Transactions of the Royal Medico-Botanical Society of London / edited by W. H. Judd.

Transactions of the
Royal Medico-botanical Society
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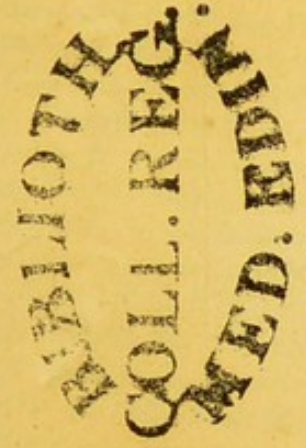
TRANSACTIONS

OF THE

Royal Medico-Botanical Society

OF



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General Proceedings of the Society, from January 28, 1834, to June 28, 1837.

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Some experiments which were made on dogs with the gum which exuded from the tree, with its leaves, and also with a decoction of the fruit and the roots, shew that very large doses at all events may be taken without danger.

On an analysis of 180 grammes of the ripe fruit of the *Melia sempervirens* it was found that the water evaporated was 100, and there was yielded chlorinite 5,—resin 1, 2,—a species of sarcolla 6,--mucus ,3,—gum 10,—amylaceous fæcula 7,—fatty-oil 2, 5,—woody fibre 46,—with traces of acetic acid, and loss 2:—total 180.

Dr. Sigmond presented to the Society a very fine specimen of the *Gentiana Chirayta*, from the East Indies. This plant is herbaceous, having lanceolate leaves, corolla rotate, four cleft, smooth, stamens four, capsule ovate, bifurcate as long as the calyx; such at least are the characters given in the Roxburgh manuscript. It is said by Dr. Fleming to be indigenous to the mountains to the westward of the Ganges. Dr. Ainslie says what appears in the bazaars of Lower India, under the Tamool name, *chayret toochie*, are small stalks of a light grey colour, of a very bitter but pleasant taste; the natives consider them as tonic, stomachic, and febrifuge, and prescribe a decoction or infusion of them, in the quantity of a small tea-cupful, twice daily.

It is imported in the coarse matting in which it is enveloped; it has been at times very scarce in the drug market, but it is now very plentifully sent over to us. It is in long cylindrical stalks, externally of a brown colour, but whitish within, of a very peculiar bitter flavour, without much aroma, not at all austere; the smaller twigs are more intensely bitter than the larger ones. It yields up all its power to water, and a concentrated infusion may be obtained, so marked in its bitterness as to produce almost instantaneous vomiting; but a dose of two drachms in half a pint of water is quite powerful enough as a tonic.

Its beneficial effects are generally much more permanent than the greater number of bitters; nor does it, as most of the

barks, woods, and roots which we employ for dyspeptic states, and for all that host of morbid affections which depend upon disordered function of the stomach and intestines, ever constipate or interfere with the healthy function of the liver; on the contrary, it corrects the secretion of bile, and gently operates on the bowels.

February 11*th.* Mr. Burnett, the Professor of Botany, delivered a lecture on the Patent British Leaf, or Tea. Chemical analysis had so entirely failed in pointing out the difference between the China tea, and what is called British leaf, that the aid of the botanist had been required. Of the specimens submitted to his inspection, he found by far the larger portion so completely broken, that it was extremely difficult to ascertain what leaf had been employed. He was, however, enabled to state decidedly, that a large portion of the spurious tea was composed principally of the leaves of the elm and sloe, next of those of the willow and apple, the maple and hawthorn being very little used, while the leaves of the cherry, rose, and poplar were scarcely to be discovered. He had tried an infusion of this composition mixed with the genuine tea, and was of opinion, that the difference was very discoverable, as it was nauseous and very unpleasant; but he did not consider it injurious to the health. Much stress had been laid on the Prussic acid which it was supposed to contain; but he observed that this was in too small a quantity to prove deleterious. It was rather singular that of all the gentlemen who had spoken in favour of the composition, only Dr. Birkbeck had actually tried its powers, and he had employed it for a week, but the others had merely tasted it. The revenue derived from the consumption of tea was four millions annually; and as one-fourth of this mixture was added to adulterate good tea, government would lose one million annually, without any advantage to the public, who would in fact be defrauded of two shillings in every pound of tea they purchased.

February 25*th.* Dr. Ryan, the Professor of Materia Medica,

delivered a lecture on the medicinal and dietetic effects of tea.

March 11th. An essay, by W. H. Judd, Esq., on the effects of a new preparation of the *Piper Cubeba*, which was found to be an effectual remedy for the cure of gonorrhœa and gleet, was read.

Mr. Everitt, the Professor of Chemistry, delivered a lecture on the chemical properties of tea. He stated that the solvents of tea were, water, alcohol, ether, turpentine, and essential oils, and gave the results of experiments which he himself instituted: he had found that the same solvents had produced different results on the different teas, as far as regards the relative properties of their proximate principles. A large quantity of woody fibre or lignine was found to be present, constituting more than one-half of the plant, and on examining the aqueous solution, tannin, vegetable albumen, gallic acid, and gum similar to that of the acacia, were ascertained to be present. The alcoholic solution yielded an almost tasteless resin, differing but slightly from common resin, and, on account of the highly aromatic odour of the infusion, the presence of an essential oil was suspected; but several experiments failed which were made with a view of discovering it. The professor, after remarking that the ultimate principles of the tea-plant are carbon and the elements of water, added that a chemist had endeavoured to discover or separate a peculiar principle, in which he considered himself to have succeeded, but he (the professor) doubted whether this principle, which had been named *Theine*, was a product or an educt. He added that the chief continental chemists did not appear inclined to place much reliance on this analysis, which was obtained by a process so complicated, and requiring so much time, that he (the professor) had not been able to complete it for this lecture. The *Theine* is described as being nearly white and crystallizable, possessing a slight taste of tea, and soluble in water and alcohol.

April 8th. A communication from Mr. Toller, describing his method of preparing the alcoholic extract of Cubebs, was read, it being the extract used by Mr. Judd, in the cases detailed in his paper of the 11th instant.

April 22nd. A paper, by Dr. Hancock, on the properties and preparations of Sarsaparilla, was read.

May 13th. Dr. Tytler stated to the Society, the views upon which he had founded his new system of Nosology.

June 10th. An essay, by M. Pelletan, on the two species of Jalap which are met with in commerce, was read.

The writer, after giving a slight sketch of the history of the plant, and an account of the botanical character of those which have been mistaken for it, states, that Dr. Redman Coxe, of Philadelphia, and M. Ledanois, a French pharmacopolist, established at Orizabu, a city of Mexico, have discovered the real plant from which the root used in medicine is obtained. Considerable difficulty was experienced in procuring roots with a view of rearing the plant, from the hostility manifested by the natives, who were fearful of losing, should they succeed, one of their chief sources of wealth. This difficulty having been overcome, M. Ledanois sent to Messrs. Humboldt and Desfontaines, some specimens of it, and also of the plant called by the natives the *Jalapa Macho.* To the former is given the name of *Convolvulus officinalis;* to the latter, that of *Convolvulus orizabensis.* The author then examined the botanical character of these plants, of which he gave a very minute and complete description, and terminated the essay with some general remarks on the classification of the *Convolvulaceæ,* recommending M. Chosy's arrangement, with some modification.

June 24th. Mr. Burnett, the Professor of Botany, delivered a lecture on the doctrines of Homo-Morphism, and the apparent exceptions between the properties of vegetables of similar structure.

November 11th. Mr. Iliff made some remarks on the *Oxalis erenata,* a new species of sorrel.

Dr. Sigmond read an essay on endermic medication.

November 25th. An essay, by Dr. Hancock, entitled, "Remarks on *Quassia* and the *Strychnos Nux vomica*, considered as tonic medicines, and on the medicinal properties of *Guaiacum*, etc.," was read.

December 9th. Mr. Everitt, the Professor of Chemistry, delivered a lecture on the method of assaying dilute hydrocyanic acid; on the causes which render it very difficult to procure an acid of uniform strength; on the necessity of always assaying the ultimate product of any process where distillation or filtration is used; on the great diversity of strength in the medicinal Prussic acid vended by druggists in London; and on the means best adapted to avoid the existing evils.

January 13th, 1835. An essay, by M. Lecanu, on the chemical composition of the *Iris fœtidissima*, and its application in medicine, was read. The root of the *Iris fœtidissima* yields by analysis a very acrid volatile oil, resin, bitter, colouring and saccharine matters, gum, a free acid, wax, salts and lignine. Of these, the most active principle is the volatile oil, and consequently, the fresh root should be preferred in all cases to the dried, inasmuch as the act of desiccation will dissipate a portion of the volatile oil, and at the same time assist its decomposition. Professor Recamier has used this root in dropsy with advantage.

January 27th. Dr. Ryan, the Professor of Materia Medica, delivered a lecture upon the difference between organized and unorganized bodies.

Some remarks were afterwards made, by Dr. Negri and Dr. James Johnson, on the *Ballota Lanata*, as a remedy in the treatment of dropsy.

February 10th. Dr. Sigmond made some observations on the two species of *Galangal*, the greater and the lesser: the former of which is the product of the *Alpinia Galanga*, described by Dr. Roxburgh; the lesser is distinguished by rings about one-fourth of an inch distant from each other, and is

considered in India to be of ten times more value than the former. From the high estimation in which it is held by the natives of China, and by the native doctors of India, it has been the subject of examination by Dr. Ainslie, and the other pharmacologists of the east. The subject of the Zedoary root too was still not thoroughly elucidated. Dr. Roxburgh had, in the eleventh volume of the *Asiatic Researches,* done more than any of his contemporaries, but still many contradictions remain to be reconciled. The next subject was one of still greater difficulty, namely, from what plant the Kino was obtained. The Edinburgh College stated from the *Eucalyptus resinifera;* the Dublin College from the *Butea frondosa;* the London from the *Pterocarpus erinaceus;* but it was now represented to them as the product of the *Nauclea Gambir,* of which there were several specimens on the table. Dr. Sigmond then directed the attention of the Society to the very remarkable appearance which the tincture of kino, prepared according to the orders of the College of Physicians, often presented. He had obtained from a druggist the glass vessel in which it was actually kept, and the members present would observe the singular incrustation formed on the sides, as well as the mucilaginous deposit which had separated from the proof spirit. He could not account for the change in the tincture, which seemed to occur very frequently, even when the same drug was employed, and which rendered it an unsafe medicine to be prescribed.

Mr. Iliff stated that he had imported the tincture of the *Fungus Melitensis,* with a view of ascertaining its merits; he had not found it efficacious, for it did not restrain hæmorrhage better than the medicines in common use, and did not, as far as he was able to judge, deserve the high reputation it had gained.

Dr. Sigmond then read a paper upon vegetable remedies, used as a cure for cholera.

February 24th. An essay on an improved method of drying

fresh plants so as to preserve their external characters, by Frederick Hanham, Esq., was read.

Mr. Everitt, the Professor of Chemistry, explained the mode in which Professor Geiger had obtained the aconitine which had been presented to the Society by the President, Earl Stanhope.

March 10*th*. A letter was read from Dr. Hamilton, of Plymouth, containing some extracts of a letter from Dr. Bancroft, of Jamaica, relative to a plant called *Cacabuy*, which has been found highly serviceable in the joint-disease of the West Indies.

An essay, containing notices of the plant called *Coonuparu* by the natives of Guiana, by John Hancock, M. D., was read.

The *Coonuparu*, or purple bush, is an elegant perennial shrub, indigenous to the interior parts of Guiana. It is dioecious; the male plant only is known, and is propagated by slips in the gardens of the coast. It grows to near eight feet in height, and about as many inches in circumference; the stem is jointed and extremely branchy. It is constantly covered with leaves, which are tern, and arranged in whorls. It bears, at all seasons of the year, flowers, which are small, white, and in racemes: the calyx is a cup, five parted; without corolla; with about forty stamens, in five bundles, not connate, unequal, involved in a downy substance; anthers twin; rudiments of the germ three-sided. The fruit is said by the natives to resemble that of the castor-oil bush. The entire plant is replete with a lactescent fluid, so copious as to trickle down in a small stream, when an incision is made or a branch broken off. This fluid has a powerful acrimony, and, when tasted, affects the mouth and fauces with a sense of burning, and the flavour of capsicum. The sensible operation of a tincture, made from the leaves of the Coonuparu, in a dose of twenty or thirty drops, causes borborygmus, which is soon followed by a rash or efflorescence, like an essera, or rather diffused patches, with a slight but evident elevation of the skin, extending more or less over

the whole surface of the body, attended with an itching sensation, and increased perspiration. The tincture is made by infusing four drachms of the powdered leaves in six ounces of proof spirit: of this, from five to ten drops are given every four or six hours. It has proved a powerful remedy in pneumonia. The seeds, as the natives report, act as a hydragogue cathartic.

April 7th. Mr. Everitt, the Professor of Chemistry, made some observations on the mode of preparing hydrocyanic acid, and in explanation of the opinions he had before delivered.

Dr. Morries, the Professor of Toxicology, read some observations on the mode of obtaining the alkali from Elaterium.

May 12th. Dr. Sigmond read a paper on the different substances which have been employed as secret poisons, by which life may be terminated without suspicion being awakened by the symptoms which manifested themselves. He detailed the narratives of the Marchioness de Brinvilliers, and of Tophana, and dwelt upon the evidence in those cases to prove that mineral poisons must have been administered and not vegetable substances. He described the effects of nitric acid, when daily employed in small quantities, and related cases in which death had been produced, after a lapse of many months, from the administration of the acid.

Mr. Alsop exhibited a new instrument, formed of a graduated glass tube and piston, for the correct admeasurement of minims of the more active fluids, which appeared to possess every requisite for convenience and accuracy, and to supersede the former uncertain mode of compounding medicines by drops.

May 26th. An essay on the preparations of opium employed in France, by M. Lecanu, was read; in which he states, that the alcoholic tincture of opium, which is prepared, according to the Pharmacopœia of France, with the aqueous extract, contains all those principles which are soluble in alcohol, unless the spirit be too concentrated, in which case the gummy matter, with the sulphates of lime and potash, would be excluded; and if the menstruum be too dilute, the resinous, fatty acid, and

volatile matters, and perhaps even the narcotine, will remain undissolved.

The laudanum of Sydenham is prepared by macerating opium, cloves, cinnamon, and saffron, in Malaga wine. In all probability, the principles of opium which are taken up by the menstruum will be those which are soluble in weak spirit and water; but nothing can be said with certainty on the point, until the liquid and residue have been analyzed, for Malaga wine is not a mere mixture of alcohol and water, but contains free acids, tannin, etc., which may react on the principles of opium, and thus materially modify the physiological effects produced by the preparation.

The composition of the laudanum of the Abbé Rousseau is still less uniform, and it is impossible to indicate *a priori*, the nature of the principles which are taken up during the preparation, as the process of fermentation is at present so obscure.

Almost all the principles of opium are contained in the extracts of Hombert, Diest, Baume, Josse, Limousin Lamothe, Cartheuser, Croharé, and Cornet, but they are not all present in equal proportions. For example, narcotine, resin, and fatty matter appear to be more abundant in extracts made with hot, than in those prepared with cold water; in extracts made by treating opium with little, rather than much, water at a time, and in extracts prepared simply by evaporation, than in those made by solution and subsequent evaporation. The reason is, that the presence of a large quantity of the soluble principles of opium assists the solution of those which are less readily dissolved, and this solubility is still further increased by heat, and finally each time the extract is re-dissolved in a large quantity of water, a certain portion of fatty matter, resin, and narcotine is eliminated. On the other hand, the volatile principle will be less in extracts made by long digestion than in those made in the ordinary manner in the marine bath, being lost either by evaporation or organic change.

June 9th. Dr. Morries delivered a lecture introductory to a course on toxicology.

June 23rd. An essay on poisoning by Belladonna, by Messrs. Laurent and Claubry, was read.

An essay on the bitter Manioc, by M. Henry, was read.

