tranſact. N° 452, p. 63.

ſpaſms,

ſpaſms. After making violent efforts to vomit, he brought up what we ſuppoſed the greateſt part of the water mixt with a thick frothy mucus. In a little time he vomited again, and in the ſpace of three or four minutes by degrees recovered. One ounce more of the water was then given him, with which he was ſooner affected than with the firſt doſe: he breathed with difficulty, was ſick, and vomited ſoon after; his head was drawn backward by that kind of ſpaſm called opiſthotonos. He fell down, and was ſo generally convulſed that he ſeemed to be at the point of death. The convulſions continued ſome minutes: he was placed upon his legs, but they appeared paralytic, and he could not ſtand. In leſs than half an hour from the time he took the firſt doſe of laurel water, he perfectly recovered.

EXPERIMENT II.

MARCH 20. One ounce of laurel water was given to a young greyhound. Whilſt Dr. Rattray held the mouth open, I poured the water into the dog's throat. As ſoon as it was ſwallowed, the doctor releaſed his head,

head, to obſerve the effects of the poiſon, when, to our great ſurpriſe, the dog fell down upon his ſide, and without the leaſt ſtruggle, or any perceptible motion, was dead in a moment.

EXPERIMENT III.

MARCH 22. One pint and a quarter of laurel water was given to a mare aged 28 years *. Within a minute from the time it was ſwallowed, ſhe ſeemed affected. Her flanks were obſerved to heave much, and a trembling ſeized her limbs. In two minutes ſhe ſuddenly fell down upon her head, and a ſhort time after was very violently convulſed. The convulſions continued about five minutes, at the expiration of which time, ſhe lay ſtill, but her breathing was very quick and laborious. Her eyes were much affected with continual ſpaſms: at this time four ounces more of the water were given her, after which ſhe ſeemed much weaker, without any more convulſions,

* In preſence of Sir William Wheler, Dr. Rattray, and Mr. Snow, Surgeon.

and

and in about fifteen minutes from the time of her firſt ſeizure, expired.

Some little time before her death, a remarkable appearance was obſerved in the carotid artery, through which the blood ſeemed to be very feebly pumped up in large globules, and not in a continued column, which ſeems to prove, that by the violence of the convulſions, the blood had been forced out of the arterial ſyſtem into the veins; and from the difficulty with which it circulated through the lungs, there was not a ſufficient quantity tranſmitted into the left auricle of the heart to continue the circulation: hence death was the conſequence.

Dissection.

Upon opening the abdomen, a ſtrong ſmell of laurel water was perceptible. The colon was not altered from its uſual appearance; but the ſmall inteſtines appeared of a purple colour, and their veins much diſtended with blood. The ſtomach contained ſome hay, mixt with the laurel water. Its internal

nal surface was not inflamed, except in a small degree near the pyloris, and where a number of botts were clustered. The lungs appeared remarkably full of blood: the small vessels upon their surface being as visible as if they had been injected with red wax.

By experiments made on various animals it appears, that the water of lauro-cerasus is extremely dangerous; and whether we consider the certainty of its effects, or the celerity of its operation, it is as wonderful a poison as any we have heard of, not excepting that with which the Indians prepare their arrows. Given by the mouth, or injected into the rectum, its operation is equally certain, and it acts the moment it touches the stomach, or is received into the intestines.

Three tea spoonfuls of laurel water conveyed into the stomach of an eel, killed it in a few minutes; and it is well known that eels will live some time after their heads are cut off. It is equally mortal to small animals, if applied to wounds of the muscles, and death is as certainly the consequence, as if

if they had taken it into the ſtomach. A wound was made in the ſkin of the belly of a rabbit, about an inch in length, the muſcles were afterward ſlightly wounded in different places, and two or three tea ſpoonfuls of the water were applied to the part: in leſs than three minutes the animal fell down convulſed, and died ſoon after. This experiment was repeated, and the reſult was the ſame in different animals *.

The water of lauro-ceraſus produces generally very ſtrong convulſions, and in a ſhort time death. The ſpaſmodic motions of the whole body are extremely violent, and the ſtruggles are fatal in a ſhort time.

Two tea ſpoonfuls only of the water were given to middle-ſized rabbits: they fell down convulſed in thirty ſeconds, and died within a minute.

When it is given very ſtrong, and in large quantities to animals, they die almoſt inſtantly, and without convulſions, a ſudden

* Phil. Tranſact. vol. lxx. part 1. Append. xii.

and

and univerſal paralyſis coming on. If it is taken in a ſmaller quantity, the convulſions are more or leſs ſtrong: the hind feet firſt loſe their motion, and afterward the fore feet become paralytic. Upon diſſection, no uncommon appearances are obſervable in the ſtomach, nor any inflammation upon the internal membranes. The arterial ſyſtem is found empty, and the veins very turgid with blood. The ſinuſes of the brain, and the veins of the pia mater, have been ſeen very much diſtended; but theſe appearances may be better explained from the violence of the convulſions, than from any ſpecific properties of the poiſon.

In many reſpects the poiſon of lauro-cerasus, and the American poiſon called ticunas, agree in the ſimilarity of their action *. They both, when received into the ſtomach, occaſion ſudden agonies, and violent convulſive motions of the muſcles. Injected into the rectum, the reſult is the ſame. When they are applied to the large trunks of the nerves, they produce no effects at all. If

* Abbè Fontana, on the American poiſon call ticunas. Phil. Tranſact. vol. lxx. part 1.

they

they are brought into contact with wounds of the muſcles, death is the conſequence. But they differ very eſſentially in this reſpect. When the poiſon called ticunas is injected into the large veins, it ſoon proves fatal; whereas the water of lauro-ceraſus, mixt with the blood in the ſame manner, produces no diſorder, or any apparent effect.

