quainted with the ſtate of thoſe, which are found actually under the ſea, and the revolutions, to which they are ſubject, while they are covered by it. It is ſtill farther requiſite to have an attention to the revolutions, which have been and are conſtantly obſerved, with reſpect to the ſea-ſhores, which change their ſituation in ſeveral parts, ſome advancing upon the land, and others retiring. If all theſe different facts be compared together, it will not be doubted, but there are actually under the earth marine bodies, which are found there only in conſequence of theſe ſlow revolutions, and not of an univerſal deluge. Perhaps this notion might be extended to the greateſt part of the marine foſſile bodies, which are known to us.

Monſ. Donati informs me, that he would be glad to preſent to the Royal Society an hiſtory of coral, if he thought, that it would be agreeable to them.

XII. *A brief Botanical and Medical Hiſtory of the* Solanum Lethale, Bella-donna, *or* Deadly Nightſhade, *by Mr.* Richard Pultney. *Communicated by Mr.* William Watſon, *F. R. S.*

Read Feb. 17. 1757.

BELLA-DONNA is the name, which the Italians, and particularly the Venetians, apply to this plant; and Mr. Ray (1) obſerves, that it is ſo called becauſe the Italian ladies

(1) Nom. Etymol. ad Calcem. Cat. Cant. p. 43. item Hiſt. Plant. p. 680.

make

make a coſmetic from the juice, or diſtilled water, which they uſe to make their complexion fair and white. Others (2) ſuppoſe it derives its name from its intoxicating quality. With us it is generally known by the name of Deadly Nightſhade, or Dwale, tho' this laſt term is ſeldom uſed for it; and the old French word *Morelle*, which Lobel applies to it, ſeems to be quite forgotten amongſt us.

Classical Distribution.

The Deadly Nightſhade was very ſoon diſcovered by the revivers of botany after the reſtoration of learning; and, agreeable to the faſhion of thoſe days, it was greatly debated among the commentators, whether it was known, and by what name, to the fathers of botany Theophraſtus and Dioſcorides. Several of the writers of that time, as Dodonæus, Guilandinus, Fuchſius, and Cordus, were of opinion, that it was the Mandragora morion of Theophraſtus; and their ſentiments were eſpouſed by his learned commentator Bodæus à Stapel (3), who moreover ſuppoſes it the plant, which Dioſcorides deſcribes, lib. iv. cap. 69. under the name of Στρύχνος μανικὸς. On the other hand, Matthiolus (4) has taken great pains to prove, that it is not the Mandragora of Theophraſtus; and both he and Ruellius (5) are

(2) Bella donna dicitur quod imaginationes non injucundas efficiat, vel ut honeſte ſatis Plinius, quod luſum generet. Bod. Comment. in Theophr. p. 586. quod in ſomnis pulchras oſtendat virgines feminaſque. Ibid. p. 1078.

(3) Locis citatis.

(4) Oper. omnia edit C. B. p. 756.

(5) Ruell. in Dioſcor. p. 536.

inclined

inclined to think, that the Bella-donna was not known to either of the Grecian Fathers; who are ſo ſhort, vague, and immethodical, in their deſcriptions, that it is very difficult, not to ſay impoſſible, to apply them to particular ſpecies with juſtneſs and preciſion.

Be this as it will, our reſtorers of botany agreed in general to rank it with the Solana, or Nightſhades; and as moſt of them took it to be the Στρύχνος μανικος of Dioſcorides, ſo we find thereto the addition of ſome epithet, expreſſive of its deleterious quality, in moſt of their writings; ſuch as lethale, ſomniferum, furioſum, &c. Its general agreement with the plants of that genus, and alſo the knowlege the world ſoon had of its poiſonous quality, when it is conſidered, that ſyſtematic diſtributions, from the parts of fructification, had not been thought of at that time: theſe, I ſay, were ſufficient reaſons for referring it to the Nightſhades. By ſuch names therefore is it found in moſt of the old writers; till Cluſius, who, obſerving perhaps, that it differed in its parts of fructification from the Solana, adopted the indigenous Italian name, as a generical one, and called it Bella-donna. Cæſalpinus, the firſt inventor of a botanic ſyſtem, did not ſeparate it from the Nightſhades. Moriſon and Ray, the revivers of method almoſt an hundred years afterwards, were aware of the difference; the former having placed it in a chapter among the *Solanis affines*, and the latter conſtituted a diſtinct genus of it, tho' he retained the old name in his hiſtory of plants. Tournefort adopted Cluſius's name *Bella-donna*, and was followed by all the ſyſtematic botaniſts, who have ſince wrote; as Boerhaave, Rivini, Ruppius, Knaut,

Knaut, Magnol, Ludwig, and Haller; until Linnæus, conformable to the 229th rule of the Fundamenta Botanica (6), rejected it, and very expreſsly calls it Atropa (7); in which he is followed by all ſucceeding writers, who have choſen his method.

Cæſalpinus, Moriſon, Ray, Herman, and Boerhaave, who range theſe plants according to the fruit, place the Deadly Nightſhade among the *Herbæ Baciferæ* in their reſpective ſyſtems.