November 10th. Dr. Sigmond announced the demise of Mr. Burnett, the Professor of Botany, in the following terms:—

I have a melancholy task to fulfil, and which must materially check the feelings of pleasure usually attendant on the first meeting of the session: I have to announce the death of a highly-gifted and much-loved individual, who filled, with honor to himself and to the Society, the distinguished office of Professor of Botany—Gilbert Burnett. His career has been untimely stopped by the inscrutable decree of that Great Being whose beauteous works he studied with delight, whose wondrous paths he loved to trace. At a period of life when few have even commenced the search of knowledge, he had, by his devotion to the sacred cause of science and of truth, obtained the respect and the esteem of the wise and the good, and he was recognised as a highly-accomplished teacher, from whose stores the rich harvest might safely be diffused. His delivery of a course of lectures at the Royal Institution of Great Britain first attracted attention, as well from the classic learning, as from the intimate acquaintance with the nature and uses of the vegetable kingdom that it displayed; the high character which he obtained, and the promise of future excellence which he thus held forth, induced our illustrious President to consider him as the fittest person to fill the then vacant office of Professor of Botany to this Institution, and which he held to the day of his death. The zeal and ardour with which he attached himself to our interest, realised the sanguine expectations of our President, and called forth repeated testimonials of your approbation, and they are the best proof that you appreciated his labours. When a chair was established in the King's College for a Professor of Botany, he was the individual upon

whom, after mature deliberation, the choice fell, and the appointment was hailed with universal approbation. He felt, and he often expressed his conviction, that it was owing to the testimonials that your illustrious President gave, that his claims to the professorship were recognised. The next official station to which he was elevated, was one that was a source of great gratification to him, as it came from a body determined scrupulously to weigh every consideration before it appointed its professor; and as the Society of Apothecaries had exhibited the greatest anxiety to forward botanical knowledge, their selection of Professor Burnett was a still further proof of the estimation in which he was held. He was, however, destined only to enjoy the honor which it conferred; disease preyed upon his frame, and before he could fulfil the duties which devolved upon him, he was numbered amongst those who have been. As a writer, his works have been highly estimated, and the popularity amongst students of his *Elements of Botany*, is a proof that it is a practical guide to the study of plants. His edition of *Medical Botany* is replete with information, and displays his reading. His occasional lectures delivered within these walls, and also at the King's College, have been published, and have been admired; whilst upon the minds of those who heard them delivered a lasting impression was left. His works will remain a memorial of his talents, his industry, and his knowledge. As an editor of a distinguished medical periodical, he obtained the character of an impartial, acute, and honest critic: he gave praise wherever it was in his power; no unkind thought or expression ever issued from his pen; and where admonition was necessary, it was conveyed with a gentleness of spirit and mildness of feeling that left behind no sting. He had the honor, during the last session, of filling the highly-respectable station of President of the Westminster Medical Society: his firm and temperate manner conciliated for him the respect and the esteem of all. I cannot but look back with pleasure to the circumstance, that it was my good fortune, as a member of that

Society, to propose him as its President; and that I enjoyed an opportunity of expatiating, whilst he lived, upon those good qualities which, after life's fitful dream is past, we reflect upon with undiminished feelings of admiration. It was also my lot to second his nomination to the Professorship of Botany at the Royal Institution; and I likewise obtained from your President permission to nominate him in this Society, little anticipating the time when I should mourn over him dead, whom I ventured to praise whilst living. You all of you admired and respected him, and it was always with pleasure you received him here, and it was with the deepest sorrow you watched his gradual decay. He came to our councils, he assisted at our meetings to the last, he anticipated this evening's meeting, and looked forward to it with hope, yet with fear. He was with us to the last night of our past session; and we all inquired with anxious solicitude after his health, and heard him, with the self-deception that is so often attendant on disease, flatter himself with delusive promises never to be fulfilled. His lectures here never failed to attract a large assemblage of fellows and visiters, and he imparted his knowledge, which was most orderly and methodically digested, with ease and with elegance. Determined to be accurate even in the employment of words, his discourses were remarkable for their clearness and their precision: indeed, he was a philologist of no ordinary merit, and he loved to seek, in our older authors, the names of the plants which he described, and from their quaint titles was often led to the discovery of their medicinal qualities, or the powers which our forefathers ascribed to them. It was still more delightful to accompany him in his botanical excursions, when, surrounded by his pupils, he taught the grandeur of nature, her order, her simplicity, her truth. His mind was sensibly alive to the beauty with which the vegetable kingdom is adorned. He was richly endowed with that exquisite sensibility which exercises over some men the most delicious sway, and imparts to their thoughts an irresistible charm. He gave expression to these

thoughts with an enthusiasm which carried conviction to his hearers, and he clothed them in language which was classical, chaste, and impressive. He was beloved by his pupils, to whom he imparted his knowledge without reserve, and to whom he was indeed "a guide, philosopher, and friend." He taught them that botany was not a collection of names, a mere systematic arrangement, but that it belonged to agriculture, to commerce, to geography: he shewed its utility, nay more, its absolute necessity, to the human race, as furnishing us both with nourishment and with medicine for our support, and for the alleviation of the sorrows with which we are afflicted. All his efforts were directed to the improvement and happiness of man, and he has carried with him to the grave the gratitude and the kind recollection of a host of friends, attached to him by the warmest ties. He has bequeathed to posterity the result of his labour and his industry, and likewise a reputation and fame, of which this Society reaps a rich and brilliant share, from the records it possesses in its Transactions.

Charles Johnson, Esq., delivered an address upon the importance and study of Medical Botany.

An essay on the application of the juice of the *manchineel* tree in cancer, by M. Germon, M. D., was read. The *manchineel* tree, *Hippomane Mancinella*, of the family *Euphorbiaceæ*, which has been described by many authors, has been known since the conquest of America, in consequence of the terrible effects produced by the arrows of the aborigines, which are imbued with the juice from the bark or the fruit of the tree. This lactescent juice is employed by the tribes which frequent the banks of the Oronoko, as an anticarcinomatous remedy: before applying it they cleanse the surface of the sore carefully with cold water, and having guarded the edges with an innocuous paste, let fall a few drops of the juice on the centre of the ulcer, which causes a black carbonized eschar, that separates in forty-eight hours, and leaves a simple healthy wound, which soon cicatrizes. "As soon as the juice of the *Hippomane*

Mancinella comes in contact with the ulcer the pulse is quickened, the breathing is hurried, and a very abundant perspiration breaks out over the whole body of the patient, but these symptoms soon disappear. Similar phenomena sometimes present themselves after the application of arsenic to a carcinomatous sore." If the latter like the former remedy loses its deleterious effect when brought in contact with the cancerous ichor, we see that the modus operandi of the manchineel and of the arsenious acid is somewhat analogous. The juice of this tree is brought forward as a valuable substitute for the arsenious acid, being one that has been followed by much greater success. "It would be easy to narrate cases in proof, for when we travelled in the interior of the Brazils, patients were pouring in even from the sea-shore, to be treated by the chiefs of these savage tribes, and we were for a long time intimately acquainted with them."

November 24th. The following queries from Dr. Martius, of Erlangen, were read. 1st. Ainslie in his excellent work on the Materia Medica of India, states, that two sorts of extracts are prepared from the fruit of the *Areca Catechu*, which are called catechu. Is this the fact? 2nd. Are both the sorts found in European commerce? 3rd. Are both the sorts procurable in England? 4th. Could specimens of both the sorts be sent to Dr. Martius? 5th. It has been generally supposed that the catechu is prepared from the wood of the Acacia Catechu. Could the bark or the pods of the plant be also employed for the purpose, and is this done? 6th. How many sorts of catechu are found in European commerce? 7th. Is the catechu in small square cubical pieces certainly the extract of the *Nauclea Gambir?* A specimen, marked *A*, is sent.

Cardamoms are another most interesting subject; and without entering into the botanical difficulties which impede the study of the kinds, I would observe that considerable confusion appears to exist with regard to the varieties in the drug itself. I have therefore taken the liberty of sending some small

specimens of those which are procured, but not generally, in Germany. 8th. The cardamoms of Malabar are of two sorts: I. round and with full capsules, specimen *B*; II. a long variety, specimen *C*: both of these came from the same plant, and the difference in the fruit arises solely from culture. Is it true that the *Elettaria Cardamomum* of Withe is the parent plant? 9th. The cardamoms of Ceylon are the specimen *D*. Is the parent plant the *Elettaria Cardamomum medium* of Roemar and Schultz, or the *Amomum aromaticum* of Roxburgh? 10th. The cardamoms of Java are the specimen *E*: they are very little esteemed, and appear very seldom in Germany. Is the parent plant the *Amomum angustifolium?* 11th. Are the round cardamoms, specimen *F*, the fruit of the *Amomum Cardamomum* of Linnæus, or the *Amomum racemosum?* 12th. The large cardamoms, or what are called the Banda Cardamoms, are the specimen *G*, and appear to me the ripe fruits of the *Amomum Grana Paradisi*, but the plant, according to the engraving of Rheede, vol. II., table 6, seems rather to be an *Alpinia:* are the small cardamoms, called those of Malabar, collected from them? 13th. *Semina Amomi*, or *Grana Paradisi*, appear to me the unripe fruit of those just mentioned. I have examined many of them without finding a single specimen in which the kernel was formed. (Specimen *H*.)

An essay, by Dr. Hancock, on the various barks of British Guiana, was read. The *Icica altissima* yields the gum Caraña: it is employed in decoction as a gargle for inflammatory sore throat; it is used also in baths and lotions for foul ulcers, or in powder sprinkled over the surface of the sore; it is also taken internally as a febrifuge.

The *Dalie*, or bark of the wild nutmeg, *Myristica Sebifera* of Wildenow, is used in baths and lotions: the bruised and boiled seeds yield up a large portion of concrete oil, with which candles of an agreeable odour are made.

The bark of the semiri, *Hymenæa Courbaril* of Linnæus, is a bitter astringent, and is employed as a febrifuge, and a

topical dressing for ulcers. The yari-yari or spar-wood of the family *Anonaceæ*, is stimulant and sudorific, possessing scarcely any astringent properties; it is used in the form of decoction, in the treatment of syphilis and rheumatism. The *Arisaor*, a nondescript of the family *Leguminosæ*, is considered a tonic and febrifuge; it is exceedingly bitter and astringent. The *Carmacata* is a bitter and astringent bark, similar to the *Quassia amara*. The *Waibyma*, of the family *Laurineæ*, is the *casca preciosa* of the Portuguese, and is by them regarded as a valuable sudorific and aromatic febrifuge.

December 8th. A paper on the *Aconitum Ferox*, by M. Richard, was read. This plant grows in elevated situations in the Himmalayan chain; it has been also found in the provinces of Sirmore, Kamaon, and Nepaul. It furnishes the juice with which the Nagas, a tribe residing near the Silhet, poison their arrows; and is, in all probability, the most subtile vegetable poison of continental India, being equally fatal whether introduced into the stomach or applied to wounds, which is not the case even with the Worary poison. A series of experiments were performed on dogs and rabbits, by M. Richard, with the alcoholic and aqueous extracts of the root, and when the poison was introduced into the system through a wound, the symptoms produced were difficulty of breathing, weakness, palsy, commencing generally in the hinder extremities, vertigo, convulsions, dilation of the pupil, and death, probably by asphyxia.

The natives employ the *Aconitum Ferox* as a remedy in the treatment of rheumatism.

The paper contains much interesting detail.

January 12th, 1836. An essay on the character of the Cinchonas, by Dr. Sigmond, was read.

January 26th. Dr. Ryan, the Professor of Materia Medica, delivered a lecture on the therapeutic properties of Cinchona and of its alcaloids, Quina and Cinchonia.

February 9th. Mr. Everitt, the Professor of Chemistry, made some remarks on the Palm nuts, with reference to a new

oil to be obtained from their kernels, and afterwards delivered a lecture on Cinchona, in which he considered its chemical constituents, the mode of preparation of Quina, its adulterations, and the processes by which such can be detected.

February 23rd. Dr. Sigmond read some observations on the oils obtained from the *Jatropha Curcas* and *Croton Tiglium*, and on their medicinal uses.

A communication was read from Dr. Bancroft, of Kingston, Jamaica, giving some account of a new species of *Ionidium*, from Rio Bamba, used successfully as a cure for Elephantiasis tuberculata.

March 8th. Dr. Morries, the Professor of Toxicology, gave a description of the empyreumatic oils, obtained by him from Opium, Conium, Hyoscyamus, Digitalis, Tobacco, the Lactucarium, etc. etc.

Mr. Everitt, the Professor of Chemistry, described the chemical characters of the kernels of the palm nuts, and of the new oil obtained by him from them.

Earl Stanhope exhibited a vegetable medicine which is used in Naples as a valuable remedy in the treatment of the malignant fevers of that city. It acts as a laxative; its scientific name is not known.

Earl Stanhope then announced that, in consequence of the days of meeting of the Society being the same with those of the Royal Medico-Chirurgical Society, by which many members were prevented from attending, it had been determined by the council to alter the days of meeting to the second and fourth Wednesdays of each month during the session, instead of the second and fourth Tuesdays.

March 23rd. A translation of an essay on Opium and its principles, by M. Pelletier, was read, describing two new principles, the *Narceine* and *Para-morphia*, and also noticing a substance called *Pseudo-morphia*. The author also gave an analysis of an opium obtained in France, from which he observed that he procured a large quantity of Morphia, but no Narcotine.

From his various experiments, he concludes that, 1st. The existence of two new principles in opium, the Narceine and the Para-morphia, discovered by him, can no longer be doubted. 2nd. That the *Codeine*, discovered by M. Robiquet, is not the result of a reaction; that from the same quantity of opium we can obtain Narcotine, Morphia, Narceine, Meconine, Codeine, and Para-morphia. 3rd. That Para-morphia is one of the most active principles of Opium. 4th. That the crystalline matter of M. Dublanc is a mixture of Codeine and Meconine. 5th. That Pseudo-morphia is a substance which is occasionally met with in opium, having well-marked characters, but that at present we cannot indicate the circumstances under which it is produced; and 6th. That the opium of France, collected in the Landes, contains more Morphia than that of Asia, and that it also possesses Codeine, but is entirely deprived of Narcotine.

Dr. Morries and Dr. Sigmond made some observations on the paper. Dr. Morries stated that English opium contained a larger quantity of Morphia than that of Asia, and likewise had Narcotine present in it, and he should judge that French opium would present a similar analysis.

The paper contains useful information, describing processes for obtaining these vegetable principles.

April 13th. W. T. Iliff, Esq., stated, that having been applied to by some officers of the Custom House, to ascertain the name of a drug, a quantity of which was about to be imported into this country, and having examined the same, he found it to be the *Piper Æthiopicum* of Gerard, and read extracts from that author, and from Pomet, in corroboration of that opinion. He presented a specimen of the drug, and also a drawing of the plant, which he had made from Gerard's wood-cut.

Dr. Sigmond read a paper on the Secale Cornutum, which he had promised in the last session to prepare for the Society.

Mr. Everitt, the Professor of Chemistry, made some observations tending to throw doubts on the existence of hydrochloric

acid in the Secale Cornutum, and offered to analyze a portion of the Ergot to ascertain the point.

Mr. Judd stated to the Society that he had tried this medicine in cases of suppressed menstruation, and had found it a very powerful remedy.

Dr. Macreight had tried it in cases before the catamenia had appeared, in doses from 10 to 15 grains, but without producing the desired effect. The females were from fourteen to fifteen years old.

Mr. Iliff had known instances in which the use of this medicine had produced the most beneficial results, and cited cases in corroboration.

April 27th. Mr. Iliff on presenting the specimen of the bark of the *Calliguaja* of Chili, remarked that it was used by the ladies of Chili to give a fine polish to the hair; he added that it lathered in water like soap, but it was necessary to be exceedingly cautious in applying it, as, should it get into the eyes, it would cause much more pain than is ordinarily experienced from the same accident with soap.

Of the leaves of the *Ilex Paraguayensis*, or Mati, he gave the following account:—

The *Ilex Paraguayensis*, says M. Virey, is about the size of an orange tree, and has opposite, shining, oblong serrated leaves; the flowers are in axillary umbels, and have four petals and four stamens.

The leaves gathered for tea are taken from plants of two or three years of age, or when the trunk is about an inch in diameter; they are very fragile when dry, and the natives are suspected of breaking the leaves, to prevent the plant from which they are obtained being known.

The leaves of the Mati are prepared for making the tea in the following manner:—a large cylindrical furnace is constructed, termed a "barbaqua," in which a bright fire is made with the dry branches from which the leaves had been previously

separated. When this furnace is sufficiently heated, the leaves are spread on metallic plates, in such a manner that they do not touch each other, and are then introduced into the barbaqua, and an attendant, called "quayno," if expert, will prepare 25lbs. a day; the dried leaves are packed in cotton bags of a large size.

The people of South America attribute the most astonishing properties to the Mati, and use a very large quantity of it; if it be taken in moderation, it will cause excitement and wakefulness; but if in excess, it will produce drunkenness and tremors, resembling those induced by the abuse of spirituous liquors. Opium appears to cause opposite effects, and is therefore used as a remedy to obviate the injurious consequences induced by the Mati.

Dr. Sigmond drew the attention of the Society to a preparation of Copaiba, which corresponded in every respect with the specific solution.

The preparation was formed by uniting the balsam of copaiba with magnesia, until it had become a solid mass, which was capable of being made into pills. This mass was triturated in proof spirit and filtered; the addition of a small quantity of spirits of nitre to this formed an efficacious medicine, which was miscible with water.

Mr. Johnson, the Professor of Botany, delivered a lecture on the physiology of plants.

May 11*th.* The president, Earl Stanhope, delivered the annual address.

Sir Henry Halford moved a vote of thanks to the president, for his enlightened and valuable address, and a request that he would print it for distribution among the fellows.

Seconded by Dr. Sigmond, and carried unanimously.

May 25*th.* A letter from Mr. Robert Alsop, of Sloane-square, was read, detailing a more eligible plan for the preparation and preservation of infusions than that in general use. The process adopted by Mr. Alsop consists in placing the drug to be infused

on a perforated plate in the infusion pot, and then pouring on it boiling water; as the menstruum becomes saturated, it will sink through the perforations, and fresh liquid will come in contact with the material, as long as any thing further remains which water has the power of dissolving. The infusion is preserved by bottling it hot, and filling the bottle so completely that the stopper may displace its own bulk of liquid, and thus prevent, as far as possible, the admission of air. The stopper must fit very accurately.

A communication from Don Juan Galindo, envoy from Guatimala, on the medico-botanical productions of central America, was read.

Dr. Sigmond exhibited specimens of the castor-oil seeds and pods, grown in Mr. Gibbs's garden at Brompton, and observed that under the influence of the sun's rays the pods burst, and cast their contents to a considerable distance, which he believed to be a provision of nature for the due propagation of the Ricinus, as the young plant will not grow near the parent tree, because the latter absorbs the nourishment which is necessary for the support of the offspring.

An essay on the use of the oil of turpentine in the treatment of inflammation of the iris, by John Foote, jun., Esq., M.R.C.S., was read.

June 8th. Dr. Ryan, the Professor of Materia Medica, detailed some cases of disease of the heart in which he had given the hydriodate of potash a trial, with apparent benefit.

June 22nd. A letter from Samuel Rootsey, Esq., of Bristol, Lecturer on Botany, and Corresponding Member of this Society, was read.

A paper, by Dr. Hancock, entitled "Remarks on the Indian practice of medicine in Guiana, and on several plants employed by the aborigines," was read.

November 9th. Dr. Sigmond delivered an introductory address, giving a sketch of the rise and progress of the study of botany in this kingdom, from the earliest times, and an

interesting history of the different Herbals which have been published.

November 23*rd.* A letter from Sir Robert Kerr Porter to Sir Henry Halford, Bart., President of the Royal College of Physicians, accompanying a paper on the *Cuichunchulli*, sent to the Society by Sir Henry Halford, was read.

Mr. Johnson, the Professor of Botany, delivered a lecture on the merits of the natural system of plants as applicable to their classification.

December 14*th.* A communication from Sir Robert Kerr Porter, on the *Cuichunchulli*, was read.

A letter from Robert Keate, Esq., was then read, transmitting the subjoined communication and presents to the Society.

A letter from Colonel Wilson, British Consul General in Lima, and a Corresponding Member of this Society, was read, and specimens of the Coca, and of the Llipta, (the ashes of the Jesuits bark) which accompanied it, were exhibited.