The Abbè Fontana having detached the ſciatic nerve of a large rabbit more than an inch and a half, introduced under it a wrapper of very fine linen, ſixteen times doubled, that the parts below it might not be penetrated by the water of the lauro-ceraſus. He then wounded the nerve with many ſtrokes of the lancet, in a longitudinal direction, and covered all this wounded part, which extended above eight lines in length, with a roll of cotton three lines in thickneſs, well ſteeped in laurel water. More than fifteen drops were neceſſary to moiſten the cotton, and the fluid communicated itſelf directly by the wounds, to the medullary ſubſtance of the ſciatic nerve. The whole was covered over about a minute after with new rags, ſo that it was impoſſible for the laurel water to touch

touch any other part but the wounded nerve. The external ſkin was ſewed up, and the animal was ſet at liberty: it ſeemed not to be in the leaſt affected either then or afterwards. It ran about, eat, and was as lively as ever. This experiment ſeems to prove, that the water of lauro-ceraſus applied immediately upon the nerves, and inſinuated into their medullary ſubſtance, is not at all poiſonous; conſequently that it does not act upon the nerves, however applied, externally.

THE Abbè Fontana having obſerved, that the poiſon of the viper and the ticunas, like the lauro-ceraſus, were innocent applied to the nerves, but immediately killed ſtrong animals when introduced into the blood; it was extremely natural to conclude, that laurel water would have the ſame effects: experience, however, determines quite the contrary, and ſhews us that the mode of reaſoning by analogy, may ſometimes prove deceptive. He introduced ſome of the water into the jugular vein of a large rabbit, in the ſame manner as he had done the poiſon of the viper, and the American poiſon, yet the animal diſcovered no ſigns of ſuffering. He

ſuſpected

ſuſpected he had not performed the operation properly; that the ſyringe might poſſibly have inſinuated itſelf into the cellular membrane, and that he had not introduced any of the water into the veſſel: he therefore repeated the experiment, and introduced into the jugular vein a larger quantity of the poiſon than he had hitherto employed, and was careful to make the point of the ſyringe enter the veſſel before he introduced the water; yet ſtill the animal was not affected by it, but continued as lively as ever. He could not perſuade himſelf to believe, that the water of lauro-ceraſus was not a powerful poiſon when introduced into the blood, ſince it was poiſonous applied to wounds of the muſcles, and when taken by the mouth, although it was harmleſs if brought into contact with the naked trunks of the nerves. He therefore a third and a fourth time repeated the experiment, and introduced into the blood a larger quantity of laurel water than he had uſed before; but the reſult was in no reſpect different from the former eſſays *.

* Phil. Tranſact. vol. lxx.

Dr. Mortimer gave to a puppy, one ounce and a half of laurel water: in two minutes time it became ſtrongly convulſed, put out the tongue, and made ſtrong efforts to vomit, but to no effect; it could not ſtand, but lay with its hinder legs ſtretched out: in five minutes it became more ſtrongly convulſed, rolled over and over ſeveral times, drew its head back to its rump, then lay on its ſide, and panted much: he ſtretched out his fore legs, one after the other, drawing in his flanks very quick: in fifteen minutes more he died. An hour after his death, Dr. Mortimer opened the body. All the contents of the abdomen were in their natural ſtate, the ſtomach was diſtended with wind, and contained a mucus of a much thicker conſiſtence than the liquor gaſtricus naturally is; the inſide of the ſtomach was *not at all inflamed*. Upon opening the thorax, he found the lungs a little redder than ordinary, with ſome veſſels on the outward membrane very turgid: upon taking them out of the cheſt, a large quantity of clear red blood iſſued from them. The veins and ventricles of the heart were turgid, and full of coagulated blood. There was no blood in the arteries: the

the foramen ovale was open. The head was next examined: the dura mater appeared livid, as if bruiſed; its veſſels and the ſinus falciformis were turgid, and full of blood. The cortical ſubſtance of the brain looked of an unuſual livid colour *.

The doctor after this procured a middle-ſized ſpaniel, and poured ſome laurel water down his throat: he ſtruggled pretty much at firſt, and whined, but when about an ounce and a half of it was down, he ceaſed to ſtruggle: an ounce more of the water was then given him: he was laid down on the ground, but never offered to get up, only ſtretching out his legs, he expired directly. Soon after his death, Mr. Ranby opened him: the laurel water, with ſome frothy mucus, was found in his ſtomach: the veins in general were very turgid, but the blood was ſtill fluid, and no alteration was found in any of the viſcera †.

Dr. Porter forced three ounces of laurel water down the throat of a large dog: about

* Phil. Tranſact. N° 420, p. 163.

† Ibid. N° 420.

two ounces of it were ſoon after diſcharged by vomit: in a few minutes he became violently convulſed, and in a ſhort time after lay motionleſs, to all appearance was dying. Within ten minutes he vomited a ſecond time, and threw up a ſmall quantity of viſcid frothy matter, from which moment he began to recover, and within half an hour was perfectly well *.

On the third of October, 1728, Dr. Madden gave a large ſetting dog three ounces of laurel water. In three minutes he became ſtrongly convulſed. The convulſions continued five minutes: then a violent difficulty of breathing came on, which laſted about eight minutes, and gradually abated: upon which he endeavoured to raiſe himſelf, but could not. The doctor gave him an ounce and a half more, when he ſunk at once, and without any return of convulſions, or difficulty of breathing, he expired in two minutes. Upon opening the ſtomach, the doctor found therein the whole quantity of water he had taken: its ſurface was covered

* Phil. Tranſact. N° 420.

with

with froth, but it was not otherwiſe altered in its colour, conſiſtence, or ſmell. The inſide of the ſtomach was *not in the leaſt inflamed*, nor was there any viſible alteration in the tunica villoſa. The veins of the ſtomach, all the meſaraic veins, and likewiſe the vena cava, were much diſtended with blood: the arteries, on the contrary, were remarkably empty. The liver and gall-bladder were unaltered. The kidneys were unuſually full of blood, and appeared of a bluiſh colour, almoſt as deep as that of the violet plumb. Upon making an inciſion into one of the kidneys, the blood flowed in a much larger quantity than uſual. The heart exhibited no preternatural appearance *.