Rivinus, Ludwig, and Chriſtian Knaut, who adopt the number and regularity of the petals in the corolla, for their claſſical character, refer it to ſuch as have regular monopetalous flowers. Ruppius, whoſe method is upon the ſame plan, brings it among the irregular monopetalous ones.

Tournefort's method, which is eſtabliſhed upon the figure of the flower, takes it into the firſt claſs among ſuch plants as have campaniform or bell-ſhaped flowers.

Dr. Van Royen, whoſe ſyſtem is undoubtedly a very elegant attempt towards the natural method in botany, arranges it among ſuch as he calls Oligantheræ; namely, ſuch plants as have the ſtamina equal to, or fewer in number than, the ſegments of the corolla.

Dr. Haller, whoſe method is upon the plan of a natural one alſo, includes the Bella-donna among the Iſoſtemones, ſuch plants as have the number of the ſtamina equal to the ſegments of the corolla.

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(6) Nomina generica quæ ex Græca vel Latina lingua radicem non habent rejicienda ſunt.

(7) Atropos una furiarum. Crit. Botan. p. 75.

In the ſexual ſyſtem of Linnæus, at this time ſo generally received, and ſo well eſtabliſhed, it belongs to the Pentandria monogynia, or ſuch plants as have five ſtamina and one ſtyle. The plants of this order are arranged into five ſubdiviſions. The Atropa comes in among thoſe, that have declinated ſtamina. According to this method, we ſhall give its generical characters from the laſt edition of Linnæus's Genera Plantarum.

The moſt obvious and eſſential character of the genus is the *globoſe berry, and open calyx* (8). The general character is as follows.

ATROPA Linn. Gen. Plant. Ed. 5. N°. 222.

The calyx is a gibbous permanent perianthium, formed of a ſingle leaf divided into five acute ſegments.

The corolla is formed of a ſingle bell-ſhaped petal, the tube of which is very ſhort; the limb ventricoſe, of an oval figure, and longer than the calyx. The mouth is ſmall, expanded, and divided into five pretty equal ſegments.

The ſtamina are five ſubulated filaments proceeding from the baſe of the flower, and are of the ſame length: at the baſe they are connivent, and at the top bent outwardly. The antheræ are thick and aſſurgent.

The germen is of a ſemiovated figure: the ſtyle is filiform, of the length of the ſtamina, and inclinated. The ſtigma is capitated, tranſverſely oblong, and aſſurgent.

(8) See Lin. Syſt. Naturæ, edit. Lugd. Bat. 1756. p. 97. N°. 222.

The

The fruit is a globoſe berry, ſtanding in a large cup, and containing three cells. The receptacle is convex on both ſides, and kidney-ſhaped.

The ſeeds are numerous, and kidney-ſhaped alſo.

The SPECIES.

1. Atropa caule herbaceo, foliis ovatis integris. Linn. Spec. Plant. p. 181.
   Atropa. Linn. Hort. Cliff. 57. Roy. Lugd. 423. Hort. Upſ. 45. Dalib. Pariſ. 70.
   Bella-donna majoribus foliis et floribus. Tourn. Inſt. 77. Boerh. Lugd. II. 69. Miller, plate 62.
   Bella-donna dicta Solanum lethale. Hill. Herb. Britan. p. 328. tab. 47.
   Bella-donna. Cluſ. Pan. p. 503. Bod à Stap. p. 586. Cat. Giſſen. 142. Raii Syn. ed. 3. p. 265. Vaillant. Botan. Par. p. 20. Hall. Helv. 507. Dale Pharmacol. 4° ed. p. 72. Wilſon. Synop. p. 122.
   Solanoc ongener flore campanulato vulgatius, latioribus foliis. Hiſt. Oxon. III. p. 532. ſect. 13. tab. 3. fig. 4.
   Solanum ſomniferum. Fuchſ. 689. Icon. opt.
   Solanum maniacum multis ſive Bella-donna. J. B. III. p. 611.
   Solanum melanoceraſos. C. B. pin. 166.
   Solanum lethale. Ger. 169. emac. 340. Park. 346. Raii Hiſt. Plant. 679.
   Solanum majus ſive Herba Bella-donna. Matthiol. Oper. Omn. p. 756.
   Solanum ſomniferum et lethale. Lobel. Adverſar. p. 102.
   Deadly Nightſhade, or *Dwale*.

 2. Atropa

2. Atropa caule fruticoſo. Spec. Plant. 182.
Bella-donna fruteſcens rotundifolia Hiſpanica. Tourn. Inſt. 77.
Solanum frutex rotundifolium Hiſpanicum. Barril. Obſ. 2. Icon. 1173.
Round-leaved ſhrubby Spaniſh Bella-donna.

3. Atropa foliis ſinuato-angulatis, calycibus clauſis acutangulis. Spec. Plant. 181.
Bella-donna flore magno violaceo. Hill. Herb. Brit. 329.
Alkekengi amplo flore violaceo. Few. Per. 724. tab. 16.
Large violet-flower'd Bella-donna, or Deadly Night-ſhade.