January 11*th*, 1837. A communication, by Dr. Hancock, on the *Corru-wati* or *Couru-watti* of British Guiana, was read. The *Corru-wati*, so named by the aboriginal tribes, is a large and elegant herbaceous perennial, growing in light sandy soils, on the sides of hills and ravines, in the forests of Guiana. All parts of the plant are medicinal, but the most efficacious part is the root, which is tuberose and fleshy. It is considered to be diaphoretic and diuretic, and, in large doses, emetic. The natives infuse a whole root, and drink the liquid, in order to induce its emetic action: it is recommended in the treatment of dropsy, rheumatism, asthma, hooping cough, etc.

January 16*th.* ANNIVERSARY MEETING. The following gentlemen were elected the officers of the Society for the ensuing year:—

President, Earl Stanhope. Treasurer, Henry Cope, jun., Esq. Secretaries, George G. Sigmond, M.D.; John Foote, jun., Esq. M.R.C.S. Librarian, William Henry Judd, Esq., M.R.C.S. Conservator, Frederick John Farre, M.D. Professor of

Botany, Charles Johnson, Esq. Professor of Chemistry, Thomas Everitt, Esq. Professor of Materia Medica, Michael Ryan, M.D. Professor of Toxicology, John Davie Morries, M.D., F.R.S.E.

The following gentlemen were elected as the other members of the Council:—Henry Brandreth, jun., Esq.; Sir Astley Cooper, Bart., President of the Royal College of Surgeons in London; Humphrey Gibbs, Esq.; Sir Henry Halford, Bart., M.D., President of the Royal College of Physicians in London; John Hancock, M.D.; William Tiffin Iliff, Esq.; James Johnson, M.D.; Sir James Mc Grigor, Bart., M.D., Director-General of the Army Medical Department; D. C. Macreight, M.D.; George Hamilton Roe, M.D.; John Steggall, M.D.

The thanks of the Society were presented to Henry Cope, jun., Esq., Treasurer; George G. Sigmond, M.D., and John Foote, jun., Esq., Secretaries; William Henry Judd, Esq., Librarian; Frederick John Farre, M.D., Conservator; Charles Johnson, Esq., Professor of Botany; Thomas Everitt, Esq., Professor of Chemistry; Michael Ryan, M.D., Professor of Materia Medica; John Davie Morries, M.D., Professor of Toxicology, for the zeal with which they have discharged the duties of their respective offices during the past year.

It was unanimously resolved,

That the thanks of the Society be given to the President, Earl Stanhope, for the patronage which the Society has enjoyed, and for the unremitting zeal and ardour which his Lordship has uniformly evinced for its success, and by which the welfare and utility of the Institution have been promoted.

January 25th. Mr. Everitt, the Professor of Chemistry, delivered a lecture on the essential oil of almonds, and its conversion into benzoic acid, on exposure to the air, or oxygen gas.

February 8th. Dr. Ryan, the Professor of Materia Medica, delivered a lecture on the European Pharmacopœias.

February 22nd. A communication on the *Chimaphila Co-*

rymbosa, or American winter green, by John Foote, jun., Esq., was read.

As essay on odours, by Dr. Sigmond, was read.

March 8th. A paper, entitled "A narrative of experiments instituted with a view to ascertain the relative strength and medicinal qualities possessed by various similar vegetable extracts procured at the most accredited sources in London;" by W. H. Judd, Esq., M.R.C.S., Battalion Surgeon in the Scots Fusileer Guards, and Fellow of the Medico-Botanical Society of London, was read.

A communication, entitled "On the preparation of Iodine and Bromine," by M. Bussy, was read.

April 2nd. Part the 2nd of the paper, entitled "A narrative of experiments instituted with a view to ascertain the relative strength and medicinal qualities of similar vegetable extracts procured at the most accredited sources in London;" by W. H. Judd, Esq., M.R.C.S., etc., was read.

April 26th. A communication, entitled "Remarks on the Haiowa, *Amyris ambrosiaca* of Wildenow, and on some kindred species:" by Dr. Hancock, was read.

A specimen of the plant from which the *Worary* poison is obtained, was exhibited, and also arrows which were impregnated with the poison.

Dr. Hancock stated that the Worary poison caused death only when introduced through the medium of a wound, or an abraded surface, and that when taken into the stomach it was innocuous. He also remarked, that when the preparation is formed of the Worary alone (which seldom is the case) it acts purely as a sedative, causing neither disturbance nor convulsion; and that an animal, placed under its influence, gasps and expires without exhibiting any signs of pain. When the Worary, however, is mixed with various other acrid ingredients, as is usual in preparing the poison, it then produces irritations and convulsions, followed by death.

Mr. Iliff offered to perform experiments on rabbits with the poisoned arrows, and report the result to a succeeding meeting.

May 10*th.* A communication from Dr. Hancock on the *Worary* poison, contained in a letter to Mr. Iliff, was read.

The extract of the Worary is prepared for poisoning arrows by the Macooses, by boiling down the decoction of the inner bark with that of the *Kyheri*, *Quasima*, (*Bubroma*,) or any similar slimy bark; but the latter addition is made with the view of giving tenacity to the extract. The tribes residing near the white settlements state that the above-named addition of divers other ingredients, and the employment even of mystical ceremonies, are requisite. The Worary is not a common plant in the Macoosy district, and is said by the natives to be found only on the mountain Corantine, on the eastern bank of Reponony, in latitude $3\frac{1}{2}°$ north. The Worary is considered of much importance, and gives name to several rivers and mountains. The Oorari-quera, for instance, falls into the Parime on the north-west, from the mountain of Oorari-maka, and, for the same reason, the Amazon above Rio Negro is called by the Portuguese, Rio de Solimoes, or River of Poisons.

The leaves of this climber are opposite, ovate, pointed, nerved, or rather with longitudinal costæ; and, together with the stems, pilose, or beset with brown hairs; tendrils or claspers issue from the small branches, all which may be still seen in the specimen. The plant was not found by him in flower: its fruit is globular and of the gourd kind, and has a strong capsule; of the form and size of the Ignatia amara, and evidently belongs to the same natural family of plants. The capsule is frequently employed by the natives as a receptacle for the poison. The wood of the stem is white, rather dense and elastic; the bark grey and rough outside, and reddish within, with a slightly bitter taste, and but little odour. This bark, when applied to ulcers, proves cleansing and detersive; so that, according to its mode of preparation, the plant affords either a useful remedy, or one of most Lethal poisons.

It has been a subject of inquiry, what plant affords the Sirvatan, or blow-pipe. M. Humboldt conjectured it to be a *carex*, but the author found it to be the stem of a small species of palm, and he described it in the *Quarterly Journal of Science*, 1830. The curious workmanship of this instrument has excited much surprise; and it is found, on a close inspection, to be formed of two entire tubes, one placed within the other, so joined as to appear as one: the interior of it is exquisitely polished.

The specimen, case of arrows, (and also another now at the Adelaide Gallery, and two sirvatans, through which the small envenomed arrows are propelled by a single blast or breath,) were obtained from the Macooses during an expedition to the interior of Guiana in the years 1810-11.

Mr. Iliff proceeded to detail a series of experiments made by him on rabbits, with the arrows obtained from Dr. Hancock, with a view of ascertaining whether arrows tipped with the Worary, at least twenty-seven years ago, retained their poisonous properties. Previous to using them, the arrows were more or less moistened with warm water. In those experiments in which the arrow was merely dipped in the water, the effects produced were, comparatively speaking, slight; but when the arrow was soaked so that the poison became much softened, fatal results ensued. The Worary was carried into the system through the medium of a wound in the thigh; the symptoms produced were convulsive twitchings, spasm, partial paralysis, quick and hurried respiration, the eyes fixed and insensible, followed by death. In one instance, the poison was administered by the mouth, but no injurious effects resulted.

A communication from Dr. Sigmond, on the medicinal qualities of the *Ulmus campestris*, or Elm Bark, was read.

May 24th. The President, Earl Stanhope, delivered the annual address.

It was moved by Sir James Mc Grigor, seconded by Frederick Farre, M.D., and resolved unanimously—

That the warmest thanks of the Medico-Botanical Society are

due and are hereby given to the President, Earl Stanhope, for his enlightened and valuable address, and that his lordship be requested to permit it to be printed for distribution amongst the Fellows of the Society.

June 13*th*. A paper, from Dr. Hancock, was read, on a compound of celandine, anthora, squills, and waicori, from which the author experienced much benefit in dropsy, rheumatism, and arthritic diseases, and which he considers to be superior, in many respects, to colchicum.

June 28*th*. Mr. Everitt, the Professor of Chemistry, delivered a lecture on arsenic, and on its presence in the stearine or German composition candles, being the first notice taken of this evil in London.

A communication from Mr. Previte, on the Agar-agar or "*Fucus amylaceus*," was read.

The Agar-agar is a very small and delicate fucus of white colour, and flattened filiform shape; it contains, according to the analysis made by Dr. O'Shaughnessey, vegetable jelly, nearly identical with the pecten of Bruchonnot, true starch, wax, gum, sulphate and hydrochlorate of soda, sulphate and phosphate of lime, traces of iron, and woody fibre.

This fucus is prepared as an article of diet in the following manner:—it is first steeped for a few hours in cold rain water, in order to remove the saline ingredients, then ground to a fine powder, and boiled for twenty-five minutes, or half an hour, by which all the starch and gelatine will be dissolved. The solution while hot should be passed through muslin or calico, so that the woody fibre is removed; lastly, the strained fluid should be boiled down, till a drop placed on a cold surface gelatinizes; with milk and sugar, and flavoured with lemon juice or sherry, it would afford the invalid a pleasant article of diet; it is very nutritive, easy of digestion, and free from any disagreeable or prejudicial qualities.

On a new Preparation from the Piper Cubeba, by W. H. Judd, Esq., M.R.C.S., Surgeon in the Scots Fusileer Guards, and Fellow of the Medico-Botanical Society. *Read March 11th*, 1834.

As it is professedly one of the principal objects of the Medico-Botanical Society of London to become acquainted with all new preparations from the vegetable kingdom that really are adequate to the removal of disease, I feel it a duty to present to the notice of the Society a new, elegant, and useful extract of a spice, produced in Java, Nepaul, and Batavia, viz., the fruit of *Piper Cubeba*, made by the ingenuity and ability of a Member of this Society, whose diffidence has hitherto prevented his favouring us with a written communication on the subject.

I need not inform the learned that this pepper has long been known in the east, and used both as a condiment by the Arabs, and as a medicine by the Bengalese. It was introduced into this country as a remedy for gonorrhœa, (or more properly urethritis,) about the year 1817, by Mr. Crawford, and it has since been administered, in numerous instances, to those suffering from that disease; but when taken in the common form, its effects are subject to several weighty objections: amongst these I may mention the excessive plethora occasioned in the vessels of the brain; the bulky dose of the powder, and the comparative inefficiency of the tincture when compared with the essence, but more especially with the new preparation contrived by Mr. Toller.

I consider it would only be wasting the time of this Society were I to enter into a description of the botanical character of *Piper Cubeba*, this being sufficiently known to most of the gentlemen present, and detailed in Churchill's *Medical Botany*; and I shall scarcely touch upon the ordinary medicinal forms of this pepper, they having already been used by most of us, and their

curative action conspicuously displayed by the fifty examples given by my scientific friend, Samuel Boughton, Esq., of the 2nd Life Guards, and detailed in the 12th vol. of the *Medico-Chirurgical Transactions.*

Lately an extract has been prepared from this spice by Mr. Toller, (vide page 36,) and he did me the favor to furnish a liberal quantity, to enable me to ascertain, by its effects in practice, its real medicinal merits and advantages over the common forms in use. The extract, as prepared by Mr. T., appears to me to retain that resinous part which (according to Vauquelin,) resembles a similar efficacious part that abounds in Copaiba. For this extractum cubebæ, when taken into the stomach in 15-grain doses, occasions an aromatic warmth in that viscus, a sense of coldness in the fauces, urethra, and rectum, similar to that produced by peppermint, a little quickness of pulse, a diuretic effect on the kidneys, a peculiar smell in the urine, and a rapid diminution in the discharge from the urethra. These are proofs enough, I take it, of its fully retaining, in this form of extract, the active curative qualities found in the spice, and to shew that, from this extract, they arrive at the urethra little altered by the action of digestion, or by passing through the circulation and kidneys; I have merely to state, that a single dose of five grains, in a healthy person, will, in two hours, impart to the urine a peculiar well-known odour, and that continued doses will impress the urethra with a cooling sensation, and, in a few days, arrest its diseased secretion. In short, it appears to possess all the properties that are known to exist in copaiba, turpentine, and this class of remedies.

After making a few short remarks on the various stages of urethritis or gonorrhœa, in order to point out those in which the extract is more particularly applicable and beneficial, its effects will be briefly set forth by a few cases.

In urethritis, several stages or degrees of inflammation are quickly recognised by the intelligent practitioner, and it is from

possessing a thorough knowledge of this kind, that the scientific are so much more successful in curing their patients than the mere vender of drugs, or than the public themselves ever can be.

About the third day after contamination, I may state a sensation is generally experienced by the patient as if a worm was creeping up the urethra, and a slight redness surrounds its orifice, while the inflammation arrives at that height which produces a thin colourless discharge, with a soreness and irritation in the urethra; this is considered to be the first perceptible stage of the disease.

The second stage may be known by the increased scalding, the diminished stream of urine, the frequent desire to make water, but above all by the thicker yellow discharge now issuing. After a time, depending upon the patient's mode of living and quantum of exercise, the discharge changes, and again becomes thin, and gradually and ultimately assumes the form of gleet: this stage lasts for an unlimited time; indeed, if no remedial treatment be had recourse to, it may, in males, continue a year or more, and much longer in females.

These stages of gonorrhœa have been thus briefly pointed out, to shew the precise one to which this remedy, the cubebs, is most applicable and beneficial; for, in some of the others, it does no good, generally much harm.

Cubebs will always be found capable of lessening or removing the very first issue of discharge and the irritation accompanying it, whilst the former is thin, and before the inflammation in the urethra has become sufficiently great to induce the formation of puriform fluid. If cubebs be taken but an hour later, they only serve to aggravate the disease in its second stage.

Cubebs again are highly beneficial when the discharge is great in quantity, but thin and transparent; and therefore, in the third stage, they often act as a charm, and effect a cure in a few days.

Cubebs have another invaluable quality, that of being

applicable and beneficial to the stages of urethritis in which copaiba aggravates all the symptoms; and, lastly, when this remedy has sometimes been found ineffectual in thoroughly removing the discharge, it renders the disease so mild that turpentine and copaiba are then found to be, by it, rendered certain in their curative effect.

The following cases were treated with the new extract, taking some of them in any stage they chanced to be in at the moment, without waiting to select those alone to which the remedy has been found scientifically appropriate: it is necessary to add, that they were all placed on a low farinaceous diet, and kept from stimulating drinks, labour, and exercise.

Case I.

January 22*nd*, 1834. B. H. He had urethritis of six days' duration, with much discharge, and states that he got contaminated nine days since.

Capiat pil. cal. c̄ col. ij statim. Haustus purgans vespere.

23*rd*. There is scalding and irritation; his bowels have been acted upon eight times by the medicines.

Capiat extracti cubebæ gr. xv, ter die.

24*th*. His discharge is already lessened, but he has some scalding.

26*th*. The discharge is become still less in quantity and thicker.

Capiat gr. xx extracti.

27*th*. To-day there is but little discharge, and that only at times.

30*th*. The discharge has ceased.

He was cured within seven days from the time of commencing the extract.

Case II.

December 12*th*, 1833. N. C. Urethritis of three days' standing.

Pulv. jalapæ comp. ʒj.

Haust. sennæ.

Lotio plumbi diacet. dil.

13*th*. His bowels have been cleared, there is more discharge and scalding.

Mist. ammon. acet. c̄ vin. ant. tart.

15*th*. The discharge is rather less.

Ext. cubebæ gr. xv, ter die.

17*th*. A small pimple appeared on the foreskin and has broken.

18*th*. He now has very little discharge, and the sore is half healed.

21*st*. The discharge has become very thick.

28*th*. The sore has healed: there is no discharge.

He was cured in thirteen days.

Case III.

January 9*th*, 1834. M. D. Urethritis: he only perceived the disease two days since.

Pulv. jalapæ comp. ʒj. Mist. sennæ c̄ magn. sulph.

11*th*. He has much scalding and great discharge; the purgatives gave him eight stools.

℞ Mist. ammon. acet. ℥vj.

Vin. antim. potassio tart. ʒiss. M.

Capiat cochl. iij magna ter die.

12*th*. He has less discharge and irritation.

14*th*. The scalding and running are much diminished.

Capiat extract. cubebæ gr. xv, ter die.

17*th*. The discharge is considerably lessened. The extract acts as a diuretic, and can be smelt in the urine.

22*nd*. The discharge has ceased, and he got well in seven days after he commenced the extract.

Case IV.

February 4*th*, 1834. Thomas B. He had urethritis of six weeks' duration approaching to gleet.

Ext. col. comp. c̄ hydr. chloridi.

5*th*. The bowels being cleared, he commenced the new preparation.

Extr. cubebæ gr. xv, ter die.

6*th*. The discharge has already diminished.

8*th*. There has been no discharge since yesterday.

In this case, a gonorrhœa of six weeks' duration was cured in the short space of four days.

CASE V.

February 9th, 1834. W. Y. Urethritis, with an excessive puriform discharge; he has had it some days.

Ext. col. comp. c̄ hydr. chloridi.

Mist. sennæ.

10*th*. His bowels have been cleared, but there is extreme irritation in the urethra.

℞ Mist. ammon. acet. ʒvj.

Vin. antim. potassio tart. ʒij. M.

Capiat cochlear. iij magna 4tis. horis.

12*th*. There is less scalding and discharge; the latter is thinner.

Extr. cubebæ gr. xv, mane, meridie nocteque.

16*th*. The discharge and irritation have ceased.

A cure was thus produced by the new extract in less than a week.

CASE VI.

November 26th, 1834. G. W. He had urethritis, with very considerable puriform discharge, scalding, and irritation; and it is the first clap he ever had.

Pulv. jalap. comp. ʒi.