MANY ſimilar experiments were repeated by Dr. Madden, with nearly the ſame effects. He found that the ſymptoms were equally violent and fatal, if the laurel water was injected into the rectum. Violent convulſions were the uſual conſequence, and (what may appear ſurpriſing) that kind of ſpaſm called opiſthotonos was generally pro-

* Phil. Tranſact. N° 418. p. 84.

duced.

duced. If the animal vomited, he either became better ſoon after, or recovered, unleſs more of the poiſon was forced down the ſtomach. The ſpaſms, however, which affected both orifices of the ſtomach at the ſame time, often prevented a rejection of the contents; and in that caſe there was no chance of recovery. In all the animals that were diſſected, the *ſtomach* and the abdominal viſcera were obſerved free from *inflammation*, the arterial ſyſtem was *always* empty, and the veins remarkably diſtended with fluid blood.

ALTHOUGH the poiſon of laurel appears to conſiſt in the eſſential oil brought over by diſtillation, yet it is much to be ſuſpected that an infuſion of its leaves may in ſome caſes, and ſome conſtitutions, prove injurious. They have been in common uſe to give a flavour to cuſtards, &c. but from an inſtance I ſaw of their effects, this practice ſhould not be continued.

JAN. 27, 1780, I was deſired to viſit a young lady of an irritable habit of body. She was affected in the night with ſickneſs: when

when I saw her she had cold sweats, an irregular pulse, and such other symptoms that I suspected she had taken something extremely noxious into her stomach. Upon enquiry, I was informed by her mother that she had taken nothing which in her apprehension could disorder her: that her supper the preceding evening had been very easy of digestion, for that she had eaten nothing but some custard. Upon examination I found the custards were very strongly flavoured with laurel leaves. She continued ill a few days, and afterward perfectly recovered.

FINIS.

AN

ESSAY

ON

CULINARY POISONS.

[Price ONE SHILLING.]

AN ESSAY ON CULINARY POISONS.

CONTAINING

CAUTIONS

RELATIVE TO THE

USE of LAUREL-LEAVES,

HEMLOCK, MUSHROOMS, COPPER-VESSELS, EARTHEN JARS, &c.

WITH

Obſervations on the ADULTERATION of BREAD and FLOUR,

And the NATURE and PROPERTIES of WATER.

Unde fames homini vetitorum tanta ciborum?
Audetis veſci, genus ô mortale? quod, oro,
Ne facite; et monitis animos advertite noſtris.

OVID. MET. xv. 138.

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M,DCC,LXXXI.

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PRE-

PREFACE.

MANKIND are ſubject to innumerable diſeaſes, from which other animals are exempted. But from whence do theſe diſeaſes ariſe? From the ſeeds of mortality in the human frame? From luxury and intemperance? Or from an indiſcreet uſe of vegetable and mineral poiſons in the preparation of our food? ---From the laſt of theſe ſources we certainly derive many troubleſome, and ſometimes fatal diſorders: ſo that, on many occaſions, we may exclaim with the ſons of the prophets*, "There is death in the pot!"

* 2 Kings iv. 40.

The

The deſign of this publication is to guard people againſt theſe diſaſters; and, if poſſible, to prevent ſome of the calamities of human life. If it ſhould anſwer this uſeful purpoſe, the author's ambition will be fully gratified.

ON

CULINARY POISONS.

1. The LAURO-CERASUS, or Common LAUREL.

THE water diſtilled from the leaves of this tree has been frequently mixed with brandy, and other ſpirituous liquors, in order to give them the flavour of ratifia; and the leaves are often uſed in cookery, to communicate the ſame kind of taſte to cream, cuſtards, puddings, and ſome ſorts of ſweetmeats. But, in the year 1728, an account of two women dying ſuddenly in Dublin, after drinking ſome of the common diſtilled laurel water, gave riſe to ſeveral experiments, made upon dogs, with the diſtilled water, and with the infuſion of the leaves of the

lauro-cerasus, communicated by Dr. Madden, physician at Dublin, to the Royal Society in England, and afterwards repeated (in the year 1731) and confirmed by Dr. Mortimer, F. R. S. by which it appeared, that both the water and the infusion brought on convulsions, palsy, and death, when taken by the mouth, or anus *.

Dr. Mead † speaks of the foregoing accident and experiments in these terms: "A small quantity of this water killed two women, who drank it, very suddenly. Hereupon a learned physician, surprized at the event, (this plant having never been thought to be any wise noxious) made several experiments with it upon dogs, which were afterwards, some of them, repeated here, with the same fatal success."

Dr. Mortimer affirms, "that laurel-water is equally mortal with the bite of the rattle-snake, and more quick in its operations than any mineral poison."

* See Philosophical Transactions, No. 418, and 420.

† Mead on Poisons, Essay v.

Dr.

Dr. James ſays: "laurel-water is the moſt deleterious poiſon perhaps known, killing almoſt inſtantaneouſly ‡."

The laurus of the ancients, or the *bay*, is, on the contrary, of a ſalutary nature, and of uſe in ſeveral diſorders.

It may be ſaid, that the laurel in cuſtards, and other articles of cookery, is uſed in very ſmall quantities, and has never been attended with any pernicious effect.——But, I aſk, who can pretend to aſſert, that it has not occaſioned ſome latent diſorder, or ſome complaints, which have been aſcribed to other cauſes? What perſon of ſenſe or prudence would truſt to the diſcretion of an ignorant cook, in the uſe of a dangerous ingredient in his puddings or cuſtards? Or, who, but a madman, would chooſe to ſeaſon his victuals with poiſon?

The remedy is from ten to forty drops of ſal ammoniac, in a glaſs of water, repeated as the ſymptoms may require.

‡ James's Diſpenſatory, book iii. c. 1. p. 228.

2. Small HEMLOCK, or FOOLS PARSLEY.

Description.

The firſt leaves are divided into numerous ſmall parts, which are of a pale green, oval, pointed, and deeply indented. The ſtalk is ſlender, round, upright, ſtriated, and about a yard high. The flowers are white, growing at the tops of the branches in little umbells. It is an annual plant, common in orchards and kitchen gardens, and flowers in June and July. This plant has been often miſtaken for parſley: and from thence it has received the name of *Fools Parſley*.

Though it ſeems not to be of ſo virulent a nature as the larger hemlock, yet Boerhaave places it among the vegetable poiſons, in his Inſtitutes; and, in his Hiſtory of Plants, produces an inſtance of its pernicious effects ‡. It is therefore

‡ Inſtitutes, § 1138, Hiſt. of Plants, p. 93.

fore neceſſary to guard againſt it in collecting herbs for ſallads, and other purpoſes.