The firſt of the ſpecies here enumerated is the plant in queſtion. The ſecond has been found growing naturally in no other country than Spain. The third was firſt diſcovered by Father Feuillée in Peru, and is therefore only an inhabitant of the gardens in this part of the world.

The DESCRIPTION.

The root is perennial. It is pretty long, and divided into many branches of a brown colour, ſucculent, and of a diſagreeable ſmell. The radical leaves are frequently a foot long, and five inches broad, of an oval acuminated figure, and not ſinuated on the edges. The ſtalk riſes to three or four feet: it is much divaricated and branched. The cauline leaves ſtand alternately upon it, in ſhape like the radical,

of

of a duſky-green colour on the upper part, and a paler green underneath, being a little hairy on both ſides. The flowers ſtand on ſingle footſtalks, in the alæ of the leaves: they are large, of a campanulated figure, and ſtriated, of a duſky-purple colour within, with a yellow variegated baſe; the outer ſurface of the flower is of a greeniſh red. After the flower ſucceeds a fine beautiful large berry, which is black when ripe. For the reſt, take in the generical character.

Moſt of the old authors give us figures of this plant, which, tho' they convey a general idea of it, are yet ſcarce any of them exact. This fault in general runs thro' all, that I have had an opportunity of examining; namely, that the flowers and fruit are repreſented by much too large in proportion to the leaves. Moriſon's is perhaps one of the beſt among the old figures: it is, upon the whole, tolerable, but not accurate on account of the beforementioned objection. Petiver's does by no means repreſent the plant juſtly, in that the alæ of the leaves are not properly filled up. The moſt accurate figure of all, that I have ſeen, is Mr. Miller's, in his plates adapted to the Gardeners Dictionary, which is undoubtedly taken from nature itſelf.

PLACE *of* GROWTH.

The Deadly Nightſhade is found in many parts of Europe, eſpecially in England and in Auſtria; and yet in our own country it is happily not very plentiful, inaſmuch as our botanical writers uſually reckon it among the *more rare* plants, and ſpecify particularly the places where they have obſerved it.

Here

Here in England it is chiefly found in uncultivated places: in church-yards, about old walls, among rubbiſh in ſhady places, about dunghills, in lanes, and ſometimes about woods and hedges. It begins to flower in June, and maintains a ſucceſſion of flowers for two months. The berries are ripe in September and October.

It is of great importance, that the knowlege of poiſonous plants ſhould be extended as much as poſſible, that they may the better be avoided, and their fatal effects thro' miſtake be guarded againſt: there can therefore be no impropriety in enumerating particularly ſome of thoſe places, where our Engliſh botaniſts have obſerved it. Mr. Ray mentions its being found in the church-yard and lanes about Fulburn in Cambridgeſhire, Sutton-Colefield in Warwickſhire: in the Downs: at Cuckſtone, near Rocheſter in Kent, all the yards and backſides are over-run with it. *Ray. Syn.* Upon Clifton-hill, near Nottingham; alſo in a quarry near the cold-bath at Mansfield. *Catal. Notting.* In Currenwood-kins, near Burton in Kendal, and other places in Weſtmorland. *Wilſon's Syn.* Dr. Wilmer found it among the bogs going down to Dorking in Surrey, plentifully. In Preſton church-yard, near Feverſham in Kent. Mr. Watſon found it by the wood-ſide, under the park-wall, between Temsford-mills and Welwyn, Hertfordſhire; and near the road between Rocheſter and Maidſtone. Mr. Blackſtone found it in a ſhady gravel-pit near the old park-wood at Harefield, and in the gardens at More-park near Rickmanſworth, plentifully. *Specim. Botan.* About Rocheſter and Chatham, where it grows in the joints of

of old walls, and in moſt of the unfrequented lanes: alſo in Woodſtock-park in Oxforſhire, and Up-park in Hampſhire. I have obſerved it four or five years ſince on the edge of Charley-foreſt: about Grace-Dieu, Leiceſterſhire. It grows about North Luffenham in Rutland.

Its POISONOUS QUALITY.

There have been many fatal inſtances of the narcotic and deleterious effects of the berries of this plant. They are upon record in almoſt all botanical, and many medical authors. Children have unhappily been the principal ſufferers this way, being tempted to eat by the enticing aſpect of the berries, or by miſtaking them for ſome other fruit. The berries, however, are not the only part of the plant, which partake of this intoxicating and poiſonous property: the whole plant is endued with it, and that in no ſmall degree.

If the Bella-donna is allowed to be the Στρύχνος μανικὸς of Dioſcorides (9), this quality of it was not unknown to that writer. It was very ſoon known to the firſt writers in the medical and botanic way after the reſtoration of letters; and they have not failed to inform us of it.

Tragus and Fuchſius, who wrote about the middle of the ſixteenth century, both relate inſtances of the poiſonous effects of theſe berries: the former, of a man, who went mad after having eaten of them;

(9) Mat. Med. lib. iv. cap. 69.

the latter, of two children, who periſhed by the ſame means (10).

Lobel (11) tells us, that the berries of this plant are preſent death; and informs us of ſome youths, who, after eating them, became ſtupified, and died as from an over-doſe of opium.