27*th*. His bowels have been active; he has much scalding, with frequent desire to empty the bladder.

Mist. ammon. acet. c̄ vin. ant. potassio tart.

29*th*. The discharge is but little diminished.

Lotio plumbi diacet. dilut.

December 2nd. Capiat bals. copaibæ, m. xx, ter die.

5*th*. The discharge is but little controlled by the balsam; it still continues profuse.

Balsam. copaibæ, m. xxv, ter die.

7*th*. He has pain in the perineum and much irritation.

Omitt. bals. copaibæ.

℞ Mist. ammon. acet. ʒvj.

Magnes. sulphat. ʒiij.

Vin. antim. potassio tart. ʒj. M.

Capiat cochlear. iij, majora 4 tâ quâque horâ.

Fotus et semicupium.

9*th*. The pain has almost ceased, and the irritation is lessened.

11*th*. He has some very thick discharge, but no scalding.

Capiat ext. cubebæ, gr.xv. bis die.

15*th*. The irritation is gone, the discharge daily decreases.

Rep. pilul. ter die.

20*th*. He still has a little discharge in the morning.

26*th*. The discharge has ceased.

In this very troublesome and irritable case, the extract appeared to effect a cure after the balsam had failed.

Mr. French, of the St. James's Infirmary, says, the only case in which he has had an opportunity of trying this remedy was one of a very troublesome, irritable gleet: that it succeeded perfectly, and much better than the usual remedies. He adds, this case was one in which he could not have given the cubebs in substance with safety; but he has, unfortunately, not preserved any note of the case.

In conclusion, I have to state, that the extract appears to be a far more elegant preparation than the powder, as it can be easily formed into pills, sits well upon every stomach, and appears free from the frightful objection of causing fits, resembling apoplexy, from over stimulation or indigestion; an effect the powder has frequently had the credit of producing.

Mr. Toller has since been kind enough to favour the Society with a description of his method of making the preparation alluded to in this paper.

On the Preparation of the Extractum Cubebæ, by Mr. John Toller. *Read April 8th*, 1834.

I regret that the means employed for obtaining this preparation were not called for in time to be communicated to the Society with the interesting paper by Mr. Judd, rather than thus afterwards unconnectedly arresting the attention of the Society.

The process for the preparation is as follows:—the cubebs are exhausted by repeated digestion in alcohol, which readily takes up all the active principles of the pepper, viz., a resin resembling that of copaiba, and a coloured resin, with an almost concrete essential volatile oil. The alcohol is distilled off from these tinctures at a temperature so moderate as not to volatilise the essential oil: when the operation can be conducted no further in this manner, the evaporation must then be carried on in an open vessel by the aid of a water-bath, at a still lower degree of heat; a little finely pulverised Spanish soap should now be added, to prevent the separation of the resin and preserve the extract of an uniform consistence; with careful attention to the temperature, it is thus brought to the requisite consistence for forming pills.

Remarks on Sarsaparilla, its combination with other Remedies, and Pharmaceutical Treatment, by Dr. Hancock. *Read April 22nd*, 1834.

1*st*. *Choice of Sarsa, etc.*—In choosing good sarsa we should be guided chiefly by its sensible qualities: it ought, when chewed, to impart to the mouth and fauces a nauseous acrimony of a peculiar kind, which is known only to those who are in the habit of using this criterion. That of Rio Negro is far superior to other kinds; it possesses the peculiar *Sarsa flavour* in a higher degree, and occasions emesis when taken in large doses: in its texture it is similar to Jamaica sarsaparilla, but is usually of a dark colour externally. The red kind, smilax rubra, termed Jamaica sarsaparilla, is very inferior in its medicinal effects, although commonly considered the best, and sold at the highest price, because it yields a larger portion of extract!

Smilax is a numerous genus; I have observed many species growing in the forests of Guiana, and as Dr. Thomson (in the *London Dispensatory*) has remarked, there are several species gathered under the name of sarsaparilla. When we consider that the roots brought to Europe, under the name of sarsaparilla, are obtained from divers species of smilax, some medicinal and others inert, and that several indeed are taken from *other genera* of plants, it is not surprising that the opinions of the faculty should be so divided with respect to the utility of the drug; some regarding it as a valuable remedy, others as quite useless, or as only a simple demulcent mucilaginous nutritive article.—See *Edinburgh Dispensatory*.

Mr. Brande says (vide *Manual of Pharmacy*), "In large doses and sufficiently persevered in, the sarsaparilla has cured cutaneous eruptions, and those anomalous pains in the bones and joints, the sore throat, and other symptoms which arise in certain constitutions, being apparently the joint effect of mercury and of the venereal virus. In such cases, we have Mr. Pearson's testimony in favour of its utility, though he decidedly shows

that, as an antidote to syphilis, it deserves no kind of confidence: he also remarks, that its beneficial effects are often demonstrated in the treatment of foul intractable spreading sores, and in more than one form of scrofula." This is certainly as much as could be expected from the sarsa usually brought to market, and from the common mode of its preparation.

Woodville says, " We have known patients, after the use of mercury, much sooner restored to health by this root, than, in our opinion, could have been accomplished by any other medicine with which we are acquainted, especially when it is employed in powder. The root is also recommended in rheumatic affections, scrofula, and cutaneous complaints, or where an acrimony of the fluids prevail."—Vol. 1. p. 163.

In Demerara, the use of sarsa has been found to promote the cure of ulcers in a remarkable degree, and to restore the flesh of the patients; and in accordance with this, we observe that many European physicians recommend sarsa and China root in atrophia or wasting of the body; and we are told by Alpinus, that in Egypt the ladies use the China root (another species of smilax) " to fatten themselves with." In fact, the genuine medicinal species of smilax possess very manifest alterative and restorative effects, and from the abundance of fæcula in the Honduras sarsa, it probably contains a considerable portion of nutritive matter; yet I do not, with some, regard this as essentially the source of its medicinal properties. By many, indeed, it is considered as a matter simply nutritive and demulcent, and truly, in the common mode of preparation, it can scarcely be more than a simple nutritive substance, since most of its active properties are, as hereafter remarked, either driven off by steam or otherwise subverted.

Although water dissolves much of the farinaceous part of sarsaparilla, it appears but very imperfectly to eliminate the *active principle*, of which alcohol is the most efficient solvent.

I have lately considered what Geoffroy and Neumann say on the constituent principles of sarsaparilla, and of the extraordinary

amount of its volatile principles, which fully confirms my former views, as stated in the *Med. Bot. Trans.*—"From 4lbs. of sarsaparilla distilled in a retort were obtained, 15 ounces of acid, 14 ounces of spirit impregnated with ammoniacal salts, and 6 ounces of thick and heavy oil."—This may serve to give some idea of the quantity of volatile matter, which of course is dissipated or lost by long boiling.

2ndly. Essays for obtaining the active properties. — The Honduras sarsa is found at times to possess a remarkable degree of strength, and in this respect comes nearest to that of the Rio Negro, and, like it, gives out its virtues very tardily and imperfectly to water (vide *Med. Bot. Trans.* 1829). Even after three affusions on the bruised root, the fourth was still found to possess a strong sarsa flavour, nearly equal to the first and second decoction; and after being exhausted by water, it has been found to afford a strong tincture* with alcohol.

From these trials, and from former experience in Guiana, it appears to be fully evident, that, to evolve the active elements, some additions are required to the watery menstruum, as alcohol, or an acid; indeed, I have found that both of these render the menstruum far more effective, causing it to give out its virtue more perfectly to water. This view seems to explain why the method of fermentation, used by the Spaniards, proves so efficacious; for by their process, both the acetous acid and alcohol are evolved, which doubtless renders the menstruum

* This was proved by several careful trials:—The Honduras sarsa, although so little regarded, is evidently the best kind brought to this market. I have found the best samples at Messrs. Fisher and Toller's, of Conduit Street, to whom I owe this suggestion, and which, from many trials, I have found to be perfectly correct, and I beg to recommend it to the attention of the Medico-Botanical Society. In the warehouse, Mr. Toller has also shown me large quantities of the Jamaica sarsa, which, he says, is chiefly in request, but, most judiciously, he prefers the Honduras. He also informs me he has "adopted a method of pulverizing the Honduras sarsaparilla, so as to obtain all the farina and cortex, in which the active properties of the root abound. I reject (he says) the woody centre, which I find nearly inert; this inactive ligneous part amounts (when fully separated) to nearly half the root operated upon." From this species he prepares a valuable extract, of more medicinal power than could possibly be effected in the common way.

capable of taking up the active constituents of this root much more completely.

From various experiments, I have found that the active principle of sarsa may be procured, in very small bulk, from the alcoholic tincture, and especially when slightly acidulated; the root being powdered, and digested in a moderate heat in a close vessel, and, whilst hot, submitted to strong and repeated pressure, the spirit being then drawn off in vacuo and preserved for use; the extract thus produced is very acrid, nauseous, and bitter, evidently containing the essential or medicinal properties of the sarsa in a concentrated form. It appears that, although the active principle of the genuine sarsa is readily taken up by maceration in acidulated spirit, it does not rise with it in distillation by a moderate heat (in vacuo), although, by long boiling, as universally practised, its essential principles are most sensibly dissipated in the powerful odour perceived in its vapour when boiling, and the residue is, in a great measure, decomposed by the conjoint action of the air and the heat employed.*

It requires a large proportion of water to exhaust the active principle of sarsaparilla, which is, in part, a volatile one, and dissipated by much boiling; hence, the usual method of long coction in a small quantity of water is very wasteful, and precludes the benefit which this valuable remedy is capable of affording by a more rational proceeding.

In the process ordered by the colleges for preparing (or spoiling, I might say) this valuable remedy, the proportion of water, in the first place, is insufficient, and, in the second, it is boiled till reduced to one half its quantity, by which means part of the active element evolved is destroyed.

I observe in Mr. Brande's *Manual of Pharmacy*, p. 380, the

* Attempts have been made on the Continent to obtain the active properties of sarsaparilla *in an insulated state* (smilacine). It is doubtful how far these attempts have succeeded, as it appears that the active properties are partly fixed and partly volatile. An eminent pharmaceutical chemist in London (Mr. Battley), has lately analyzed this root with similar views; such endeavours are in themselves laudable, but hitherto seem not to promise much of practical utility. This however should not discourage further attempts.

following remarks:—" We have already adverted to the difference of opinion among medical men, respecting the virtues of sarsaparilla, and pharmaceutical writers are equally divided as to the most efficacious species, and as to the best mode of extracting the virtues. Dr. Paris says, that it is rarely boiled long enough for this purpose, and Dr. Thomson thinks that long boiling injures it, and that it yields up all its medicinal qualities by mere maceration in warm water. We do not hesitate in giving preference to the amylaceous over the fibrous or bearded variety of the root." Of the guaiacum wood and mezereon Mr. B. entertains but a poor opinion, and considers sarsaparilla chiefly useful in the sequelæ of syphilis and mercurial disease: in such cases, he says, " it does appear to possess restorative powers not hitherto observed in other remedies.

At Angostura, and at Para, on the Amazon, where the sarsa is brought direct from the Rio Negro, this root is regarded as a sovereign remedy, even alone, for every stage of *lues venerea:* its powers, however, may be greatly enhanced by various additions, and it is thus attended with great effect in scorbutus, cutaneous eruptions, and divers chronical disorders.

3rdly. Method of preparing sarsa by fermentation.—The root is bruised and fermented with guaiacum bark, sassafras (ocotea), and several other plants of the country, adding liquorice, brown sugar, and a little yeast to hasten the fermentation; on these ingredients, when well bruised, pour boiling water; let it be stirred occasionally, and stand for a few days in the sun, or an equivalent heat, until fermentation is produced, after which it is fit for use, and the patient may commence by taking a small draught twice or thrice a day, and should increase the dose till some effect is perceived.

It usually produces an increased perspiration, and generally augments the urine and alvine discharge. Whether the disease arise from a rheumatic, scorbutic, syphilitic, or other foul taint of habit, or the abuse of mercury, the patient commonly obtains relief in a short time. The same remedy is there found of

great effect in removing obstructions of the internal viscera, as the liver, spleen, and kidneys. In ulcers and skin diseases, this compound is also a very efficacious remedy in a variety of chronical diseases.

4thly. Another method may be employed, viz., by addition of acids.—Although fermentation is one of the most efficient means of obtaining the essential or more active properties of vegetables, it is not always convenient, requiring time for the preparation. I shall therefore notice another process, which I have experimentally found to be the most ready and effectual method for extracting the active properties of this, as well as of vegetable remedies in general; that is, to infuse the bruised roots in boiling water, adding a little spirit and muriatic or sulphuric acid, and press them; repeating the infusion in boiling water, and again pressing out the liquor. A quart of this preparation will have more effect than gallons of the decoction prepared by the direction of the Pharmacopœias.

5thly. A Compound Infusion may thus be prepared.—By addition of wauk root (Bignoniacea), kuruta, bark of guaiacum, of mara or haiowa balsam,* with liquorice and aniseeds; it forms

* About five years ago I published, in Dr. Brewster's Journal (October, 1829), and in the *Lancet*, May 8th, 1830, some observations on the gums and balsamic substances, with other remedies of Guiana, employed for the cure of phthisis, internal ulcers, and various chronical disorders; and here I have joined advantageously several of the more salutary and indigenous remedies (of this country), which very much enhance the efficacy of the sarsa, such especially are bardana, saponaria, lapathum, sanicle, etc., which, united, form a remedy of more real value and efficacy than the stale drugs of the shops, as proved in my own family and amongst friends; they may be had fresh and genuine, and with the sarsa and guaiacum, be substituted for the more complex formula, especially if the other materials cannot be conveniently obtained. An explanation respecting the use of *cortex guaiaci*, in preference to the gum and wood, will be found in a subsequent paper. The *kurutu* or *cooratu*, is a species of lobelia found on the moist lands of Guiana; it grows to about a foot in height, and abounds in a milky juice; the whole plant is used, and with much success, in scorbutic ulcers, lepra, and skin diseases; we are told also, it is a great remedy in hooping cough. On the uses of the wauk root, or waicouri, in cough, consumption, scrofula, etc., a paper was read by the learned Secretary, Dr. Sigmond, before this Society. Vide *Med. Gazette*, July 9th, 1831. I beg also to refer to observations on the sarsa of Rio Negro, in the *Med. Bot. Trans.*; Churchill, Princes Street, Soho; and the *Lancet*, No. 321. The waicouri is powerfully alterative, deobstruent, resolvent; in

a most valuable alterative, restorative, and antihectic remedy, one of great power in gout, rheumatism, cutaneous eruptions, internal or external ulcerations, and even in vomica of the lungs, and is very efficacious in obstructions of the viscera. It is also a powerful remedy in syphilis, and one that does not require the assistance of mercury. This will scarcely be assented to, but the assertion would not be advanced had I not seen its effects fully demonstrated. It operates without deranging the general health, and forms the best remedy against the ill effects of mercury. Yet this may occasionally be given in a very light course, (avoiding salivation), or antimonials, alternated with alkalies, chalybeates, or with iodine: affording a method which may be resorted to, with much confidence, in leprosy, in foul or cachectic diseases, and in glandular, scorbutic, and cutaneous affections. Its effects are greatly assisted by the employment of the vapour bath, warm clothing, a moderate bland diet, the use of milk and vegetables, barley water, etc. With such a regimen it may be employed with vast advantage, not only in chronic complaints, but also in many inflammatory ones; and with the above-mentioned auxiliaries it is one of the most effectual remedies in *scrofula,** a disease often considered incurable, and

its sensible operation on the body it slowly and gently relaxes the bowels, promotes diaphoresis and diuresis, and I may say it is antispasmodic, soothing, and anodyne; it has some influence on the sensorium, and is found in most instances to relieve melancholy. It allays nervous irritation, and abates pain, and that more effectively than any substance I am acquainted with. Its primary effects, however, appear to be produced by an insensible operation on the lymphatic glands and the absorbent system. I am now only able to find a small portion of the root; it is very subject to decay, and its virtues are best preserved in the form of extract or tincture.

* This disease is mostly seated in the glands and lymphatic vessels, and especially in the mesentery. It often exists unsuspected in adults and in children, and is known by various symptoms, such as paleness, (but in children often by a florid complexion,) bad breath, loss of appetite, tumid belly, unusual fœtor of the excrements: divers symptoms arise, according to the part attacked, as opthalmia, ozena, fistula lachrymalis, tumour of the lips or tonsils, glandular tumours, *white swellings* in the joints, bronchocele, *encysted tumours* externally, about the neck especially, and similar ones in the lungs, called tubercles. The disease is attended by a multitude of symptoms, but few are displayed in one

which, (as Mead and many eminent physicians have remarked,) is one of the most prevalent in England, as formerly it was in Spain. Indeed, *very few families are entirely exempt from a strumous taint*, which, it is too well known, insensibly undermines the constitution, and originates tubercular consumption; a disease which, in Britain, destroys multitudes of the inhabitants. In the *Lancet* of May 8th, 1830, I have alluded to this subject more at length.

Notwithstanding that the existence of such a secret and wide-spreading calamity is known, we have no remedy of common resort, capable of checking the strumous diathesis, or arresting its progress *in limine;* and a method of eradicating this most insidious malady is, I think, a desideratum of the utmost importance. It is a general evil, which has never been provided against, either by the faculty or by the legislature, to which, in truth, as a national grievance, the investigation most strictly appertains. Scrofula, indeed, is one of those hidden agents in continued operation, and is far more destructive than epidemics, which make their inroads for a time and then disappear.

By the foregoing method, the more active properties of vegetables may be suspended in the infusion by a *small portion of the menstruum*, which is much better than an alcoholic tincture. Besides, the preparation will remain unchanged for a great length of time, by adding a few drops of siruba, or essential oil of cloves, which, with the acid, prevents the growth of vegetable fungi, or any elementary change. Thus a sort of elixir or concentrated solution is formed without alcohol, or with a very small portion of it.