3. MUSHROOMS.

Muſhrooms have been long uſed in ſauces, in ketchup, and other forms of cookery. They were highly eſteemed by the Romans, as they are at preſent, by the French, Italians, and other nations.

Pliny exclaims againſt the luxury of his countrymen in this article; and wonders, what extraordinary pleaſure there can be, in eating ſuch *dangerous food**. The ancient writers on the Materia Medica ſeem to agree, that muſhrooms are in general unwholeſome; and the moderns, Lemery, Allen, Geoffroy, Boerhaave, Linnæus, and others, concur in the ſame opinion. There are numerous inſtances upon record of their fatal effects. Al-

* Quæ voluptas tanta *ancipitis* cibi? Plin. Nat. Hiſt. xxii. 23.

Almoſt all of them, as the laſt-mentioned author affirms, " are fraught with poiſon †."

The common eſculent kinds, if eaten too freely, frequently bring on heart-burns, ſickneſſes, vomitings, diarrhœas, dyſenteries, and other dangerous ſymptoms. It is therefore to be wiſhed, that they were baniſhed from the table. But, if the palate muſt be indulged in theſe treacherous gratifications, or, as Seneca ‡ calls them, this " voluptuous poiſon", it is neceſſary, that they, who are employed in collecting them, ſhould be extremely cautious, leſt they ſhould collect ſuch as are abſolutely pernicious; which, conſidering to whoſe care this is generally committed, may, and undoubtedly has, frequently happened §.

† Fungi plerique VENENO TURGENT. Linnæi Amæn. Acad. vol. 1.

‡ Quid tu illos boletos, VOLUPTARIUM VENENUM, nihil occulti operis judicas facere, etiamſi præſentanei non furant? SEN. EP. 95.

§ See Gentleman's Magazine, December, 1755; and Supplement, September, 1757.

The

The eatable mushrooms at first appear of a roundish form, like a button ; the upper part and the stalk are very white ; the under part is of a livid flesh-colour ; but the fleshy part, when broken, is very white. When these are suffered to remain undisturbed, they will grow to a large size, and expand themselves almost to a flatness, and the red part underneath will change to a dark colour.

COPPER VESSELS.

Copper, when it is handled, yields an offensive smell, and if touched with the tongue, a sharp pungent taste, and even excites a nausea. Verdegris is nothing but a solution of this metal by vegetable acids. And it is well known, that a very small quantity of this solution will produce cholics, vomitings, intolerable thirst, universal con-

convulſions, and other dangerous ſymptoms. If theſe effects, and the prodigious diviſibility of this metal be conſidered, there can be no doubt of its being a violent and ſubtile poiſon. We are daily expoſed to this poiſon by the preſent uſe of copper veſſels for dreſſing our food. The very air of the kitchen, abounding with oleaginous and ſaline particles, penetrates and diſpoſes them to diſſolution, before they are uſed. Water, by ſtanding ſome time in a copper veſſel, is impregnated with verdegris, as may be demonſtrated by throwing into it a ſmall quantity of any volatile alkali, which will immediately tinge it with a paler or deeper blue, in proportion to the ruſt contained in the water. Vinegar, apple-ſauce, greens, oil, greaſe, butter, and almoſt every other kind of food, will extract the verdegris in a greater degree. It is true, people imagine, that the ill effects of copper are prevented by its being tinned: but the tin, which adheres to the copper, is ſo extremely thin, that it is ſoon penetrated by the verdegris, which inſinuates itſelf through the pores of that metal, and appears green upon the ſurface.

M. Amy,

M. Amy, of the Academy of Sciences at Paris, obſerves, that " verdegris is one of the moſt violent poiſons in nature:" yet, ſays he, " rather than quit an old cuſtom, the greater part of mankind are content to ſwallow ſome of this poiſon every day". Amy's Treat. upon Ciſterns, printed at Paris, 1750.

M. Thiery, in a theſis, which is added to this tract, has more particularly conſidered the noxious qualities of copper, and the various means, by which they may be communicated to whatever we eat or drink. " Our food, ſays he, receives its quantity of poiſon in the kitchen, by the uſe of copper pans and diſhes. The brewer mingles poiſon in our beer, by boiling it in a copper. Salt is diſtributed to the people from copper ſcales, covered with verdegris." Pickled cucumbers are rendered green by an infuſion of copper coin. " The paſtry-cook bakes our tarts in copper patty-pans. But confections and ſyrups have greater powers of deſtruction: for they are ſet over a fire in copper veſſels, which have not been tinned; and the verdegris is plentifully extracted by the acidity of the compoſition. And though we do not, after all, ſwallow

death in a ſingle doſe, yet it is certain, that a quantity of poiſon, however ſmall, which is repeated with every meal, muſt produce more fatal effects, than is generally believed".

Bell-metal kettles are very often uſed in boiling cucumbers for pickling, in order to make them green. This is an abſurd and dangerous practice. If the cucumbers acquire any additional greenneſs by the uſe of theſe kettles, they can only derive it from the copper, of which they are made.

According to ſome writers, bell-metal is a compoſition of tin and copper, or pewter and copper, in the proportion of twenty pounds of pewter, or twenty-three pounds of tin, to one hundred weight of copper. According to others, this metal is made of copper, a thouſand pounds; tin, from two to three hundred pounds; and braſs, one hundred and fifty pounds *.

Spoons and other kitchen utenſils are frequently made of a mixed metal, called alchemy; or, as it is vulgarly pronounced, ockimy. The ruſt of this metal, as well as the former, is highly pernicious.

* Lord Bacon's Phyſ. Remains.

White

White alchemy is made of pan-braſs, one pound; and arſenicum, three ounces. Red alchemy is made of copper, and auripigmentum, or orpiment †.