Matthiolus (12) relates, from his own knowlege, of ſome children poiſoned by the ſame means.

Among all the inſtances of the intoxicating nature of this plant, there is none more memorable than that mentioned by the Scotch hiſtorian Buchanan (13), of the deſtruction of the army of Sweno; which is quoted by almoſt all authors, who have wrote upon this plant. It is there ſaid, that the Scots mixed a quantity of the juice of theſe berries with the drink, which, by their truce, they were to ſupply the Danes with; which ſo intoxicated them, that the Scots killed the greateſt part of them while they were aſleep. How far this anecdote is to be depended upon, or whether other concurrent circumſtances ought not to be taken into the account, I cannot determine.

Our own herbaliſt Gerard (14) mentions the caſe of three boys in the Iſle of Ely, who, having eaten of theſe berries, two of them died in leſs than eight hours; but the third, by drinking plentifully of honey and water, and vomiting after it, recovered.

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(10) See Sennert. lib. vi. par. 7. cap. 9.
(11) Stirpium Adverſar. p. 103.
(12) Oper. Omn. p. 754.
(13) Rerum Scoticar. lib. vii.
(14) Ger. em. p. 341.

Bodæus

Bodæus à Stapel, in his comment upon Theophraſtus (15), tells us of two youths, that eat two or three of theſe berries, which they got in the Leyden garden, miſtaking them for black currants: one of them periſhed, and the other recovered with great difficulty.

Simon Pauli relates two or three examples to the ſame effect (16). Wepfer gives us a circumſtantial account of a child about ten years old, who was thrown into a great variety of convulſive ſymptoms after eating of this fruit: but proper care being taken by vomiting, and afterwards giving alexipharmics and anti-epileptic medicines, he recovered (17).

M. Boulduc (18) laid before the Royal Academy of Sciences at Paris, the caſe of ſome children, who, upon eating theſe berries, were ſeized with a violent fever, palpitations of the heart, convulſions, and loſt their ſenſes. One of them, a little boy of four years old, died the next morning.

Boerhaave has inſtances to the ſame effect (19): and it was the misfortune of Dr. Abraham Munting, a noted botaniſt and profeſſor of phyſic in the univerſity of Groningen, to have his own daughter poiſoned with the berries of the Bella-donna.

It would be almoſt endleſs to recite all the inſtances to be met with upon this head. The German Ephemerides, the Commercium Literarium, and other periodical works, furniſh us with farther proofs

(15) Page 586.
(16) Quadripart. Botan. p. 488.
(17) Cicut. Aquat. Hiſtoria et Noxæ. Baſil. 1716. p. 228.
(18) Hiſtoire de l'Academie Royale. 1703.
(19) Hiſt. Plant. Lugd. Bat. Hort. p. 510.

of the deadly quality of the Bella-donna; and they are unhappily corroborated by more recent inſtances in modern authors. The Gentleman's Magazine (20), Mr. Miller in his Gardeners Dictionary, and Dr. Hill in his Britiſh Herbal (21), exhibit to us ſeveral melancholy caſes of this kind.

The effects of this plant have been ſo extraordinary, that ſeveral diſtinct treatiſes have been publiſhed profeſſedly upon it. The moſt remarkable of theſe is that of J. M. Faber's, printed at Augſburg in 1677, under the following title; *Strychnomania explicans Strychni manici antiquorum, vel Solani furioſi recentiorum hiſtoriam.* In this tract the author has collected a number of caſes from various hands, concerning the poiſonous quality of the plant in queſtion. In the year 1724. C. Sicelius publiſhed a treatiſe upon this plant, under the title of *Diatribe de Bella-donna. Jenæ.* 8vo.

Medical History.

Who it was, that was bold enough to venture firſt upon the internal uſe of this plant as a medicine, I cannot ſay; chance very probably led to it, as in many other caſes. In the mean time, there is reaſon to believe, that it is not altogether a modern practice. One would be led to think, by the accounts given us in Matthiolus and Bodæus, that in their days its operation was very well known; and that they knew how to doſe it very exactly, ſince they give us an

(20) For Auguſt and September 1747, and for Sept. 1748.
(21) Page 329.

account

account of tricks being played with it, by infuſing the quantity of a ſcruple of the root in wine, and intoxicating people therewith. The former of theſe authors relates, that the diſtilled water from this plant, in a doſe of about two or three ſpoonfuls, was exhibited by ſome people in inflammations of the viſcera; and, he obſerves, with good ſucceſs. Parkinſon ſeems to have tranſcribed this account, reſpecting this uſe of it; but neither of them ſpeak of it from their own knowlege. It may be queſtioned, however, whether this could act otherwiſe than as mere water; ſince the principles with which this plant is endued, do not ſeem capable (if one may judge from its ſenſible qualities and effects upon thoſe who have taken it) of riſing in a ſtill.