It is well known in chemistry, that different salts mutually

individual. It is the origin of numerous other disorders, and is commonly considered incurable. Some say "it may be cured when there is a tendency in nature to overcome the disease," but in general, owing to a trifling and vacillating practice, no steady or efficient plan is pursued. A great disparity of opinion prevails as to the nature of the disease, some regarding it as a local one. John Hunter made the strange assertion that it does not affect the constitution; yet he elsewhere observes, that so long as the general morbid diathesis remains in the system, it is vain to attempt the cure of scrofulous ulcers.

promote the solubility of each other, or increase the power of the solvent, and that without proportionately augmenting the bulk of the compound; a similar law exists with respect to vegetables, at least in regard to their essential properties or saline constituents.

Muriatic acid (or sulphuric) is often added as an adjunct to strained infusions and decoctions, but in the method herein described, i. e., by *previously* adding the acid, we evolve the alkaloid or the more active principle of the vegetable, which, in general, is found to be but partially soluble in simple water; at the same time other medicinal principles are preserved,—not rejected, as in the process for obtaining quinine and other alkaloids: for we should not assent to the false induction, that these (quinine, etc.) contain all that is valuable in the substances operated on. If such were the case, our infusions and decoctions, as hitherto prepared, would in fact possess little or no value; for the quinine, it is found, remains in the dregs or residue of the common decoction or infusion of cinchona.

I should judge then, that the method now recommended might be employed with important advantages in forming most other vegetable infusions, decoctions, syrups, and extracts.

From numerous experiments, I have found this to be the most effectual way of preserving such medicinal preparations; and the salutary effects of muriatic acid is well known as a refrigerant, tonic, and antiseptic, in typhus, putrid fevers, scurvy, etc. It is also milder than the other mineral acids, and a more efficient antiseptic in proportion to its acid power. At the same time it need only be added in such portion as to neutralize the salifiable base of the vegetable, thus increasing its efficacy, and giving no acidity unless desired. The Honduras sarsa is found to neutralize about 1-16th part of its weight of common muriatic acid; and thus its sensible properties are more perfectly evolved.

It is therefore of great advantage, not only as enhancing the power of the medicine, but for preserving it in hot climates, or

in summer, when, from their speedy change, infusions and decoctions are required to be renewed daily.

But if intended to be kept for a long time, or put up for future use, it will be necessary to add some aromatic that is capable of resisting mouldiness and spontaneous changes. Various substances may answer this purpose, but the octea or siruba proves one of the best, as a preservative of animal and vegetable substances, and, being a salutary resolvent and sudorific, it forms an important addition to the compound.

The siruba, although stimulant or exciting when confined to the skin, is not so when poured into a recent wound, in which it excites no pain, whilst it accelerates the healing of wounds, even when much lacerated, causing them to heal by the first intention, like fresh cuts. When taken inwardly, although exciting to the system, it abates topical inflammations; and given in small doses, beginning with two or three drops twice a day, it operates as a real antiphlogistic. It will not agree along with strong drinks and stimulating food; but with a bland diet and diluting drinks, its effects are remarkable, even in acute inflammations,—after bleeding and clearing the bowels. Warm clothing, in this climate, is also necessary whilst using the siruba, for, like mercury, it opens the pores and emunctories of the body; imparting to the urine, perspiration, and to the breath, a peculiar odour. With the precautions here mentioned, that is, the use of a milk diet, the free use of barley water and nitre, it will speedily remove a recent gonorrhœa, catarrh, rheumatism, and various inflammatory affections: it is employed by the natives of Guiana in a great variety of disorders, both acute and chronic.

6thly. Remarks on the foregoing compound.—Should it be objected that the remedy is recommended for too many disorders, I may reply that, as a universal secerner, resolvent, and alterative, it is certainly, whilst more salutary, not less extensively useful than mercury, which is employed, we may say, in almost all disorders incident to our nature.

The foregoing vegetable remedies, may all be blended in one formula, either by simple infusion, or in a syrup or extract; and whatever form is preferred, it is desirable, in order effectually to extract their more energetic properties, to observe what has been said respecting the treatment of sarsa. The compound here mentioned, may be considered a *farrago* of remedies, and even, perhaps, unchemical; to incur which censure is, at the present time, most studiously avoided; it being commonly believed that, when reaction is observed on mixing two infusions, they mutually destroy each others medical effects: the belief is often correct with respect to minerals, but it would not be difficult to show that it leads to a feeble practice, when extended to vegetable substances. It is to be considered that the vegetables are made up of many proximate principles, generally about eight, ten, or twelve, so far as analysis informs us: we will suppose them to be ten on an average; now, most of these component parts are inert as medicines; and, therefore, although we observe a decomposition on mixing the infusions of two or more different vegetables, the chance will be but small that the more active principles are decomposed.

Hence we may learn how little worthy of regard are the well meant cautions of pharmaceutical writers, not to blend in the same formula remedies in which a reaction or decomposition is observed to take place, and which are hence proscribed in admixture as *incompatible*. This appears not to have been adverted to; but if the common views are tenable, how are they to be reconciled with the reputed powers of the new alkaloids, which, in single elements, are said to possess the entire active properties of the plants they are derived from? These active principles, or alkaloids, are mostly evolved by alcohol, or by an acidulated menstruum, and are thrown down by adding an alkali to the watery infusion; but the *alkaloid* does not fall till the acid has beome neutralized. This indicates the method to be pursued in general, as most effectual for extracting and suspending the more energetic part of the vegetable.

I have here run into a digression with respect to multifarious prescriptions, but experience and observation teach us the futility of single remedies in stubborn disorders. A judicious *combination* of old remedies is of more importance, perhaps, than researches directed to new discoveries; and to this point I could wish to draw the attention of the Society, because, since men have perceived the folly of ancient polypharmacy, as instanced in the Mithridates, Theriacs, etc., they have run into the opposite extreme, and, substituting endless chemical and pathological speculations, they have rendered medicine of less avail, by extreme simplicity of prescription; hence, notwithstanding the *march* of modern science, it does not appear that the practical or only useful part of medicine is much advanced; I should rather say, that, in point of real utility or efficiency, it has retrograded since the time of Sydenham. The fact is, that along with many absurd reveries of the ancients, the moderns have rejected their practical rules, formed on the experience of preceding ages; for it must be acknowledged, that the more useful part of medicine has been derived chiefly from empiricism, that is to say, from observation and experience.

7thly. Native Plants.—In the mean time many of the most useful plants of the country are expunged from the materia medica, or disregarded and held in contempt, such for example as the saponaria, inula helenium, or elecampane; the latter being condemned by Cullen, is spoken of by subsequent writers as a slight stimulant, a bitterish aromatic, and an incumbrance to the materia medica, which no practitioner ever prescribes. These authors condemn the native plants of their country apparently with very little knowledge of their medicinal properties.*

Dr. Cullen's mode of deciding on the virtues of plants was just as exceptionable as his pathology. It was chiefly by observing their *sensible* or *apparent* effects on the body, as in purgatives or emetics, or their action in promoting some of the

* For a better elucidation of this subject than any I can give, I beg to refer to the inaugural lecture of the learned Professor of Botany, Mr. Gilbert Burnett.

sensible secretions, as, by sweat or urine, or by expectoration; he seemed prone to condemn any medicinal agent whose action was not readily visible or evident to his own observation; such are the effects commonly looked for, and by common minds made the criteria of the value of remedies, and I do not hesitate to say, that such generally are the assumptions on which many useful remedies have been expunged from the materia medica.

On such ground, a medicine once condemned by some slight authority, is henceforward omitted by succeeding writers, or mentioned merely as a substance *which is never prescribed by regular practitioners.** This completely damns it, although, to any one who is aware how these opinions are formed and propagated, it affords no satisfactory criterion of its real value; for, if a celebrated modern writer, from any caprice, or by mistake, asserts such a plant to be either poisonous, or possessed of certain virtues, he will be followed by succeeding writers without examination, so easy it is to copy, and such the proneness for imitations.

The influence, (malign shall I say?) which the Cullenian doctrines or dogmatisms have had on succeeding writers, or copyists, is truly surprising. The *Inula Helenium*, he concludes, could not be useful as a pectoral in phthisis, because he did not find it to promote expectoration.

The fact is, Cullen entirely mistook the means by which the cure of this malady ought to be attempted—considering it indispensible to promote the secretion and discharge from the bronchiæ and pulmonary organs, and, strange to say, the same pernicious views still prevail very generally, and thus the flux of humours on the lungs, already excessive, was further promoted. The smallest exercise of reason should have shown the palpable absurdity of adding to the irritation, and keeping open

* Such, in fact, is the language of some of our best modern writers, of deserved celebrity as men of science, and for this reason, their errors are the more extensively pernicious. The general opinion appears to be, that pharmacy has arrived at its *ultima thule* of perfection; hence our modern writers are content to copy from one another, or merely to clothe the subject in a new dress.

the sores in such tender organs as the lungs and bronchia, instead of soothing the injured parts, moderating or suppressing the defluxion, leading it off by other channels, and altering the morbid state of the habit. The plant just mentioned is a useful alterative and auxiliary; but little could be expected in pulmonary lesions from any one remedy.

Boerhave having imagined that the balsams and terebinthinate medicines were hurtful (as they may be without proper or antiphlogistic regimen), and the same idea being propagated by Fothergill, this important class of remedies, on such infallible authorities, has become almost obsolete, or quite abandoned in pulmonary complaints. No extraordinary sagacity, therefore, is requisite to account for the *incurability* of *confirmed consumption* in modern times, whilst we have the fullest evidence that the disorder has been frequently cured after the lungs were half consumed by ulceration and tubercles.

Some have been perplexed to find out how the ancients could have attributed so many virtues to certain plants, are ready to conclude that they deceived themselves, or were deficient in common sense. Now, such interpretation is illogical, it is altogether too sweeping, even for the "*modern school-master.*" There is not so vast a difference in respect to the power of observation between the ancients and moderns; but allowing they were so deficient, what could impel them, falsely, to represent their experience, or effects of the remedies resorted to? But it appears to me, in some measure, explainable on different grounds, without concluding that our ancestors were all fools, when we see too, that even this assumption is insufficient.

If we inquire into their method of operating on roots, herbs, etc., it will appear they employed more potent menstrua for infusions, decoctions, etc., such as wine, juice of oranges, quinces, or, new ale, in Britain especially, or else *acuated,* as they term it, with spt. vini, or with spirit of sulphur; for instance, the vinum arthriticum of Bate's (a remedy of far more value and safety than colchicum), was an infusion of sarsaparilla,

guiacum, viscum quercinum, sage, germander, rosemary, lily, cowslip flowers, and hypericum in white wine, to which Salmon advised the further additions of burdock roots, gout wort, and master wort, and some spirits of wine, which he says will assist the better to *draw forth the virtues.*—Pharm. Bateana. See also the writings of Quercitan, Riverius, Schroeder, and others. Turner, speaking of the virtues of fumitory, says "*note that,* this and all other openers are best boiled in *white wine.*"

On the whole, it appears that the ancients, without the display or cant of modern science, paid more attention to the use of plants, not to mere descriptive botany or their outward forms, but to the results of their use in diseases, and that, in fact, they employed more effective means for obtaining *all* their active properties, than is done in the present enlightened age. They sought not a mere isolated element, such as morphia, quinine, etc., practices which, at a future day, perhaps, will appear equally ridiculous as the old remedy *album grecum* now does to us.

At the same time, it appears to me that the late discoveries of the alkaloids or salifiable bases of vegetables, do actually tend to elucidate the superior efficacy of ancient pharmacy, with respect to the *menstrua* employed. The vinous infusions or tinctures have lately been expunged from the Pharmacopœia, and dilute spirit substituted. These, however, are found to possess far less power than the old preparations with wine, and to spoil very soon. Such methods, in short, are vastly inferior to that of Bate and Salmon above cited—by *wine with addition of spirit*; and this, I conceive, ought always to be employed when wine is preferred as a menstruum. With all deference, I humbly conceive the College would have acted more wisely by rejecting the alcoholic tinctures, and substituting vinous ones, with a small addition of alcohol, since it is demonstrable that this fluid wine is a most efficient menstruum for the active elements of vegetables.

Remarks on the Aconitum ferox of India, and on the Poison furnished by it: by M. A. Richard. *Read December 8th*, 1835.

Dr. Cassanova, who has for a long while practised as a physician in the English Indian possessions, was kind enough, during his residence in Paris, to give me some roots of the *Aconitum ferox*, which furnishes the juice with which the Nagas, a tribe residing near the Sihlet, empoison their arrows. This poison being one of the most active of those produced by the vegetable kingdom, the relation of some experiments which have been made with it may prove interesting.

The English were for a long while unacquainted with the origin of the subtle poison with which the Nagas and some other Indian tribes, in the neighbourhood of the Himmalayan chain, imbue their weapons. It has been only of late, since the travels of Dr. Wallich in the Nepaul, that the plant which produces this dreadful agent of destruction has been discovered.

The *Aconitum ferox* of Wallich resembles closely the *Aconitum Napellus:* it is the *Aconitum virosum* of Don. It has been described and engraved by my excellent friend Dr. Wallich, the Director-General of the Botanic Garden at Calcutta, in his magnificent work on the plants of India, *Plantæ Asiaticæ rariores*, p. 35, tab. 41. This species has blue and hairy flowers, placed in branching paniculæ; the casque, or superior sepal, is semicircular, prolonged anteriorly to an acute point; its petals are equally in elongated narrow casques, and turned back at the top; the filaments of the stamens are dilated, sagittiform, with hairy edges; the ovaries and branches are hairy; the leaves divided into five palmated and pubescent lobes; these lobes are pinnatified, having their serræ acute and divaricated.

The *Aconitum ferox* grows in elevated situations in the Himmalayan chain. It has been also found in the provinces of Sirmore, Kamaon, and Nepaul.

The dried root, such as it is in my possession, is perpendicular; sometimes simple, sometimes composed of two or three large conoid or almost fusiform tubercles, from two to four inches long, as thick as the finger, and terminating in a point. The colour is a dark brown externally, white internally; the substance is compact, and, as it were, amylaceous; they are free from odour, but have an acrid and bitter taste.

The following details, on the deleterious action of this plant, are drawn from the works of Drs. Wallich, Hamilton, Breton, etc. Some roots have been sent to M. Barruel, Sen., Chemist, at the Faculty of Medicine, and we shall probably soon become acquainted with the chemical composition of this dangerous root.

The *Aconitum ferox*, says Dr. Wallich, varies considerably according to the place in which it is found. On the Sheopore, at an elevation of a thousand feet (the only place where I perceived it in the Nepaul, properly so called), the plant is small, grey, smooth, having only one stalk; the divisions of the leaves are narrow, and the roots thin. On attaining a higher elevation, towards the mountains covered with snow, it becomes much larger and more developed, and is covered with a soft, greyish pubescence; the divisions of the leaves are greater, the points larger, and the flowers closer and more numerous. These different shades succeed each other so gradually, that it is impossible to discover any point on which I can establish any specific distinction; I cannot even sufficiently limit the varieties so as to render their enumeration useful.

There are three other species of *Aconitum* or Monkshood, having all tuberculous roots, growing in the south of the Himmalaya, and they are considered by the aborigines as violent poisons; nevertheless, the species now under consideration is very much more venomous, and is, in all probability, the most subtle vegetable poison of continental India.

While treating on the poisons of the Nepaul, Dr. Hamilton makes the following remark in the 98th page of his *Report on the Kingdom of Nepaul*:—The term *bish*, or *bikh*, according to

the difference of pronunciation in the plains and mountains, is applied to four different plants having tuberculous roots, and all of them in great request. I have already mentioned the *singgiya bish*, a native of the lower mountains and the hillocks, and which I have considered as a species of *Smilax*. The others are not in the least like it, but have so marked a resemblance between each other, that I have no doubt they belong all to the same genus, although I have only seen the flowers and fruit of one of them. It is called *bishma*, or *bikhma*, and appears to me to differ little, in its botanical characters, from the *Caltha* of Europe. The bishma or bikhma is also, I believe, called *metha*, but I am not certain that the same name can be given to the following species: this remark is worthy attention, the bikhma being used in medicine as a very useful bitter in fevers, whilst the plant I am about to mention is one of the most subtle poisons.

This dangerous root, a considerable quantity of which is annually imported, is equally fatal, whether introduced into the stomach or applied to wounds: it is generally used to poison arrows. Its importation seems even to require the attention of the magistrates. The *Goorkhalese* pretend that it is one of their principal securities against invasion from the low countries; and that they can so infect the waters near the road, by which the enemy would advance, that their destruction would be certain. In case of such an attack, the besiegers would, doubtless, be on the guard; and the country contains so many fountains, which may be readily cleared, that this mean of defence might be rendered totally ineffectual, the enemy being aware of what had been done. This poisonous species is called *bish* or *bikh*, and *hadaya-bish* or *bikh*; and I am not certain whether the *metha* belongs to this or to the preceding kind.

The *nirbishi* or *nirbikhi* is another plant of the same kind, and, like the first species, has not any venomous qualities: it is used in medicine. The president of the Asiatic Society, in a note attached to the account given by Dr. Roxburgh of the *Zedoary*, says, the *nirbisha* and *nirbishi* are the Hindoo and

Sanscrit names of this plant, which has not any resemblance to the *nirbishi* of the Indian Alps. In fact, the nomenclature of the materia medica in Hindostan is very defective, which must give rise to the most dangerous mistakes in the practice of medicine.

It is very certain that the plants above mentioned belong to the genus Aconitum, with the exception of the *singgiya*, which Dr. Hamilton believes to be a species of *Smilax* with ternary leaves, the roots and seeds being poisonous: it is said that the latter, applied externally, are useful in the treatment of bronchocele. His herbarium, now in my possession, contains specimens of three plants, *Caltha? bishma*, *C? nirbisia*, et *C? codoa*; and, although young, they present characters sufficiently well marked to prove that two of the three species are identical with my *Aconitum ferox*; the third is, perhaps, of a different species. His assertion of the belief of the Goorkhalese, that the bikh would protect them in case of foreign invasion, and his opinion that such means of defence might be easily evaded, have been completely verified in the last war in the Nepaul.

In Turraye, a forest of the lowlands which forms the approach to that country, and also among the lower hills, especially at a place called Hetonura, a quantity of these roots, of which the bark had been previously removed, was thrown into the wells and reservoirs, in order to poison our men and cattle; but the attempt was soon discovered, and the necessary measures taken to prevent any injurious consequences.