The author of a tract, entitled, Serious Reflections on the dangers attending the uſe of copper veſſels, publiſhed at London in 1755, aſſerts, that "the greater frequency of palſies, apoplexies, madneſs, and all the frightful train of nervous diſorders, which ſuddenly attack us, without our being able to account for the cauſe, or which gradually weaken our vital faculties, are the poiſonous effects of this pernicious matter, taken into the body inſenſibly with our victuals, and thereby intermixed with our blood and juices".

However this may be, it is certain, that there have been innumerable inſtances of the pernicious conſequences of eating food dreſſed in copper veſſels, not ſufficiently cleaned from this ruſt. On this account the Senate of Sweden, about the year 1753, prohibited copper veſſels, and ordered, that none, but ſuch as were made of iron, ſhould be uſed in their fleets and armies.

† Lord Bacon's Phyſ. Remains.

But if copper veſſels are ſtill continued, every cook and good houſewife ſhould be particularly careful in keeping them clean and well tinned; and ſhould ſuffer nothing to remain in them longer, than it is abſolutely neceſſary for the purpoſe of cookery.

REMEDY.

" The common cure, ſays Dr. Mead, of all poiſons taken into the ſtomach, muſt be by throwing them up again, by vomiting, as ſoon as poſſible, and defending the membranes from their pungent acrimony. Drinking very large quantities of warm milk, with oil of ſweet almonds, till the vomiting ceaſes, will anſwer the firſt intention. The other, in mineral poiſons, (for the effects of vegetable poiſons, after they have been vomited up, generally go off by diluting plentifully with ſoft and fat liquids) requires particular care, which may be in this way. The force of theſe depends upon a combination of metallic particles with ſaline cryſtals: therefore the diſuniting of theſe muſt deſtroy their power. This may

may be done by drinking a quantity of a lixivium made by a ſolution of ſalt of tartar in water: for this ſalt, uniting with the corroſive cryſtalline ſalt, will, after ſome degree of effervescence, kill it, as the chemiſts ſpeak; by which means, being diſengaged from the mineral globules, it will be rendered of no effect"*.

The SOLUTION or SALT of LEAD.

Lead is a metal eaſily corroded, eſpecially by the warm ſteams of acids, ſuch as vinegar, cyder, lemon-juice, rheniſh wine, &c. And this ſolution, or ſalt of lead, is a ſlow and inſidious, though certain poiſon. The glazing of all our common brown pottery ware, is either lead or lead ore. If black, it is lead ore, with a ſmall proportion of manganeſe, which is a ſpecies of iron ore. If yellow, the glazing is lead ore, and appears yellowiſh by having ſome pipe or white clay

* Mead on Poiſons, Eſſay iv.

clay under it. The colour of the common pottery ware is red, as the veſſels are made of the ſame clay with common bricks. Theſe veſſels are ſo porous, that they are penetrated by all ſalts, acid or alkaline, and are unfit for retaining any ſaline ſubſtance. They are improper, though too often uſed, for preſerving ſour fruits or pickles. The glazing of ſuch veſſels is corroded by the vinegar; for, upon evaporating the liquor, a quantity of the ſalt of lead will be found at the bottom. A ſure way of judging, whether the vinegar, or other acids, have diſſolved part of the glazing, is, by their becoming vapid, or loſing their ſharpneſs, and acquiring a ſweetiſh taſte by ſtanding in them for ſome time: in which caſe the contents are to be thrown away as pernicious.

The ſubſtance of the pottery ware commonly called Delft, the beſt being made at Delft in Holland, is a whitiſh clay when baked, and ſoft, as not having endured a great heat in baking. The glazing is a compoſition of calcined lead, calcined tin, ſand, ſome coarſe alkaline ſalt, and ſandiver; which being run into a white glaſs, the white colour being owing to the tin, is afterwards ground

ground in a mill, then mixed with water, and the veſſels, after being baked in the furnace, are dipped into it, and put into the furnace a ſecond time; by which means, with a ſmall degree of heat, the white glaſs runs upon the veſſels. This glazing is exceedingly ſoft and eaſily cracks. What effects acids will have upon it, the author of theſe obſervations cannot ſay, not having tried them: but they ſeem to be improper for inſpiſſating the juice of lemons, oranges, or any other acid fruits.

The moſt proper veſſels for theſe purpoſes are porcelain or china ware. The ſubſtance of them is of ſo cloſe a texture, that no ſaline, or other liquor, can penetrate them. The glazing, which is made likewiſe of the ſubſtance of the china, is ſo firm and cloſe, that no ſalt or ſaline ſubſtance can have the leaſt effect upon it. It muſt, however, be obſerved, that this remark is only applicable to the porcelain made in China: for ſome ſpecies of the European manufactory are certainly glazed with a fine glaſs of lead, &c.

Next to china is the ſtone ware, commonly called the Staffordſhire ware. The ſubſtance of theſe

theſe veſſels is a compoſition of black flint, and a ſtrong clay, that bakes white. Their outſides are glazed by throwing into the furnace, when well heated, common or ſea ſalt decrepitated; the ſteam or acid of which, flying up among the veſſels, vitrifies the outſides of them, and gives them the glazing. This ſtone ware does not appear to be injured or affected by any kind of ſalts, either acid or alkaline, or any liquors, hot or cold. They are therefore extremely proper for all common uſes, but require a careful management, as they are much apter to crack with any ſudden heat, than china.

The Heſſian ware, or the veſſels made of the ſame ſubſtance with the Duke d'Alva's bottles, commonly called grey-beards, ſeem to be made of ſtrong pipe clay, mixed with ſand, and glazed in the baking, by the alkaline ſalt, which ariſes from the wood uſed in baking them, wood having always the effect, when the furnace is intenſe, to vitrify the outſide of all clays*.

* Diſſert. by James Lind, M. D.

REMARKS

REMARKS on the ADULTERATION of BREAD and FLOUR.

Extracted from a Treatiſe " On the nature of bread, honeſtly and diſhoneſtly made", publiſhed in 1757, by JAMES MANNING, M. D.