Mr. Ray (22), from the German Ephemerides, an. 13. obſ. 64. preſents us with the relation of a ſhepherd in Denmark, who adminiſtered an infuſion of the berries in wine in the dyſentery, which was there very common, and very obſtinate; adding, that it was attended with great ſucceſs, not only reſtraining the flux, but carrying off the diſorder by ſweat. Mr. Ray obſerves further, that, correſpondent with this practice, Conrade Geſner actually prepared a ſyrop from the berries, and gave it in dyſenteric caſes with great ſucceſs. This account is found in Geſner's Epiſtles, and is quoted alſo by Dr. Haller, (23) when treating of this plant. Poſſibly its efficacy in theſe caſes may be accounted for, from conſidering it merely in the quality of an opiate; and

(22) Raii Hiſt. Plant. I. p. 681.
(23) Enumerat. Stirp. Helvet. p. 507.

therefore it cannot be adviſeable to uſe it, when ſafer medicines are always at hand.

Its external uſe ſeems to be of as long a date as its internal; and it was on account of its cooling and repellent quality, that it came into credit as a fucus among the Italian ladies. Matthiolus recommends it in the eryſipelas, the ſhingles, and other inflammatory diſorders of the ſkin. The leaves, applied in the form of a cataplaſm, are much celebrated by many writers, as of great uſe in reſolving tumors, particularly of the breaſt, and even ſuch as are of a ſchirrous and cancerous nature. Many of the old authors (24) mention this application of it, among other of the cooling and narcotic herbs; ſuch as the common nightſhade, henbane, hounds-tongue, *&c.* which it was uſual to apply on ſuch occaſions. Mr. Ray informs us, that Mr. Percival Willughby experienced its efficacy repeatedly, in diſcuſſing hardneſſes and cancerous tumors in the breaſt.

Its relaxing quality is very ſurpriſing, as appears by that memorable caſe related by the laſt-mentioned author, of a lady's applying a leaf of it to a little ulcer, ſuſpected to be of the cancerous kind, a little below her eye, which rendered the pupil ſo paralytic, that it loſt all its motion for ſome time afterwards: and that this event was really owing to that application, appears from the experiment's being repeated with the ſame effect three times.

The German phyſicians have gone much further: they have even ventured to give it inwardly in cancerous caſes. Dr. Haller, when treating of the qua-

(24) See Foreſtus, Etmuller, and the old chirurgical writers.

lity

lity of this plant, refers to Junker, and others of the modern phyſicians, as recommending the decoction of it with caution, that it be not given in ſuch quantity as to cauſe ſleep. So long ſince as the year 1739. there was a theſis publiſhed at Hall, by Michael Albert, in which the Bella-donna is propoſed as a ſpecific in cancerous caſes. What other phyſicians patronize this uſe of it, I cannot ſay, having but little opportunity of conſulting thoſe academic pieces, which are of ſuch eminent uſe in compilations of this kind. Thus much is certain, that its uſe, in ſuch caſes, rather gains ground; and the caſe, publiſhed in the French Bibliotheque (25), printed at the Hague, of an ulcerated cancer being radically cured by an infuſion of the leaves of this plant in water, deſerves particular attention, on account of its being ſo well atteſted. The caſe is extracted from an inaugural theſis of Profeſſor Lambergen's, who was the phyſician concerned (26). The event was ſo ſingularly happy and ſucceſsful in this inſtance, that we hope it will need no apology, if we give a particular detail of it.

The perſon afflicted with this miſerable diſeaſe was a widow of 34 years of age, and mother of four children. She had but weak nerves, and had been ſubject to inflammatory diſorders. She informed M. Lambergen, upon examining her, that ſhe had had a quinzy ſix times, which had twice ended in ſuppuration: that eight years before her right breaſt

(25) Bibliotheque des Sciences et des beaux Arts pour les mois Jan. Fevr. Mars. 1755.

(26) Tiberii Lambergen Lectio inauguralis, ſiſtens Ephemeriden perſanati Carcinomatis. Groning. 1754.

had

had ſuppurated, and diſcharged much matter: that two years after it ſuppurated again; and that at the end of another year both breaſts underwent the ſame fate; ſince when the right had remained ſchirrous, but was without pain, except when ſhe handled it. She had ſuckled her youngeſt child about ſix months, when ſhe was ſeized with a fever; and the left breaſt (with which only ſhe could ſuckle ſince the other had ſuppurated) ſoon ſwelled, inflamed greatly, was very painful, and ſoon became almoſt as large as a child's head. Dr. Lambergen being called in, ordered copious bleeding, and that the child ſhould ſuck as little as poſſible. She took ſome medicines, and ſoon recovered.

A year paſſed after this without any bad accident; when the lunar evacuations, which ſhe had had from her 18th year, beginning to diminiſh, ſhe felt a pricking pain in her left breaſt, and her right began to ſwell. Upon a fright, ſhe had a fall, which accident increaſed both the pain and ſwelling; and ſhe had recourſe again to Dr. Lambergen.