Mr. Colebrooke informs me that the bikh is employed in the south of Hindostan to destroy tigers. Arrows, imbued with this drug, are shot from bows fastened near the places by which the animal passes to drink, and it most commonly happens that it is found dead. I am not acquainted with the *bikhma* of which Dr. Hamilton speaks as a powerful bitter, and which Col. Kirkpatrick considers a species of Gentian.

Among the great number of names of plants given to Dr. Hamilton, during his residence in the country, not one is correct or even in existence, except through the mistake of the

aborigines, whom he was obliged to employ in his researches. I can speak confidently on this point, having visited the Nepaul myself twenty years after Hamilton was there, under circumstances much more favourable than those which existed in his time, and having for the last twelve years uninterruptedly enjoyed facilities for prosecuting researches, partly by means of persons under my own control, and partly by the assistance of my friends attached to the Britannic residency at Katmandu. My friend Dr. Royle has successfully introduced the plant of the mountain Choor into the botanic garden at Saharampure, in the north-east of Hindostan, about 1100 miles from Calcutta. He informs me that the root is sent into the plains and taken as a medicine, under the name of *meetha* or *tileca*, and that having been previously mixed with other drugs, an oil is distilled, said to be efficacious in rheumatism. I am much indebted to Mr. Jonathan Pereira, of London, for the additional detail of many interesting experiments made with the roots of the *Aconitum ferox*, brought by me from the Nepaul about ten years ago: they fully establish the venomous properties of the poison.

The experiments which I have myself made, in order to ascertain the physiological effects produced by the roots of the *Aconitum ferox*, prove that it is one of the most violent poisons. The experiments were made on rabbits and dogs, in the presence of Dr. Falconer, Staff Assistant-Surgeon at Bengal, and of my own brother. An alcoholic and an aqueous extract were made from the powdered root. The alcoholic preparation was the more powerful of the two. The experiments were performed by introducing it into the jugular vein, or into the cavity of the peritoneum, or by applying it to the cellular tissue of the back, or into the stomach. In all these cases, except the last, the effects were exactly alike; that is to say, difficulty of breathing, weakness, then palsy, which commences generally in the hinder extremities, vertigo, convulsions, dilation of the pupils, and death, probably by asphyxia.

The bodies of the majority of these animals were examined after death. In all, the right side of the heart was found

swollen, gorged with black blood, and the left empty: in one or two cases, the auricles were still contracting, but the ventricles had ceased to act. The galvanic battery caused a trembling in some fibres of the latter, and either reproduced or greatly increased the contractions of the auricles. All the voluntary muscles were amenable to the galvanic influence.

One grain of the alcoholic extract, introduced into the peritoneal cavity of a rabbit, began to produce its effect in two minutes: death ensued in nine minutes and a half. In a second experiment of the same kind, the effect commenced in two minutes and a half: death took place in eleven minutes. Two grains, introduced into the jugular vein of a strong dog, caused convulsions in one minute, and death in three. A grain, introduced into the cellular tissue of the back of a rabbit, began to act after the expiration of six minutes, and destroyed life in fifteen. Three grains of the extract were given to a rabbit by the mouth: no effect ensued, except that the animal continued to masticate for several hours, as if he were ruminating; owing probably to the local action of the poison on the mouth and throat. The aqueous extract is less powerful than the alcoholic: two grains, introduced into the cavity of the peritoneum of a rabbit, did not prove fatal until after the lapse of thirty-seven minutes.

From the experiments detailed by M. Orfila in the *Toxicologie Générale*, and by Sir B. C. Brodie in the *Philosophical Transactions*, we shall see that the symptoms produced by the *Aconitum Napellus* resemble closely those caused by the *Aconitum ferox*. On this account, it is probable that the two species contain the same active principle: but the latter must contain it in much larger quantity, since its effects are much more powerful. The alcoholic extract of this root appears to equal in activity the *strychnia*, *upas antiar*, and the *woorary*. As far as regards the comparison with strychnia, I can speak from personal experience, having made many experiments with the latter: with regard to the upas and the woorary, I must base my assertions on the experiments of Orfila, Brodie, and others.

As my experiments prove that the activity of the *Aconitum*

ferox is in proportion to the absorbing power of the surface upon which it is applied, we have, I think, a right to conclude that this poison is absorbed, and that it acts on the brain. There can be scarcely any doubt of this, if we pay attention to the symptoms. But we are not justified in asserting that because it is absorbed and produces its effect on the brain, that its influence is exerted by acting directly on that viscus. The experiments of Morgan and Addison seem to prove that poisons, in whatever way they may be introduced into the blood-vessels, act upon the membrane lining those vessels, and by sympathy upon the brain. It was proved that the alcoholic extract of this root acts upon the nerves of the part upon which it is applied, by placing a small portion on the tongue. A little while after, a prickling and peculiar numbness ensued in the tongue and lips, which lasted several hours: in one experiment, the impression continued for eighteen hours; a similar sensation was perceived by Drs. Boott and Wallich.

Dr. George Gavau furnished me with the following interesting details:—All parts of this plant are said to be poisonous, when taken internally by man or other animals: the inhabitants of Bissehur and of Gurhwel even believe that its emanations affect the air, so as to render it dangerous to those who are exposed to it. Having been myself, as well as those who accompanied me, often exposed, night and day, to its influence, without inconvenience, I should be rather inclined to attribute this opinion to the fact, that plants of this species are always found growing on great heights, which, of itself, gives rises to certain effects: to wit, giddiness, fainting, and difficulty of breathing. The last of these symptoms has been generally attributed to the rarefaction of the air, and it is said to have occurred when the body is in a state of complete rest.

This plant grows in the highest places in the forest surrounding the Himmalaya, and I have never met with it much lower than those places where the barometer was at 19 inches.

According to my own experience of the effects just mentioned, and that of the persons who accompanied me when traversing

the Himmalaya, by the passage of Bissehur, where the barometer was at 17 inches, I can assert that, after having passed the night, as near as I can judge, above the limits of perpetual snow, we did not experience any other inconvenience, or difficulty of breathing, than that which results generally from the effects of ascending, and which ceases when the body is at rest. A certain degree of uneasiness and giddiness was once felt, together with some difficulty of breathing, and many of the domestics voluntarily staid behind, to sleep some time upon the snow; but this circumstance did not take place while we were ascending. Besides, we had not seen the plant for several miles; and as the situation is much lower than that mentioned previously, (the barometer being at 19 inches only,) I could not help attributing these sensations to the efforts required in walking for six hours up to the ancles in snow, during which the feet were numbed, and the head exposed to the sun's rays. This occurred while traversing the Maujhec-Ke-Kauda, between the Touse and the Immunoutri, in the beginning of October.

It appears that the root of this plant is imported into the plains in considerable quantities, where it is sold for about a shilling the pound, although its sale is forbidden by the national government, under heavy penalties, except to accredited persons, or those who are well known. It is also used in cases of chronic rheumatism by the native practitioners. The resemblance between the cases, and those in which Professor Stoerk, of Vienna, who used the extract of the root of some of the European species with a similar view, may add to the evidences of its utility. The names of *meetha doodhya* and *meetha telya* are applied to several of its preparations.

The experiments made in India by Captain Grant, and which have been published by Dr. Breton, in the fourth volume of the *Medical and Physical Transactions of Calcutta*, are completely in accordance with those just named; it is not therefore necessary to allude to them further.

New Researches on Opium and its Principles, by J. Pelletier. *Read March 23rd*, 1836.

I have long been desirous of collecting the notes with which I have composed this essay; another essay on opium--is it not abusing your attention? It must be confessed that there are many points of the chemical history of opium which are as yet doubtful, and require to be cleared up. In an earlier paper, I have described a new principle, *narceine*; still later, I have spoken of another principle in opium, called *paramorphia*; it now remains to make known the nature and properties of these two substances, and thus to answer the doubts that have been expressed as to their existence. During the analysis of an opium procured in France by incisions made in the capsules of poppies, in making which the obtaining morphia was not the sole object, certain peculiarities presented themselves which deserve further notice, such as the absence of narcotine, which was apparently replaced by a larger quantity of morphia; I had also to make known a matter which is only accidentally met with in opium, and which, differing completely from morphia, may yet be confounded with it by some of its most prominent properties; I was also in possession of some observations relative to the discovery of morphia, in the very serious and important cases of forensic medicine; and I had also to point out certain processes, applicable to this branch of chemical analysis, which consists in the discovery of the immediate principles formed by nature, a branch of chemistry which is rather neglected, but which has nevertheless rendered such brilliant services to medicine and the arts. Such then are the motives which have induced me to write upon a subject which might be considered almost exhausted, but which, I am inclined to believe, still requires much further investigation.

When opium is examined in a laboratory for experiments, it rarely happens that the locality and the instruments employed

are fitted for the analysis of a large mass, so that some of the proximate principles (those which exist only in a small quantity) are not discovered. In the manufactures, where a much larger quantity is in use, other causes for failure arise; the same degree of precision is no longer employed. As large quantities of material are operated on, the processes become exceedingly protracted, and during the necessary series of filtration in the open air, evaporations, etc., the principles are altered, re-act on each other, and are destroyed; in a word, the modes of extraction applicable to certain proximate principles of organic origin, indicated in an analytical work, are not practicable, when the operations are performed on an extensive scale. But the results of these operations of the manufactures, which are detailed on the registers of the laboratory where they occur, are not without interest for science, and often deserve publication. These reflections are not foreign to my subject; in fact, the researches which have occupied my attention latterly, have been made, not so much on opium itself, as on large quantities of the *mother-waters*, arising from a series of operations on morphia,—mother-waters, which I had allowed to accumulate with the view of seeking for the proximate principles of opium which may exist in them, so that I might complete the essay which I have already published on this subject.

Researches on the ammoniacal mother-waters of morphia.

In order to obtain narceine and meconine, I have said in another essay, that after separating the morphia, narcotine, and meconic acid from a solution of the extract of opium by ammonia and barytes, it was necessary to evaporate the liquors to a certain point, and then set them aside to crystallize; this is the difficult part of the work, especially if the process is conducted with relation to large quantities. In fact, if the evaporation is not carried far enough, the mother-waters, when set aside, ferment and are covered with mouldiness, in which case we shall find only decomposed principles and ammoniacal salts;

if, on the other hand, evaporation is carried too far, the density and viscosity of the liquid will prevent all molecular motion, crystallization will not take place, and the method indicated to obtain meconine and narceine will fail. It is to this circumstance that I should attribute the unsuccessful termination of the operations of some persons who have endeavoured to repeat my experiments. Our object then is to obtain a well-marked crystallization from the ammoniacal mother-waters of morphia. This can be always procured by acidulating them before evaporation with hydrochloric acid so as to exert a marked action on turmeric paper; evaporated to the consistency of a clear syrup, and set aside in a free situation, they will soon assume the consistency of honey, caused by the presence of thousands of crystals, so fine, that often they cannot be distinguished, save by their shining in the sun-light. In this condition they should be poured into woollen bags, when a thick and viscid liquid will pass through, which should be carefully preserved.

In order to purify these crystals, after pressure in linen, they must be dissolved in alcohol at 36° of Baumé, by means of very gentle heat. During this operation, a very large quantity of caoutchouc, and of extractive matter is separated. The alcohol must be fully saturated, so that on cooling, or at the utmost by a slight evaporation, crystallization in mass may take place; the crystalline matter is then to be redissolved in a small quantity of boiling water, treated with animal charcoal, and set aside again to crystallize.

The alcoholic mother-waters set aside will still furnish crystals, which can be equally blanched by animal charcoal; in short, it is necessary to blanch the crystals completely, by a series of crystallizations and re-solutions, and to exhaust the mother-waters thoroughly, for they cannot be thrown away otherwise without loss. I beg leave to observe, that the successive employment of alcohol and water in this operation is required, because the purification of the crystals depends on two principles,—crystallization and decolorization by means of animal

charcoal;—I may remark, that the latter object is best effected with the assistance of water, whilst the crystals are more readily formed from the solution in alcohol. The crystals, purified by these different operations, were then submitted to a series of experiments which are too long to enumerate, the object being to ascertain the nature of their components; the result was, that they consisted almost entirely of hydrochlorate of morphia, narceine, hydrochlorate of ammonia and codeine, and of meconine.

The following process is necessary in order to obtain the morphia, narceine, and codeine; the crystalline mass was treated with a quantity of water sufficient to dissolve about 91-100ths, at the temperature of 50° Centigrade, or 122° Fahrenheit; the part which remained undissolved consisted almost entirely of narceine, and can be recognized by the characters which I have described in a previous essay; if it still contains any hydrochlorate of morphia, it is to be purified by dissolving it in a sufficient quantity of boiling water, and crystallizing it afresh once or twice.

Narceine thus obtained should be treated with ether, in order to remove any traces of meconine which may exist; it rarely happens that it contains any notable quantity, for it appears that, under the influence of an acid, meconine is much more soluble than narceine. The narceine being thus separated, the solution containing the hydrochlorates of morphia, ammonia, and codeine, and the meconine, is to be again taken in hand and crystallization induced: the crystalline mass is next to be treated with sulphuric ether, which will dissolve out the meconine alone, the codeine being scarcely soluble in ether, when united to an acid. Finally, in order to separate the morphia from the codeine, I re-dissolve the crystalline mass, and add ammonia to the solution, by which the greater part of the morphia is separated; the filtered liquid is then treated with a slight excess of potass, and the codeine is precipitated. Dissolved in aqueous ether, it will form beautiful crystals. I may

here make a remark which is not without practical interest; it is necessary to take care not to employ the potass in too great an excess, or in too concentrated a form, as in either case it would re-dissolve the codeine; it is therefore preferable to leave a little morphia in the precipitated codeine, since it can be afterwards eliminated by the treatment with ether.

My readers will bear in mind that I had set aside the black viscid liquors obtained by the separation of the crystals from the ammoniacal mother-waters. These liquors contain many crystallizable principles, which I found great difficulty in separating from the black altered matter in which they were contained. The process which I finally determined to adopt is as follows; it is simple, but it is the result of a great many attempts and experiments, in performing which I was assisted by my pupil, M. Dubosc, whose zeal and patience merit acknowledgement. The black viscid liquor was evaporated to the consistence of a soft extract, and alcohol of 24° of the areometer of Baumé was then added; one part was insoluble, another portion was dissolved. That which was insoluble was composed of ammoniacal salts, sulphate of potass, and black extractive matter; I could not discover any traces of organic crystalline matters. In the alcoholic solution I found meconine, narceine, morphia, and even a large quantity of codeine, enveloped in this black matter, which it then became necessary to eliminate. A fresh quantity of alcohol, at from 38° to 40°, was added to the solution, and continued until precipitation had ceased; the black matter, which was partially dissolved in weak alcohol, was precipitated by the addition of the concentrated spirit; the supernatant alcohol retaining the meconine and organic alcalies in solution in the state of hydrochlorates. It is rather remarkable that, although the narceine is very soluble in strong alcohol, it was almost entirely thrown down with the extractive. In order to separate it, it was necessary again to heat this black matter with alcohol at 40°, but instead of using it cold, the alcohol must be in the state of ebullition; when the extractive matter contracts and

hardens, the narceine is dissolved, the hot liquor is filtered and distilled, in order to remove the excess of spirit, and then on cooling the narceine crystallizes.

The separation of the morphia, meconine, and codeine, dissolved by the cold alcohol, takes place by the method already indicated. The process just narrated, examined as a commercial affair, enables the manufacturing chemist, who prepares morphia, to reap great advantage from the mother-waters, which hitherto have been completely lost; it is even applicable, with some slight modifications, to the black mother-waters, obtained by the process of Dr. Gregory; examined in a scientific point of view, it is not without interest; it confirms the existence of narceine, a fact which has been doubted by some chemists, and it tends to show that the codeine of M. Robiquet is really a proximate principle of opium existing *per se*, and not the product of re-action. In fact, one of the most certain methods of ascertaining that a substance is really a proximate vegetable principle, and not the product of re-action, is, to endeavour to obtain it by different methods, by menstrua which cannot re-act on its elements, and by agents, whose re-action would be directly contrary, the one to the other; when, by such processes a substance is obtained always identical, we may be certain that it has not been formed by chemical re-action.

Treatment of the alcoholic mother-waters of morphia.

Having examined the ammoniacal mother-waters of morphia, procured by the method of Sertuerner, I shall pass to the examination of the liquid, known by the name of alcoholic mother-waters.

We know that by the instillation of ammonia into an aqueous solution of opium, we obtain a greyish floculent precipitate, if the precipitation takes place when the solution is cold; granular, if it be hot; this is raw impure morphia. Before it is purified by crystallization, it is customary to macerate it in a weak cold

spirit, to remove the colouring matter. According to M. Robiquet's method, the magnesian precipitate containing morphia is also macerated in alcohol; these are what I call the alcoholic mother-waters; hitherto they have been always neglected, except to procure a little morphia by spontaneous evaporation; they are however deserving of some attention.

I have taken them when they have no longer deposited either morphia or narcotine; I have saturated them with hydrochloric acid, and set them to evaporate; I have thus obtained a crystalline mass, which has yielded much morphia and a notable quantity of codeine, which I have separated by ammonia and potass. I shall not describe the process I followed, as that may be found in the remarks already made; I shall simply observe, with respect to the codeine, that we ought not to be astonished to find it in morphia *precipitated by ammonia*. I have often observed, that if ammonia does not precipitate pure codeine from its acid solutions, and especially from its solution in hydrochloric acid, the partial precipitation of a certain quantity of codeine does take place under certain circumstances, and that morphia often draws down some with it. I have always seen in experiments ammonia precipitate codeine from its solution in acetic acid. I ought also to mention a matter, of which I shall speak by and bye, by the name of *paramorphia*, a substance which I had previously obtained by treating opium with lime. This matter, which cannot be confounded with codeine, because it is insoluble in potass, accompanies the morphia in this case, and is precipitated with it, when ammonia is added, but it can be separated from the morphia by ether or weak alcohol, which dissolves it readily; I now only mention this substance, which I shall examine by and bye.

I have in vain sought for meconine in the precipitate caused by ammonia: M. Couërbe says it is to be found; perhaps I had washed the precipitate too much before macerating it in alcohol; at all events, if meconine can be separated, the precipitate

should be converted into hydrochlorates, and treated by ether, the salifiable bases of opium not being soluble in ether, when they are in the state of hydrochlorates.