The author tells us, that in the ſophiſtication of flour, mealmen and bakers have been known to uſe bean meal, chalk, whiting, ſlaked lime, alum, and even aſhes of bones. The firſt, bean flour, is perfectly innocent, and affords a nouriſhment equal to that of wheat; but there is a toughneſs in bean flour, and its colour is duſky. To remove theſe defects, chalk is added to whiten it, alum to give the whole compound that conſiſtence, which is neceſſary to make it knead well in the dough, and jalap to take off the aſtringency. It may be ſuppoſed, that theſe horrid iniquities are only imaginary, or at leaſt exaggerated, and that ſuch mixtures muſt

be diſcoverable even by the moſt ordinary taſte; but as ſome adulterations of this nature have certainly been practiced, the following experiments may ſerve to gratify curioſity, or diſcover frauds, where any ſuch exiſt.

" To diſcover whether flour be adulterated with whiting or chalk, mix with it ſome juice of lemon or good vinegar. If the flour be pure, they will remain together at reſt; but if there be a mixture of whiting or chalk, a fermentation, like the working of yeſt, will enſue. The adulterated meal is whiter and heavier than the good: the quantity that an ordinary tea-diſh will contain, has been found to weigh more than the ſame quantity of genuine flour, by four drachms, and 19 grains, Troy.

" The regular method to detect theſe frauds in bread is this: cut the crum of a loaf into very thin ſlices; break them, but not into very ſmall pieces, and put them into a glaſs cucurbit, with a large quantity of water. Set this, without ſhaking, in a ſand furnace, and let it ſtand, with a moderate warmth, four and twenty hours. The crumb of the bread will in this time ſoften in all its

its parts, and the ingredients will ſeperate from it. The alum will diſſolve in the water, and may be extracted from it in the uſual way. The jalap, if any have been uſed, will ſwim upon the top in a coarſe film, and the other ingredients, being heavy, will ſink to the bottom. This is the beſt and moſt regular method of finding the deceit; but as cucurbits, and ſand furnaces, are not at hand in private families, there is a more familiar method.

" Let the crum of a loaf be ſliced as before directed, and put it, with a great deal of water, into a large earthen pipkin. Let this be ſet over a very gentle fire, and kept a long time moderately hot; and the pap being poured off, the bone aſhes, or other ingredients, will be found at the bottom."

On WATER.

Obſervations on Water, extracted from Dr. Rotherham's Philoſophical Enquiry, &c.

IT is a long eſtabliſhed obſervation, that the beſt waters boil and cool again the ſooneſt; and that they evaporate in the leaſt time, and with the leaſt degree of heat.

A well known mark of the purity of water is its ſoftneſs. This quality is diſcoverable by the touch, if we only waſh our hands in it: and the diſtinction between hard and ſoft water generally ariſes from its difficult or eaſy union with oily ſubſtances.

Soft

Soft water is the moſt proper for the waſhing and bleaching of linen, the making of paper, and for moſt medicinal purpoſes. It mixes more uniformly with milk, and does not curdle it, as hard waters frequently do. It boils peaſe and beans ſofter, and mixes better with flour, rice, oatmeal, &c. In boiling meat it gives it a more agreeable colour than hard water, which often boils it red.

There are however ſome purpoſes, to which hard water is more proper: as, in ſeveral kinds of dying; in making ſtarch; and in the rincing of ſoap out of linen, after it has been waſhed; as it is obſerved to give the linen a better colour, and an agreeable firmneſs or criſpneſs; but the linen thus treated requires more ſoap, when it comes to be waſhed again. Hard water gives a better colour to greens, and a firmneſs to all ſorts of fiſh, eſpecially cod, when boiled in it.

The Burton, Nottinghamſhire, Liverpool, and ſeveral other kinds of ale, which are much admired, are ſaid to be brewed with hard water. But Dr. Mead and others condemn the uſe of theſe liquors, as productive of various diſorders, and particularly the cholic.

From

From theſe remarks we may reaſonably infer, that hard water cannot ſo well anſwer the purpoſes of diluting and digeſting our food; as it will not ſo readily mix and unite with the different parts of it, nor aſſimulate and digeſt them properly. Beſides the large quantities of acid and nitrous ſalts, with the loads of ſelenite and calcareous earth, which theſe waters generally contain, will naturally diſpoſe them to form obſtructions, when, by the courſe of circulation, theſe ſolid particles come into the minuteſt veſſels, more eſpecially thoſe of the glands. Hence they are often blamed, as laying the foundation of ſcrophulous, ſtrumous, and other glandular ſwellings and obſtructions.

It is from the quantity of ſtony matter, which the hard waters generally contain, that moſt of them have large incruſtations upon the ſides of the veſſels, in which they are boiled; and they have by ſome been diſapproved for this reaſon, as cauſing the ſtone. But the calculous concretions in the bladder and kidneys are of a very different nature from theſe incruſtations; and, as Dr. Heberden juſtly obſerves, "they totally differ from all foſſil ſtones in every thing except the name; and the pre-

pretended experience of the effects of certain ſtony waters in breeding the ſtone, may, upon the beſt authorities, be rejected as falſe*.

The beſt way of determing the hardneſs or ſoftneſs of water, is by ſcraping any certain quantity of ſoap into it, and obſerving how it diſſolves or lathers. If water be perfectly ſoft, the ſoap will diſſolve quickly, uniformly, and without curdling; and, upon ſhaking the glaſs briſkly, will raiſe a ſtrong froth or lather at the top. But the ſmalleſt degree of hardneſs will ſhew itſelf, either by the ſoap not diſſolving ſo readily, by its turning curdly and uneven, or by leſs froth remaining after it is agitated; and the different degrees of hardneſs may hereby be very well determined. The beſt way of making this trial is with a ſmall quantity of Caſtile ſoap, viz. about a grain to an ounce of water.

RAIN-WATER.

In ſummer-time rain-water brings along with it the ſeeds and embryos of vegetables and animalcula,

† Medical Tranſ. by the Coll. of Phyſ. vol. 1. p. 7.

malcua, which render it disagreeable to the taste, and promote its putrefaction. If it be kept in wooden vessels, it will soon stink, and become unfit for use; and then, if it be viewed with a microscope, it will be found to contain an amazing number of various animalcula; and particularly those, which, from their form and motion, are called the wheel animals*. These animalcula are supposed to be the chief cause of the water's putrefaction.

Rain water is a little hard, when it first falls; but in two or three days it becomes perfectly soft.