He found the tumors in her right breaſt much enlarged, and ſo connected together, as to feel like one large one only. On the upper part of the breaſt, upon the pectoral muſcle, it felt rugged, unequal, and almoſt as hard as a ſtone. The patient complained of a conſtant itching in the part, and at times a pungent pain, which ſeemed to ſhoot from the armpit, and end in the tumor. Under this armpit the glands were hard and ſchirrous; and the left breaſt was not exempt from the like indurations. A vein or two on the right breaſt was a little enlarged, otherwiſe no alteration. It was no hotter than common;

mon; nor had it undergone any change of colour. To mitigate the pain of the ſchirrous, Dr. Lambergen ordered the following plaiſter:

℞ *Ung. Diapomphol.* ℥ ij. *Amalgam. merc. et Plumb.* ʒ iij. *Sperm. Cet.* ʒ j. *M.*

With this external application he preſcribed likewiſe the following powders, to be taken night and morning, and gave directions relating to the non-naturals.

℞ *Coral. rub. Antimon. Diaphoret. illot. Sper. Ceti a* ʒ ij. *Laud. gr.* vj. *M.* for 12 doſes.

Under this method the pain remitted, but the tumor inlarged, and a little riſing was obſerved on the upper part of it; and towards the nipple, where there was the leaſt hardneſs, a ſmall ſpot was perceived, which, at the next return of the catamenia, inflamed, and became the ſeat of the moſt excruciating pain. Dr. Lambergen, during this period, in the room of the powders, ſubſtituted emmenagogic pills, and ordered the pediluvium. She loſt ten ounces of blood from the foot: and by theſe means the ſwelling of the breaſt diminiſhed, and the patient ſuffered very little for ſome days. This truce, however, was but temporary: the riſing on the upper part of the tumor began to inflame, itched intolerably, the pain returned, was almoſt perpetual, and inſupportably pungent.

In this dreadful ſtate was the patient, when Dr. Lambergen deſired the late Dr. du Bois, Dr. Winter, phyſician to the houſe of Orange and profeſſor at Leyden, together with Dr. Van Arum of Leewarden, phyſician in ordinary to the Princeſs dowager, to viſit her. Theſe gentlemen examined her many times, and unanimouſly agreed, that it was now no leſs than

a confirmed cancer. It was Profeſſor Winter, who acquainted Dr. Lambergen, that he had heard M. Degner, a celebrated phyſician at Nimeguen, ſpeak of the Bella-donna, as a ſovereign remedy againſt inveterate ſchirri; adding, nevertheleſs, that he had never tried it himſelf.

In ſuch a caſe as this, where death ſeemed inevitable, a dangerous remedy is to be preferred to none at all. Dr. Lambergen therefore determined to try it upon his patient; but, knowing the character, which the plant bore, he reſolved to try the effects of it upon himſelf firſt. To this end, he poured ten tea-cups of water upon a ſcruple of the leaves, which had been gathered and dried three years: he let it ſtand all night lukewarm. Of this infuſion he took half a tea-cup full, being the twentieth part of the whole, in the morning faſting; but perceived no effect from it. This determined him the next morning to double the doſe; which produced a ſlight vertigo, and for an hour or two an uncommon dryneſs in his mouth. Being thus prepared, as he knew his patient had but a weak nervous ſyſtem, he determined to begin with caution.

It was the 14th day of January 1745, that ſhe took the firſt doſe, being one tea-cup full. It had the ſame effect upon her, as it had had on her phyſician; and moreover rendered her pulſe weaker and quicker than uſual. For ſeven mornings ſucceſſively ſhe took the ſame doſe, which, in general, produced the ſame effect. At the ſame time the plaſter was renewed, with the addition of a few grains of opium. Under this method her pain was mitigated; but, before the latter end of the week, returned again more

more frequently, and more acute; ſo that ſhe was reduced to a moſt deplorable condition. The riſing on the upper part of the breaſt became livid; the place near the nipple before-mentioned inflamed, and was very painful; and two little pointed riſings were obſerved upon it, together with a ſlight fiſſure or opening. As the menſtrual period was approaching, the infuſion and the powders were omitted, and the pediluvium ſubſtituted. A mixture with crabs-eyes, ſpt. nitri. d. and ſyr. e mecon. relieved the patient from ſome ſpaſmodic complaints ſhe had at this time, and the menſes returned more copiouſly than ever. The 27th ſhe took ſomething more than a tea-cup of the infuſion, being the firſt doſe of the ſecond ſcruple: her body was ſoluble; her breaſt leſs ſwelled, but the pain returned very acute, and ſeemed to terminate in the little callous eminence on the upper part of the breaſt, which now likewiſe became more pointed. The 28th ſhe took the ſame quantity of the infuſion. The two little pointed places near the nipple were now become two little holes, but had not diſcharged any matter. The other ſore on the upper part of the breaſt was more livid ſtill, and more painful, and had riſen into two little whitiſh points. The powders were omitted this night, as they had been now and then at other times. The 29th, very little ſleep the foregoing night, great pain from the upper ſore, the holes near the nipple were become larger, and had run a yellowiſh matter. The ſame doſe of the infuſion as before. At night ſhe had moſt acute pain from the upper ſore. The 30th both ſores were nearly in the ſame ſtate. All remedies were

this day laid aſide, except the infuſion; of which ſhe took a cup-full and an half; but her mouth ſoon became ſo dry, that ſhe could ſcarcely ſwallow a little tea; and the vertigo was ſo violent, that ſhe ſtaggered: her ſight was ſo weakened, that ſhe could ſcarcely read. Notwithſtanding this, ſhe had no anxiety, nor nauſea, nor pain; but her appetite was leſs, and her pulſe quicker. The 31ſt all the laſt-mentioned ſymptoms continued the ſame: the two pointed eminences on the upper part of the breaſt were become two little holes likewiſe, and had diſcharged a few drops of good matter.