Under other circumstances, I have treated raw morphia directly by sulphuric ether, and I have equally obtained narcotine, morphia, codeine, and paramorphia.

Researches on, and examination of, the matter found by M. Dublanc, described in the Annales de Physique et de Chimie, t. 49, p. 1.

In a memoir on opium, published in 1832, but read as early as 1826, before the Royal Academy of Medicine, M. Dublanc, jun., described a new crystalline substance, soluble in alcohol and in water. M. Couërbe considered this substance identical with that which he had himself discovered while operating in my laboratory, and thus consented to share the honor of discovering meconine with M. Dublanc. Since then, I have had reason to doubt whether M. Dublanc's matter was really meconine. In fact, M. Dublanc says that his principle contained azote, and differed from narcotine by the greater quantity of hydrogen, and the minor of carbon, which it gave on the distillation of the ammoniacal products; now, meconine is not azotic; meconine is volatile; M. Dublanc, who heated his substance in a tube, did not perceive any volatility; he did not see that change of colour by sulphuric acid which is so characteristic of meconine; in a word, his description seems rather to refer to codeine. However, he has not stated that it was alcaline or salifiable; it differs also from codeine by the form of its crystals and its solubility. What then is this principle of M. Dublanc?

In order to decide this question, I followed the process of this chemist in the mode of extraction which he pursued in order to obtain his crystalline substance. M. Dublanc evaporated the ammoniacal mother-waters of morphia, dissolved the product in alcohol,—then made an alcoholic extract,—treated this

with ether,—allowed the ether to evaporate in the open air, and thus obtained an acid matter,—dissolved it in water, saturated the acid by the *sub-carbonate of soda*, collected two distinct matters, the one white and granular, the other brown, which he removed by a small quantity of weak alcohol very cold, and finally purified the white matter by dissolving it in alcohol and crystallizing it.

By acting exactly in this manner I obtained a crystalline substance which did not appear to me to be homogeneous; I therefore slightly modified the operation; the matter obtained by the evaporation of ether was dissolved in water, and passed through purified animal charcoal; the liquor, after a slight evaporation, and still remaining acid, was set aside for twenty-four hours in a cool place. It then yielded crystals, evidently those of meconine, having all its characters, which are now well known. These crystals being removed, I added the carbonate of soda, and I then obtained a granular precipitate, which, when purified, yielded crystals presenting all the characters of codeine.

It is then very probable that the matter described by M. Dublanc was a mixture of meconine and codeine, and this will explain the properties which he discovered in it, and the different aspects under which it has presented itself.

Researches on the extraction of morphia by means of lime.—On paramorphia.

The oxyde of calcium (lime) is often employed to obtain the vegetable alcaloids; in some cases, even, lime is preferable to the more energetic alcalies, such as potass, soda, and ammonia, for their salifiable bases retain in solution a notable quantity of vegetable alcaloids, and exert on them elementary re-actions, which modify and change them. Being desirous to learn whether lime might not be advantageously substituted for ammonia in the extraction of morphia, I determined to make the experiment on rather a large scale. Five kilogrammes of opium were em-

ployed in the experiment, which was entrusted to M. Thiboumery, the manager of the works at my laboratory.

The solution of opium, well filtered, was treated with the milk of lime, and the precipitate collected and washed with pure water until it came away nearly colourless. The calcareous precipitate, dried in a stove, was treated with boiling alcohol, but, to my great surprise, no morphia was obtained, either on the cooling of the alcohol or by its evaporation. Astonished at this result, we then examined the liquors with which the precipitate had been washed, and soon perceived that they contained much more lime, and were much more alcaline than common lime water, and also that they held morphia in solution. In order to remove this alcaloid, they were saturated with hydrochloric acid, and then, on the addition of ammonia, the morphia was obtained very pure. I thought I ought not to be contented with this simple experiment, and I was desirous of ascertaining the nature of the matters which were dissolved in the alcohol; with this view we evaporated the alcoholic tinctures, and we obtained a brown granular mass; this mass, treated with ether, dissolved partly in it, leaving a large quantity of black extractive; the ether, on evaporating spontaneously, left a brown crystalline mass, which collected on the sides of the vessel. This substance was obtained in a purer and whiter condition by dissolving it in an acid, precipitating it by ammonia, and causing it to crystallize afresh by alcohol or ether. It is that substance to which I have already alluded when speaking of the matters obtained from the alcoholic mother-waters of morphia. I have given it the name of paramorphia, because it presents a complete analogy of composition with morphia; I believe it to be a peculiar principle for the following reasons, which chemists will be well able to appreciate.

Paramorphia is white, scarcely soluble in water; its taste is rather acrid and styptic than bitter; it is very soluble in alcohol and ether, even when cold, but still more so when hot; when it has been dissolved in a hot menstruum, very little separates on

cooling. On spontaneous evaporation it forms needle-like crystals, which collect on the sides of the vessel. Weak acids dissolve it;' the alcalies precipitate it from its solutions; an excess of the alcali cannot re-dissolve it, unless the alcaline solution is very concentrated; the acid solutions do not crystallize; only yellow plates are obtained by evaporation; it melts at 334° Fahrenheit, does not volatilize even at a higher degree of temperature, but it is decomposed like other vegetable alcalies, and yields azotic products.

Paramorphia differs from morphia inasmuch as it is not reddened by concentrated nitric acid, as it does not form crystallizable salts with the acids, and as it does not become blue on the addition of the salts of iron.

Paramorphia resembles codeine by its solubility in alcohol and ether, and by its alcalinity, but it differs from it, inasmuch as it never forms large crystals, does not form crystallizable salts, and is always precipitated from its acid solutions by ammonia; and, finally, it does not melt in oily drops, like codeine.

Paramorphia has no analogy with meconine and narceine; the only substance with which it could be confounded is narcotine, and, indeed, the two principles can scarcely be distinguished, unless great attention is paid to their examination. In fact, hitherto, we have not been able to discover any of those marked characters, any of those re-actions accompanied by phenomena which can be readily observed, and which are generally cited as forming the distinction between two bodies. Nevertheless, we may remark, that the difference of taste, of fusibility, and of solubility in alcohol, are quite sufficient to distinguish them. The Wernerian school has often, on less marked differences, established species in mineralogy which have been afterwards confirmed by geometric mineralogy and by chemistry.

In organic chemistry we may cite many similar examples, particularly in the species which constitute the series of fatty bodies.

Narcotine crystallizes in prismatic needles, having a very remarkable éclat; paramorphia crystallizes in granular crystals, or in very short needles, not possessing that *pearl-like éclat*; narcotine has a truly bitter taste, paramorphia has a bitter savour, followed by an after taste, as it were styptic and metallic; narcotine requires about 100 parts of cold, or 25 of boiling alcohol, for its solution, and a saturated solution always crystallizes on cooling; paramorphia dissolves in 10 parts of cold alcohol, and in a much less quantity of boiling spirit. The action of concentrated acids on paramorphia has not been fully ascertained, on account of the small quantity of the principle in my possession; nevertheless, it may serve to distinguish it from narcotine. In fact, nitric acid poured on narcotine dissolves it almost immediately, assuming a fine yellow colour. When concentrated nitric acid is poured on paramorphia, it becomes yellow, but the colour is less evident, it softens and melts as it were before it dissolves, and seems to become a soft resin. Concentrated hydrochloric acid also changes paramorphia into a resinoid and soft substance before it dissolves.

I have given the name of paramorphia to the substance which is the principal subject of this paragraph, because its chemical composition seems to me to be the same as that of morphia. Two years ago I analyzed it with the assistance of M. Couërbe; I have repeated it again lately, obtaining the same results as regards carbon and hydrogen, but rather less nitrogen.

The following results appear to me to deserve much confidence:—

Paramorphia.		Morphia according to Liebig.	
Carbon	71,310	Carbon	72,20—68 atoms
Hydrogen	6,290	Hydrogen ..	6,24—36 —
Nitrogen	4,408	Nitrogen	4,92— 2 —
Oxygen	17,992	Oxygen	16,66— 6 —

The analyses of morphia by several skilful chemists differ more from each other than do the two just mentioned.

Moreover, as paramorphia does not form crystallizable salts in the neutral state with acids, it has not been possible for us hitherto to determine its capacity of saturation, which would have thrown considerable light on the question. I intend to make an additional quantity, in order to complete these experiments.

It would also prove very advantageous, to ascertain the action of paramorphia on the animal economy; this task has been undertaken by Magendie.

Analysis of an Opium collected in France.

The presence of morphia in the capsules of the indigenous poppy has lately been fully proved. M. Tilloy of Dijon, and M. Petit of Corbeil, have made some interesting remarks on the fact. But, hitherto, no one in France has attempted, at least as far as I am aware, to obtain a real opium. That which I have submitted to analysis was furnished by Gen. La Marque, at Eyres, in the Landes; it has been collected by a hand which has gained battles.

The opium of Eyres is not an extract from the capsules of the poppies, it is the juice which has exuded from incisions, etc., dried in the open air. Some time before he died, Gen. La Marque sent a specimen to M. Caventou, who, knowing that I was engaged in experiments on opium, transferred it to me.

The analysis of the opium collected in France, and its authenticity so well supported, is of itself highly interesting, showing that the opium of France contained the same principles as that of the East, and their relative proportions; it would point out (and this is an important question in vegetable physiology,) whether the difference of climate had any sensible influence on the production of the proximate principles of plants, on their juices, and of opium in particular, and consequently on the energy of this powerful remedy. It would also teach us whether we shall be able hereafter to free ourselves from a tribute we pay to a people, certainly friendly at present, but who may some day reject our alliance.

The opium of the Landes of Bourdeaux is of a very deep reddish brown; when dried it is fragile; its taste differs little from that of the opium of Smyrna; when dissolved it leaves less insoluble residue than the opium of the East.

Sixty grammes of French opium were dissolved in distilled water; the small quantity of insoluble matter was first examined; it presented the constituents of Eastern opium, with the single and rather remarkable exception, that I could not discover any *traces of narcotine;* there was also less caoutchouc than in the opium of Smyrna. The aqueous solution, containing the soluble parts of opium, was heated to 212° Fahrenheit, and precipitated by the sub-carbonate of ammonia. The granular precipitate obtained on cooling, was washed, dried, and treated by sulphuric ether. The etherial tinctures, on evaporation, left a slight layer of oily matter, but *no narcotine.* The granular precipitate was then dissolved in boiling alcohol, and passed through animal charcoal; on cooling, beautiful crystals of morphia formed, in an amount about 5,39 grammes.

The ammoniacal liquors were then boiled, and treated afterwards with the hydrochlorate of lime; a precipitate took place, which was recognized as consisting of the carbonate and meconate of lime. This precipitate, treated with an excess of hydrochloric acid, assisted with heat, care being taken not to boil the liquor, was dissolved, and on cooling, a salt crystallizing in needles was obtained, which was recognized as the bi-meconate of lime; it weighed 2,25 grammes. The super-natant liquid of the first precipitate of carbonate and meconate of lime was then evaporated, and yielded a crystallization, partly soluble and partly not, in alcohol; the insoluble part was the sulphate of lime; that which was soluble was almost entirely formed by the hydrochlorate of morphia, and amounted to about the 0,78 gramme of that basis. My attention was now entirely directed to this hydrochlorate; I endeavoured to discover in it those principles which are met with in the opium of the East, narceine, meconine, paramorphia, and codeine; with the single exception

of the latter, I could not discover any of these, probably because I had too little material for my operations, but I had very sensible traces of codeine. I shall not enter into the detail of these experiments, suffice it to say, that I followed the processes already indicated.

The formation of a notable quantity of sulphate of lime, by the addition of the hydrochlorate of that base, would seem to indicate, that in French opium morphia is partly combined with sulphuric acid, as M. Dupuis has already remarked with regard to the opium of the East. If I had had more material, I might have carried this analysis further; still, however, some interesting conclusions may be drawn from it; in the first place, it is evident that French opium contains more morphia than that of the East, since 60 grammes have yielded 6,17 grammes of a white morphia, whilst in a comparative experiment 60 grammes of Smyrna opium have produced only 4,25 grammes: 500 grammes of French opium, or a pound medical weight therefore will yield 51 grammes, about 14 drachms and 24 grains of morphia; 500 grammes, or a pound of Eastern opium, deprived of its narcotine, will only yield from 40 to 45 grammes of morphia, that is to say, about 10 drachms and 48 grains. French opium is therefore richer in morphia than the Eastern, but it does not contain any narcotine. The disappearance of one proximate principle and the increase of another in quantity is certainly an interesting fact in physiology.

On the other hand, as the presence of narcotine in opium is rather an inconvenience than an advantage, and since the pharmacien seeks always to deprive the extract of opium of its narcotine, its absence cannot depreciate French opium. The presence of codeine has been proved, but I could not determine the exact proportion. M. Magendie states in the eighth edition of his Formulary, that opium has been procured in England, but that it contained less morphia than that of Turkey. It is probably only an extract of the poppy.

As the papaver somniferum and the papaver orientale grow

well in France, even in bad grounds, this analysis may induce individuals to devote their attention to obtain indigenous opium. This would be another victory for our agriculture and our industry.

Facts relating to the history of narceine.

I have already given the process which appears to me to be the most proper to obtain narceine, but, in order to have it in the state of its greatest purity, it should be again dissolved in a very weak solution of caustic potass, at a temperature near that of ebullition; the liquid must then be filtered, and acetic acid added, until a slight acid re-action be perceptible; on cooling, the narceine will crystallize, and the morphia, if there be any present, will remain in solution in the acid liquor.

In my first essay, I considered narceine as a vegetable alcaloid, certainly a very weak one. This experiment does not agree with that supposition, and others have since completely altered my opinion; the amount of narceine which I have prepared lately, has enabled me to attempt the formation of salts, and I have constantly remarked that acids were good solvents, but it could not saturate them. When crystallization does take place in an acid solution of narceine, it is always pure narceine.

We have already said that the mineral acids, at a certain degree of concentration, such nevertheless that they cannot act elementarily on the narceine, impart to it a blue colour; I have since ascertained that this blue colour was either due, or at least subordinate, to a peculiar state of hydratation of the narceine. In fact, if a current of dry hydrochloric acid gas be passed on narceine, it will absorb the acid, and assume an orange yellow colour; if a little water be then added, it changes to a beautiful blue; a larger quantity of water dissolves and decolorizes it; let the acid be saturated with some drops of ammonia, and the narceine will then be precipitated without having undergone any alteration.

Iodine has the property of combining with narceine; the

compound has so deep a blue colour, that it appears black, but if it be diluted with a white inert material, the blue colour appears to have a magnificent tint; it is a true compound of narceine and iodine; if water be added, and carried to the state of ebullition, it dissolves without colouring the menstruum; on filtering it soon the narceine separates, either of a blue or rose colour; in the latter case it retains a less proportion of iodine. Finally, if the ebullition be prolonged for some time, the narceine crystallizes of a white colour, and no longer retains any of the iodine; this latter may be found in the aqueous menstruum when distilled. The rose-coloured compound, which may be called the sub-ioduret of narceine, may be procured by macerating the blue ioduret of narceine in a solution of bi-carbonate of potass. If the carbonate of potass or caustic potass be used, the whole of the iodine will be removed from the narceine. Up to the present time starch was the only substance which was known to be coloured blue by iodine. It is rather singular that a substance so essentially different in its nature and properties from starch as is narceine, should present an analogous effect. It ought to induce us to distrust the exclusive employment of re-agents to determine the nature of a substance: we shall have a still more striking example of this truth.

The action of bromine, and especially that of chlorine, on narceine, is still more complicated; I shall allude to these on another occasion.

Note on pseudo-morphia, followed by some observations on the search after morphia by re-agents, principally in cases of forensic medicine.

I have given the name pseudo-morphia to a singular substance obtained from opium, which was under examination in the manufactory; I am unable to explain the reason, but, under circumstances apparently similar, it has only presented itself three times. Does it arise from the action of certain agents on morphia or narcotine, with which it has considerable analogy?

I cannot believe this, for the various attempts I have made to produce it has failed. Does it come from some juice, foreign to that of the poppy, and mixed with it in the country where the opium is collected? I am still less inclined to credit this, for there is a certain relation of property between it and morphia, which forbids our doubting that the one is produced by the other, probably by the act of vegetation, or as the result of a disease of the plant. However this may be, the notable quantity of this matter which I have had in my possession, has enabled me to study it rather deeply, and in such a way, that should other chemists discover it they cannot mistake it. I shall first state how I met with it; certain varieties of opium furnish, when their aqueous solution is precipitated by ammonia, a morphia very much charged with narcotine; this morphia, when blanched by repeated crystallizations, continues mixed with narcotine unless one of the processes already indicated under such circumstances be employed. The substance to which I am alluding at present, was obtained from a morphia containing narcotine, during the works in my laboratory, under the direction of M. Thiboumery. After having treated the morphia with a solution of caustic soda in order to dissolve it and leave the narcotine insoluble in the alcaline liquor, the latter was saturated with sulphuric acid, and the morphia then precipitated by ammonia; after filtration, the liquor, which became slightly acid, was evaporated, and allowed a whitish micaceous matter to precipitate; this was collected on a filter, and washed with distilled water. In order to purify it, it was next dissolved in boiling distilled water, of which large quantities were required; on cooling, it again crystallized in micaceous scales, the mother-water retaining a little sulphate of soda. In this state, cold water at 58° Fahrenheit could only dissolve 0,0013 of its weight, boiling water taking up 0,08, which crystallized again on cooling.

If, to the water in which it is boiled a little ammonia is added, it loses its pearl-like appearance, becomes still less solu-

ble, and gives up 8-100ths of sulphuric acid ; by exact analysis, with the barytes, we can estimate this quantity to 8,83.