The rain, which falls through the smoke of large towns, is rendered foul and black; more especially if it be collected, as it generally is, from the roofs of houses; when it brings with it a great many particles of soot, which give it a very disagreeable taste and colour. Where the tiles are blackened by the smoke of glass-houses, &c. the water,

* Baker's Miscroscope made easy, p. 83. Employment for theMicroscope, p. 295.

water, which falls from them, is unfit for almoſt any domeſtic purpoſes.

When rain-water ſubſides, and is well filtered, it becomes perfectly clear and bright. If it be kept in wooden veſſels, it contracts a particular ſmell, taſte and colour from the wood.

Clean earthen jars are the beſt for keeping water. Though leaden ciſterns may be uſed with ſafety, if they be kept clear from vegetable acids; all of which are found to corrode lead, and to produce a very noxious ſalt. The veſſels, in which water is preſerved, ſhould be covered, to prevent any duſt or filth from getting in; and the water will be more agreeable, if kept in a cool place.

SNOW-WATER.

Some of the greateſt philoſophers and phyſicians have differed much in their opinion of ſnow-water. Hippocrates, Hoffman, and others, condemn it. But Boerhaave, on the other hand, is

laviſh in its encomiums. He aſſerts, that ſnow, which is collected from the tops of high ſandy mountains, at a diſtance from any towns or houſes, where it has fallen after a long ſharp froſt, in calm weather, and lies at a conſiderable height above the ſurface of the earth, produces water, "which is the pureſt of all, quite immutable, capable of being kept for many years, and is a ſingular remedy for inflammations of the eyes" *.

Dr. Rotheram having mentioned the efficacy of ſnow-water in burns, and in fertilizing the ground, relates the following experiment, which, though it may appear of a trivial nature, he very juſtly remarks, is not below the notice of a philoſopher.

"One effect of ſnow, of which I do not remember any where to have read, is, that a certain quantity of it, taken up freſh from the ground, and mixed in a flour-pudding, will ſupply the place of eggs, and make it equally light. The quantity allotted is two table ſpoonfuls, inſtead of one egg; and if this proportion be much exceeded, the pudding will not adhere together, but will fall to pieces in boiling. I aſſert this from the experience

* Boerh. Chem. vol. 1. p. 349. London edit. 1735.

rience of my own family; and any one, who chooſes to try it, will find it to be a fact".

SPRING WATER.

As all our ſprings are originally ſupplied by rain, or melted ſnow, and hail, ſtrained through the pores and cavities of the earth, their waters will vary according to the different ſoils, or ſtrata, through which they paſs. If waters meet with nothing in their ſubterraneous paſſages, which will unite with them, or diſſolve in them, they iſſue out in their greateſt purity. The ſprings, which come from gravel, ſand, or ſome light and porous ſtones, are generally the pureſt, and beſt; for the water being filtered through their ſmall pores, is cleared from almoſt every foreign ſubſtance or impurity, which it had contracted in the air; acquires an agreeable coolneſs, and becomes limpid, bright, and ſparkling.

But, as there are few ſoils, which do not contain ſome kinds of ſalt, or other mineral ſubſtances, which are ſoluble in water, moſt of our ſprings are found to partake, in ſome meaſure, of

the nature of the ſoil, through which they paſs, and are innocent, ſalutary, or noxious, in proportion to the quantity, kind, or mixture, of the various ingredients, of which they are compoſed; and the conſtitution, of the perſon, who uſes them: and ſome of them are of great medicinal efficacy.

STAGNANT WATER.

Stagnant water in ponds and ditches is generally eſteemed the worſt. But large lakes, which are kept in almoſt a continual agitation by the wind, do not properly come within the denomination of ſtagnant waters.

PUMP WATER, eſpecially in LONDON.

It appears from the analyſis performed by Dr. Heberden †, that ſeveral pump waters in London, which he had examined, and probably moſt of

† See Medical Tranſact. vol. 1.

of them, contain powder of lime-ſtone, and the mineral acids of vitriol, nitre, and ſea-ſalt, united in various proportions. Theſe waters are likewiſe tainted with an oilineſs, which gives them a remarkably yellowiſh caſt, when compared with pure diſtilled water. It is reaſonable to think, that waters impregnated with ſuch active ſubſtances, in a quantity ſufficient to render them diſagreeable to the taſte, cannot always be drunk with impunity. They have accordingly been ſuſpected of occaſioning pains in the ſtomach and bowels, glandular tumors and coſtiveneſs, where the ſimple lime-ſtone prevails; and diarrhœas, where much of it is united with the ſolution of acids; and it is probable, that a continued uſe of ſuch water may be the cauſe of many other diſorders, eſpecially to the infirm, and to children. From whence it follows, that a change of place may often be of as much uſe to weak perſons, from the change of water, as of air.

Some obſcure notion of the unwholeſomeneſs of pump water, induces many perſons to boil it, and let it ſtand to grow cold; by which it will indeed be made to part from moſt of its unneutralized lime-ſtone and ſelenite; but at the ſame time it will become more ſtrongly impregnated

nated with the ſaline matter, and therefore it will be worſe.

If a ſmall quantity of ſalt of tartar were added to the water, it would readily precipitate both the looſe lime-ſtone, and likewiſe that which is united to the acids. Ten or fifteen grains would generally be enough for a pint; but the exact proportion would readily be found, by continuing to add to it, by little and little, till it ceaſed to occaſion white clouds. This is an eaſy way, not only of freeing the water from its lime-ſtone, but alſo of changing the ſaline part into nitre and ſal ſylvii, both of which we know, by long experience, to be innocent.

But the beſt way of avoiding the bad effects of pump water would be, not to make a conſtant uſe of it; and in a place ſo well ſupplied with river water as London, there is very little neceſſity to drink of the ſprings, which in ſo large a city, beſides their natural contents, muſt collect many additional impurities from cellars, burying-grounds, common-ſewers, and many other offenſive places, with which they undoubtedly often com-

communicate ; ſo that it is indeed a wonder, that we find this water at all tolerable *.

THAMES and NEW-RIVER WATER.