The 1ſt of February the upper ſore had diſcharged but little matter, and that thinner than before. That near the nipple was become more livid, and the two holes were larger; but there had been no diſcharge for ſeveral days. The pulſe and appetite were good, ſleep natural, the body open. The pain, indeed, was continual, but leſs acute. The 2d, little alteration. The ſores diſcharged but little. From this time they were dreſſed twice in a day with *Nutritum*, and over all the *Emp. Saturnin.* The pain was not ſo violent, but was felt in another place, which began to ſwell. From the 6th to the 28th better and worſe: the pain more or leſs acute; and the catamenia paſſed without any bad effects. At the end of this month the ſchirrus all over the breaſt was much ſoftened, and ſenſibly diminiſhed. This was the opinion of Dr. du Bois and Dr. Winter, as well as of Dr Lambergen.

The 1ſt of March an inflammation aroſe on the ſole of the right foot, and extended up the leg about four fingers above the heel. It ended in two great bliſters,

bliſters, as if from a burn, which were embrocated with wine and oil, and nothing bad followed. To the 22d, the patient was better and worſe. The menſtrual period did not paſs without ſome diſturbance. The 26th ſhe began with the infuſion of the tenth ſcruple, and every thing went on for the better to the end of the month.

From the 1ſt of April to the 6th the ulcers were firm and dry; but the pain in the breaſt increaſed. Several bliſters aroſe on the foot, along the leg, and even upon the thigh, on the left ſide. One upon the ſole of the left foot, for 24 hours diſcharged an incredible quantity of thick whitiſh lymph. The pain from theſe bliſters was beyond all ſhe had felt before. It continued the 7th, 8th, and 9th; and new bliſters aroſe on the thigh. The excoriated parts were all dreſſed with ſpirit of wine. During the diſturbances from theſe new complaints, the breaſt was likewiſe painful, and ſwelled, tho' the ulcer near the nipple was dry, and the other diſcharged little or nothing. The 10th ſhe had leſs pain both in her foot and in her breaſt. The upper ſore was cloſed; the foot diſcharged leſs. From the 11th to the 15th, notwithſtanding the weather was very cold, her pain ſtill leſſened. The ulcer remained firm, and the whole breaſt was ſoftened: her foot mended; and all went on for the better till the 18th, when the ulcer on the upper part of the breaſt opened again in three places, and diſcharged a thick yellowiſh matter. The nipple of the left breaſt alſo became inflamed, and ſurrounded with pimples, which diſcharged a little lymph. In the mean time the cancerous breaſt was more painful than on the preceding days. The

19th the pain leſs, tho' continual. Some diſcharge from the foot ſtill; but the ulcers on the thigh were healed, and another bliſter aroſe. The 20th the upper ſore on the breaſt cloſed again; but that near the nipple ſeemed to threaten another opening, and in fact it did, on the 24th, in three places. On the 20th the catamenia returned very copiouſly, and ſuperſeded the uſe of the pediluvium. The 25th ſhe began with the infuſion of the fourteenth ſcruple of the Bella-donna, which, it is to be obſerved, was ſcarcely ever omitted. The 26th a bliſter aroſe at the end of the fore-finger on the left hand, was very painful, and diſcharged a great quantity of ſerous matter. The next day both ulcers on the breaſt diſcharged a ſmall quantity of lymph; otherwiſe the breaſt was leſs painful.

From the 28th of April to the 7th of May every thing went on for the better: the cancerous breaſt was almoſt without pain. The ulcers ran very little; but the excoriation and pain were much worſe from the nipple of the left breaſt, which alſo diſcharged a great quantity of lymph. The 8th the upper ulcer on the right breaſt cloſed; but the other opened again. From the 8th to the 16th no change for the worſe: on the contrary, the left breaſt was well; the right leſs painful, and diſcharged but very little. From the 18th to the 22d the menſtrual period: all things on the mending hand; the ulcer healed, and the patient had little or no pain: but, from the 23d to the 27th, the pain returned ſomething worſe, and there was ſome diſcharge from the breaſt.

The *Nutritum* was now diſcontinued, as too emollient. The 27th the infuſion from the eighteenth ſcruple of the Bella-donna was begun with.

From

From the 28th of May to the 12th of June the breaſt ſtill painful: in the mean time, however, the ulcers remained firm and dry. The tumor and ſchirroſity of the breaſt diminiſhed in ſuch a manner, that, excepting its being a little bigger than the other, it had intirely reſumed its natural form and colour. No indurations in the left breaſt, nor of the glands in the right armpit.

The 13th of June ſhe took a journey, was abſent ſome weeks, and returned in perfect health. Dr. Lambergen adviſed her, but in vain, to continue the infuſion. Nevertheleſs, ſhe was obliged now and then, when ſhe felt pain, to have recourſe to it, and was always relieved by it: and in the courſe of another year the remains of the ſchirrus were totally waſted.

It is now (1754) eight years ſince, and ſhe has had no relapſe, no pain, no hardneſs in her breaſt; has married a ſecond huſband, by whom ſhe has had a child, which ſhe ſuckled. What more can be requiſite to aſcertain a cure?

Thus we have given a detail of this memorable caſe; wherein we ſee, that ſix drachms of one of the moſt poiſonous vegetables that the world produces actually cured a woman, whom the moſt able phyſicians had given up as incurable; and who muſt otherwiſe have finiſhed her miſerable days in the moſt deplorable ſufferings.

It muſt not be omitted, that notwithſtanding the daily uſe this woman made of the Bella-donna, ſhe was not accuſtomed to it in the manner as people are who take opium. Dr. Lambergen always prepared the infuſion himſelf, and never had occaſion to make

it ſtronger than at the firſt, as the patient always found the like effects from the ſame doſe.

So ſingular and happy an event, as attended Dr. Lambergen's adminiſtration of this plant, certainly merits the attention of the medical profeſſion; and ſurely, one may add, entitles the medicine to future trials. And as the authenticity of the caſe will not be diſputed, it is therefore greatly to be wiſhed, that thoſe gentlemen, who belong to the public hoſpitals, and others that have frequent opportunities of attending patients labouring under this deplorable diſeaſe, would give it a further trial. A cancer, even in its latent, but much more in an ulcerated ſtate, is allowedly one of the moſt terrible and formidable diſorders to which human nature is liable; and hath long been ranged, very juſtly, among the *opprobria medicorum*, inſtances of a radical cure being rarely met with: indeed, one of the firſt phyſicians (23) of our age tells us, that it is not known to have been cured at all, but by a total extirpation of the part; and all, who are converſant in phyſic and ſurgery, know very well, that that operation is frequently no ſecurity againſt its return.

I have here endeavoured, in as conciſe a manner as might be, to exhibit the hiſtory of this extraordinary plant. The being able barely to know and diſtinguiſh one plant from another, however praiſeworthy in itſelf, ought not to be the only view of our botanical reſearches: we ſhould do more, and

(23) Dr. Van Swieten Comment. in Aphor. Boerh. ſect. 492.

endeavour

endeavour to inveſtigate, in the moſt attentive manner, the properties of vegetable productions, in order to accomodate them to the various exigencies of human life.

Several claſſes of vegetables, from their merely herbaceous taſte, and, as far as we can conjecture, from their other ſenſible qualities, ſeem to be formed by the great Author of nature principally for the nouriſhment of animals: but thoſe plants, which are endued with principles ſo highly active, as, when taken in ſmall quantities, to be able to put an end to animal life; ſuch deſerve to be more minutely inquired into, as under certain circumſtances theſe principles, properly directed, may conduce to great and good ends. We ſhould endeavour, therefore, diligently to inform ourſelves, in what quantities, and under what circumſtances, the poiſon ends, and where the medicine begins. In this reſpect we have certainly a notable inſtance in the hiſtory before us in Profeſſor Lambergen; whoſe induſtry, more eſpecially as it was attended with ſucceſs, merits our greateſt acknowlegements; inaſmuch as he has informed us, with no ſmall degree of accuracy and preciſion, that the plant under conſideration, which is well known to be of a highly deleterious nature, and that even in a ſmall quantity, may be ſo managed, as to be productive of good effects, not to be found poſſibly by any other means.

Some of the moſt efficacious medicines are ſuch, as, being poſſeſſed of highly active principles, do greatly diſturb the animal œconomy in their operation: nevertheleſs, however rough the *modus operandi* of any medicine be, if its efficacy by repeated trials

trials be approved and confirmed, this is ſo far from proving a diſcouragement to its uſe, that we ought to regard the diſcovery of ſuch a one as a valuable acquiſition to the province of phyſic, eſpecially if it is applicable in deſperate and obſtinate caſes. The Bella-donna, on the contrary, ſuppoſing future trials ſhould prove it as happily ſucceſsful as Profeſſor Lambergen has experienced it, is a medicine of a different kind; inaſmuch as its operation is mild, when compared with that, which attends the exhibition of many others: we ſhould therefore have double reaſon to rejoice at the diſcovery.

XIII. *An Account of ſome of the Antiquities diſcovered at* Herculaneum, &c. *In a Letter to* Thomas Birch, *D. D. Secret. R. S. By* John Nixon, *A. M. F. R. S.*

Reverend Sir,

Read Feb. 24, 1757. THE ſubject of this letter are ſome curſory obſervations made by me laſt ſpring, upon viewing the curioſities found at Herculaneum, and the places adjacent. I deferred putting them into any order, till I came to town, and had ſeen, by peruſing the Tranſactions of the Royal Society, whether ſome abler hand had not already prevented me, and made any further communication needleſs: but as I now find, that no notice has been hitherto taken of ſeveral particulars, which, in my humble