River waters partake of the properties of their ſprings, and the channels, through which they run ; yet, in a wonderful manner, they ſoon free themſelves from their impurities. The motion of the current †, the abſorption of the ſoil, the ſun and rain, have each of them a conſiderable ſhare in this effect.

The Thames water, eſpecially in the neighbourhood of London, is mixed with many impure ingredients. It is ſaid to become offenſive in ſeven or eight days, or ſometimes ſooner, if it be kept in unſeaſoned caſks. In this ſtate it generates a quantity of foul inflammable air, as may be ſeen by holding the flame of a candle to the bung-hole of a caſk when it is firſt opened. But by

* See Medical Tranſact. vol. 1.

† The moſt rapid rivers contain, cæteris paribus, the pureſt water.

by this fermentation it ſoon purifies itſelf; and by opening the bung, it will often become ſweet in twenty-four hours, and ſooner, if it be poured from one veſſel to another, or ventilated *.

Methods, by which Water may be obtained in its greatest Purity.

As it appears, that almoſt all the water uſed in cookery is tainted with impure ingredients; rain water, with a great variety of volatile bodies, fuliginous particles, exhalations, inviſible ſeeds, and inſects; river, pond, and well water, with a mixture of ſoil and mud, decayed vegetables, and the ſpawn of vermin, it will be very proper to purify it, before it is uſed for drinking, or any culinary purpoſe. This may be done by various contrivances.

1. The water of the Thames, and that of the New River, are very often muddy, or taſte ſtrongly of weeds and leaves. Dr. Heberden acknowledges, that the latter fault cannot eaſily be re-

* Philoſ. Tranſ. No. 127, 268. Boerh. Elem. of Chem. vol. 1. p. 333. Rotheram's Philoſ. Inquiry.

remedied ; but, he obſerves, they would ſoon be freed from their muddineſs, if kept ſome time in an open jar : and he is of opinion, that if the water given to very young children, were thus purified, it might prevent ſome of their bowel-diſorders, and ſo contribute a little to leſſen that amazing mortality among the children, which are nurſed in London.

2. Rain water, when grown putrid, as Boerhaave aſſures us, may be eaſily rendered wholeſome again, and may be drunk without being offenſive, by only boiling it a few moments : for by this expedient, the animals that are in it will be deſtroyed, and, with the reſt of the impurities, will ſubſide to the bottom. If then, ſays he, you make it moderately acid, by adding to it a ſmall quantity of acid that is very ſtrong, it will be fit for uſe. This is found to be of excellent ſervice under the Equator, and between the Tropics, where the waters putrify in a horrible manner, and breed a multitude of inſects, and yet muſt be drunk. For the ſame reaſon, a ſmall quantity of ſpirit of vitriol, mixed with water, will prevent its growing putrid, and breeding any animals, and,

at the ſame time, preſerve it wholeſome and good *.

3. A common way of purifying water is by filtration. Water, which is filterated through porous ſtones, is extremely clear and limpid; but ſome writers have aſſerted, that it acquires a petrifying quality in its paſſage, which, at length, may produce diſagreeable effects ‡. However this may be, theſe ſtones are too dear for common uſe.

Dr. Rotheram aſſerts, that one of the readieſt and beſt methods of filtering water, is, to let it run through a bed of clean ſand. This is, he ſays, preferable to the filtering-ſtone, as it performs its work much ſooner; and the grains of ſand are of ſo many different figures, that they are pretty ſure to ſtop the progreſs of any bodies of ſenſible bulk, in paſſing through them §.

* Boerh. Chem. vol. 1. p. 348.

‡ M. Amy on Ciſterns; but ſee above, p. 31.

§ If you view ten thouſand grains of ſand through a microſcope, you will ſcarcely find two of the ſame ſize and ſhape. Rotheram's Philoſophical Inquiry, p. 48.

" A friend

" A friend of mine, ſays the Doctor, in this town [Newcaſtle] has a ciſtern for collecting rain water, ſo conſtructed, that it both allows the water to ſubſide, and the upper part of it to run through a bed of ſand, which is raiſed by a partition above the bottom of the ciſtern; by which means the water becomes perfectly clear and bright, and is preferred by moſt who have taſted it, to any other water in this town".

4. Some have objected, but probably without reaſon, to this mode of filtration, on a preſumption, that the ſand has the ſame effect on the water as the filtering ſtone: for it is ſaid, that the ſand is inſenſibly diſſolved by the water; ſo that in four or five years it will have loſt a fifth part of its weight. M. Amy therefore recommends the filtration of water through a ſpunge, more or leſs compreſſed. And this, he aſſures us, will render it, not only more clear, but more wholeſome, than either a ſtone or ſand.

5. As the pureſt of all water is obtained by diſtillation, Dr. Heberden recommends this method, as particularly uſeful where fuel is cheap,

and the water is bad ; as it is in ſome of our foreign ſettlements.

The firſt running of diſtilled water has a diſagreeable muſty taſte: on this account, if the ſtill hold twenty gallons, it will be neceſſary to throw away the firſt gallon. The reſt, through free from this muſtineſs, will have a diſagreeable empyreumatic or burnt taſte. This taſte goes off by keeping about a month, by ventillation, in a few minutes, or by boiling the water in an open veſſel. Diſtilled water muſt be kept in perfectly clean glaſs or ſtone bottles, with glaſs ſtoppers, or metal covers; and then, having in it no principle of corruption, it is incapable of being ſpoiled, and will keep juſt the ſame for ever. But the leaſt particle of any animal or vegetable ſubſtance, will ſpoil a great quantity ; and therefore the ſtill and bottles ſhould be kept wholly for this uſe.

This proceſs, though certainly attended with many good effects, requires too much time and attention for common uſe; and therefore, in general, it may be ſufficient to adopt the mode of

of filteration, recommended by Dr. Rotheram, or that which is propoſed by M. Amy.

The obſervations, which I have here laid before the reader, are not new. They have been communicated to the public by others. But they are diſperſed through many different publications. I have therefore thrown them into a ſmall compaſs. And I flatter myſelf, that, in this commodious form, they may be acceptable to the public; as many of the foregoing articles are of infinite importance to the health, and conſequently to the happineſs of mankind.

FINIS.