I shall now endeavour to point out the characters of this substance. It has been already said that it is almost insoluble in water ; it is still less so in strong alcohol, or in ether ; alcohol at 36° of Baumé, dissolves a little more ; ammoniacal water has no sensible solvent powers on it, but the solutions of potass and soda dissolve it freely ; by saturating these alcalies with an acid, the matter is precipitated, but in that case it retains a little of the precipitating acid ; diluted acids rather assist its solution, but there is considerable difference between them ; the sulphuric and nitric acids have scarcely any influence, the hydrochloric is much more active, and the acetic acid is a still better solvent ; ammonia changes these liquors white. Concentrated sulphuric acid changes it to a deep brown and decomposes it ; concentrated nitric acid acts upon it as on morphia, imparting a very intense red colour, and finally changing it to oxalic acid. But the most singular property of this substance is that of assuming a very deep blue colour, by the contact of the salts of iron at their maximum, and especially of the hydrochlorate of the peroxide of iron, and it is rather remarkable, that this colour disappears on the addition of an excess of acid, just as it happens with morphia. The affinity of this matter for the oxide of iron is such, that while it resists the dissolving powers of sulphuric acid, and that it is dissolved only in small quantities by hydrochloric acid, the hydrochlorate of the peroxide of iron will take up a notable portion of it ; the solution has a beautiful blue colour, but, on the application of heat, it becomes of a dirty green ; if ammonia is added, a very slight precipitate occurs, and the liquor assumes the colour of Alicant wine ; the organic matter cannot be abstracted save in the state of complete disorganization. Nearly similar phenomena occur on pursuing a similar plan with morphia.

While making comparative experiments on this substance,

and on morphia, I have been enabled to make some observations which appear to me to be of great importance, because they have reference to toxicological researches, which are always very serious and important, on account of what may be their ulterior consequences. In the first place, the existence of a substance, possessing the most characteristic properties of morphia, and *which is not poisonous*, as we shall prove hereafter, that of turning red by nitric acid, and blue by the salts of iron, ought to render scientific men very circumspect; and, when they find these two characters present, they ought not, on that score alone, to declare the presence of morphia; they will feel more than ever that, when a poisonous substance is in question, it is necessary to isolate it, to obtain it in substance, and never to determine the question in the affirmative, simply on the action of certain re-agents, and the manifestation of certain phenomena. This doctrine has long been the opinion of my learned friend Orfila; non-attention to it had nearly led an innocent man to the scaffold. I may also add that the absence of the indicated phenomena ought not to put an end to the experiment, as some circumstances may happen which may prevent their occurrence. In fact, I have remarked that some of the compounds of morphia, the hydrochlorate for instance, or the acid sulphate, was scarcely rendered blue by the perhydrochlorate of iron, especially if the latter was very acid. In such a case, I would place the matter which I might suspect to contain morphia on a piece of glass, touch it with a drop of ammonia, and allow it to evaporate in the open air; under such circumstances, the re-action of the hydrochlorate of iron would take place, because it can act on free morphia which becomes much more amenable to its influence.

I shall return to the pseudo-morphia; it must now be evident why I have given it that name. This substance, when submitted to the action of fire, does not volatilize, nor even enter into perfect fusion; it is decomposed at the moment when it seems to soften; distilled in a glass retort, it yields a little oil, a little water slightly acid, but from which potass disengages ammonia,

and leaves a large quantity of carbon, which is entirely consumed when heated in the open air.

I have analyzed the pseudo-morphia; this analysis, compared with that of morphia, ought to have considerable interest; I have repeated it several times, as well with the substance treated with ammonia, as with the micaceous matter, bearing in mind, in this latter case, the quantity of sulphuric acid contained in it. In this analysis I was assisted by M. Walter, a young and skilful chemist; the results are as follows:—

Direct analysis.

Carbon	52,74	54 atoms.
Hydrogen	5,81	36 —
Nitrogen	4,08	2 —
Oxygen	37,37	14 —

Analysis by calculation.			In 100ths.
Carbon	54 atoms	2066,74	53,41
Hydrogen	36 —	225,00	5,81
Nitrogen	2 —	117,64	4,57
Oxygen	14 —	1400,00	36,19
		3809,38	99,98

On calling to recollection the analysis of morphia, which has been already cited, we shall readily perceive how far the pseudo-morphia differs from morphia in its composition.

It would be rather curious to learn its action on the animal economy; with this view I sent some to M. Magendie, and meanwhile, I gave half a gramme to a rabbit, which did not appear to be in any way affected by it.

If this pseudo-morphia is not morphia, may it not be said to be a peculiar compound of that base (I do not think so) which can resist the action of acids and alkalies, and in which the morphia has lost all its dangerous powers?

Action of paramorphia on the animal economy.

A paper, by M. Couërbe, has recently appeared in the *Annales*, on the same subject as that of this essay. I shall not

enter into discussion with him on the few points on which we are not agreed; these slight differences between two authors, directing their attention to the same work, are almost inevitable. There is however one point on which I must make an observation. M. Couërbe attributes the discovery of the paramorphia entirely to M. Thiboumery, forgetting that at that time I was engaged in experiments relative to the analysis of opium, in which I included the various experiments which were conducted on an extensive scale in my manufactory, and which were skilfully managed by M. Thiboumery in concert with me, and directed to the accomplishment of the object which I had in view. M. Couërbe also forgets, that before either he or I (I forget which, for he was then employed in my laboratory,) had the idea of passing a current of carbonic acid gas through lime water, holding morphia in solution, I had already proved that morphia was present in the lime water, and could be precipitated by ammonia, if the liquid had been previously acidulated with hydrochloric acid.

I cannot tell why M. Couërbe has given the name *thebaine* to the paramorphia; it would seem to indicate that it is met with only in the opium of Thebes or of Egypt, while the fact is, that the opium of Smyrna yields the largest quantity. However this may be, I thank M. Couërbe for having devoted himself to labours, which prove the discovery which I have made of two new principles in opium, narceine and paramorphia, and for having added some interesting facts to the history of this latter substance, which appears to play a prominent part in the action exerted by opium on the animal economy. In fact, hitherto it has not been known to what were due the exciting effects frequently produced by opium, and which complicate its narcotic and sedative action; the properties of narcotine, morphia, and codeine could not explain it. It appears now that they are owing to paramorphia. Dr. Magendie sent me the following letter on the subject on the 6th of last August:—

"My dear Colleague,

"I have tried your two substances; the pseudo-morphia does not appear to me to have any action on the animal economy; I cannot say the same with regard to the paramorphia. This substance causes tetanic symptoms in the dose of a single grain. It seems to me to be difficult to distinguish its action from that of brucia, or of strychnia; it would be useful to make comparative experiments relative to its activity, with respect to those two substances, which I have not hitherto done. However, it induces tetanus, and kills dogs in a few moments, when it is injected into the jugular vein, or into the pleura, in grain doses. I am not aware that any medicines can be prepared from either of these two substances, but the analogy of the physiological action of paramorphia with that of strychnia, seems to me to deserve peculiar attention.

"Your's affectionately,

(Signed) "MAGENDIE."

From the facts in this memoir it follows that:—

1st. The existence of two new principles in opium, the narceine and paramorphia, discovered by me, can no longer be doubted.

2nd. That the codeine, discovered by M. Robiquet, is not the result of a re-action; that, from the same quantity of opium, we can obtain narcotine, morphia, narceine, meconine, codeine, and paramorphia.

3rd. That paramorphia is one of the most active principles of opium.

4th. That the crystalline matter of M. Dublanc is a mixture of codeine and meconine.

5th. That pseudo-morphia is a substance which is occasionally met with in opium, having well-marked characters, but that at present we cannot indicate the circumstances under which it is produced:—and

6th. That the opium of France, collected in the Landes, contains more morphia than that of Asia, and that it also possesses codeine, but is entirely deprived of narcotine.

Remarks on the Use of the Essential Oil of Turpentine in the Treatment of Iritis, with Cases: by John Foote, Jun., Esq., M.R.C.S., Fellow of, and Secretary to, the Medico-Botanical Society. *Read May 25th*, 1836.

From the rapidity with which inflammation of the iris proceeds to its terminations, the injurious consequences resulting to vision when the disease is unchecked in its progress, and the severity of the remedies required to effect a cure, it is now generally looked upon as a complaint of paramount importance in ophthalmic nosology; and, indeed, it has, at least of late years, attracted great attention, both as to its semeiology and its treatment. It must be fairly confessed that, until within these few years past, ophthalmic medicine and surgery were almost wholly abandoned to the empiric; there were not many educated members of the profession who had paid any especial attention to the subject, or who knew aught respecting the maladies of the eye, or of the measures necessary to be pursued for their relief, save such information as might have been acquired in a twelve-months' hospital practice, and the experience gained by acting on general principles. Some years back, there were few to teach, and one might almost say, fewer still to be taught: but affairs are now better managed: we have at present two ophthalmic hospitals in London, and infirmaries of a similar character are springing up all over the kingdom. Formerly, cases of diseases of the organ of vision were rarely seen by the student: a case here and there might occur, but in no ways in sufficient number to enable him to class them properly, to distinguish one disease from another which might bear a certain degree of resemblance to it, or to be capable of obtaining much practical information on the subject. At the institutions, however, to which I have just alluded, it is no uncommon thing to see between one and two hundred patients daily, presenting

every variety of disease to which the eye may be subject, and offering an excellent field for investigation, and a valuable source of information and experience for the diligent and attentive student. It was formerly very much the custom with the surgeon to refer these cases to the *pure oculist*, a decision to which the public had become so accustomed, as, at last, seldom to trouble the medical practitioner, but to apply directly to the empiric. Among the improvements of these latter days, then, we may reckon the study of the diseases of the eye by the regularly-educated practitioner, and the consequent return of those diseases to their proper domain, that of general surgery.

Among the improvements which may be referred to this change, may be remarked a better classification of these diseases, and a more extensive knowledge thereof among general practitioners; while, at the same time, it must be acknowledged on all hands, that the ophthalmic materia medica, (if such a term may be applied to the remedies used in their treatment,) has received many and important modifications, and has undergone various alterations, which of themselves are suffient to make a new era. I need scarcely recal to my hearers the advantages which are derived from the substitution of the stimulant plan of treatment for the antiphlogistic, in many of the cases in which the latter was previously employed: in a paper which I had the honour of submitting to this Society a year or two since, and which was published in your Transactions, they were detailed at some length. Although not as yet admitted by every member of the profession, (and indeed what fundamental change in therapeia ever is completely acknowledged even for years after its introduction,) still it has obtained a celebrity and renown which can be only owing to its real value and importance. In Great Britain, and in Ireland, on the continent of Europe, and in America, this plan of treatment is now fully put in practice, and with marked success: Baron Graëfe, of Berlin, one of the first surgeon-oculists of the present day, alluding to the ointment of the nitrate of silver,

as a stimulant application, gives it the name of the "unguentum magicum."

A general consequence of the introduction of new medicines and new modes of treatment, is, that some are found to fail; a few by those even who are the first and perhaps the only individuals who ever give them a trial; but the larger proportion are discovered to be of little importance, only after having enjoyed a certain degree of vogue and reputation. Such is the case, more or less, with the majority of the remedies which are introduced to public notice; it is seldom that they succeed equally well in the hands of others as in those of the medical practitioner by whom they were originally brought forward. When, then, we find several persons concurring in their testimony with regard to the value of any particular medicine, and those too at a distance from and unconnected with each other, their observations being based on direct experiment, and not on simple analogy or hypothesis, it may be fairly concluded that there are grounds for their assertions, other than those afforded by hope, or the enthusiasm which may lead a discoverer, unconsciously as it were, to exaggerate facts, and to cause them to coincide with his hypothesis, and not to shape his theory according to his facts.

To return to, or rather to commence with, the proper subject of this paper—the use of the oleum terebinthinæ in iritis, I may observe, that in the year 1829, Mr. Hugh Carmichael, of Dublin, published a work, entitled "Observations on the Efficacy of Turpentine in the Venereal and other deep-seated Inflammations of the eye," and thus first drew the attention of the medical profession to the use of a remedy which, although generally employed previously in other complaints, had not, up to that period, if my memory serve me truly, been used as an ophthalmic remedy.

The majority of the members of the medical profession who are present, must have seen cases of iritis consequent on protracted secondary syphilis, when the constitution has been so

shattered by the continuance of the disease, and by the severity of the remedies necessary for its removal, as to be unable, without most serious mischief being inflicted, to undergo a mercurial course, pursued with the vigour which is requisite for the cure of inflammation of the iris, so as to preserve vision, and prevent the adhesive process, which it is so liable to, from taking place. To effect this object, it is absolutely necessary to induce ptyalism in a very short time: the mercurial action should be in force ere the lapse of forty-eight or at the utmost seventy-two hours: in some cases, the latter period will prove too long a delay. Mercury, in whatever form it is administered, must be given in rapidly-repeated doses, to cause its action on the system to be manifested in so short a period; and it becomes self-evident that such cannot be borne by a shattered constitution, worn out by debauchery and disease. Again, we meet with cases where even the smallest quantity of mercury cannot be administered, owing to that peculiarity of the system called idiosyncrasy: how then are we to proceed? Must we, per force, allow the disease to gain head, the pupil to become fixed, lymph to be poured out and become organized, adhesions to take place, irregularity of the pupil to ensue, thickening and opacity of the lens or its membrane to follow, or else a closed pupil, with more or less complete loss of vision; or shall we seek for some other remedy, less likely to prove injurious to the system, and not capable of offending the laws of idiosyncrasy in these particular cases? Decidedly such is our duty: it is our task to minister to, and relieve the sufferings of our fellow-creatures, and happy indeed is he, and ought he to be, who can add another to our means of cure.

The task to which I have alluded has been accomplished: another remedy has been found, suited for the removal of a disease, which, by its extreme tendency to deprive the sufferer of one of the most important organs of the body not essential to life, merits the deepest attention that can be bestowed on it. That remedy is *turpentine*.

I do not mean to state that turpentine will effect a cure in every case in which it is administered: I know it will not; and there are cases in which, after it has been fairly tried, it has been deemed needful to have recourse to mercury. Still, it may be said, that these cases form, as it were, the exception to the rule: in a large number in which I have used it, and seen it used, it has proved of great service.

Mr. Hugh Carmichael gives the following directions for its exhibition:—"I use the turpentine," he says, "in this complaint in drachm doses, given three times a day: its disagreeable flavour and nauseating effects I have found best obviated by almond emulsion. This circumstance it is very necessary to attend to, the medicine being so unpleasant that, if its taste be not in some way disguised, it is difficult to depend on patients taking it with the necessary regularity. In the formation of the emulsion, if double the quantity of confection directed in the London Pharmacopœia be employed, (that is two ounces to the half pint of water,) it answers the above objects much better: the residuum may be removed by straining.

"With an emulsion so made, the following is the formula I now generally adopt:—℞ Olei terebinthinæ rectificati ℥j, vitellum unius ovi; tere simul, et adde gradatim emulsionis amygdalarum ℥iv, syrupi corticis aurantii ℥ij, spiritûs lavendulæ compositi ʒiss, olei cinnamomi guttas tres vel quatuor. Misce; sumat cochlearia larga duo ter de die.

"In a few cases it has been necessary to increase the quantity of turpentine to an ounce and a half or two ounces in the above mixture, the other ingredients being proportionally diminished, so that a drachm and a half or two drachms of it may be taken each time; but, in general, when administered to the extent directed in this formula, it has very seldom indeed failed, though extensively tried, and in very urgent cases: the instances of its failure shall be presently noticed. The strangury, so frequently induced by the internal use of the turpentine, is obviated by the usual means, flax seed (the linseed of England,)

tea, and camphor julep; when very urgent, the medicine may be suspended for a time. The tendency to acidity in the stomach, which it sometimes causes, is relieved by the addition of carbonate of soda to the mixture: ten or fifteen grains to the eight ounces will be sufficient. Some patients have said the taste was further disguised by this addition.

"When the local inflammation runs high, and acute pain is present in the eye and side of the head, the abstraction of blood from the temple by cupping, or the more immediate seat of the disease by leeching, may be resorted to: the same practice is adopted even when mercury is used. Nevertheless, I have frequently, when these symptoms were very urgent, relied solely on the turpentine mixture, and with most decided and expeditious relief: indeed, in some instances, where the pain and hemicrania existed as acutely as they are perhaps at any time to be met with, patients have declared they were considerably relieved after they had taken it once or twice, and that its subsequent exacerbations were lessened in a remarkable degree. It is in the former cases I have generally found it necessary to follow up the bleeding by increasing the quantity of turpentine.

"It is highly necessary to observe that the condition of the bowels will require attention: the beneficial effects of the medicine appear to be, in certain cases, suspended when constipation is present, and are called forth, as it were, when this is removed."

It was from the acknowledged influence of turpentine in peritonitis, and the analogy in point of morbid effects between inflammation of the peritoneum and that of the iris—in both cases, a serous membrane being engaged, and, in both, adhesions being produced between surfaces intended to be free, that Mr. Carmichael was led to make use of it in iritis: he deems that it acts in the same manner that mercury does, by exciting the absorbents.

I am not inclined to subscribe altogether to this explanation of the *modus operandi* of the oil of turpentine, but feel more willing to ascribe it to the general principle of counter-action,

upon which indeed the *methodus medendi*, in nearly every case which may come under the notice of the physician, is based. Turpentine proves beneficial in the treatment of inflammation of the iris, in my opinion, by exciting irritation in the alimentary canal, and more especially in the urinary apparatus; the cases which have been most successful, of those which I have seen at least, have been those in which severe strangury has been excited. The degree of counter-irritation thus set up will readily account for the removal of the original disease. I may add, that in one case, treated for the sequelæ of iritis, attended with chronic inflammation, this irritation, singularly enough, could not be produced, (notwithstanding the violet odour was so powerful that it was complained of in the house in which the patient lived, and he was accordingly obliged to shift his lodgings,) and accordingly no benefit was experienced from its use. I have already said, that it was from the acknowledged influence of turpentine in peritonitis, and the analogy in point of morbid effects between inflammation of the peritoneum and iris, that Mr. Carmicheal was induced to give it a trial: now as he has taken the example of the use of turpentine in peritonitis to strengthen his opinion, I hope I may be allowed the same privilege, of which I shall instantly avail myself, and proceed to ask, in what way turpentine acts in curing that inflammation? If we consult the best works on that subject, we shall find it attributed to the irritation produced along the whole of the alimentary canal, not the intestinal tube only, as it produces nausea, and frequently vomiting. When we consider the immense extent of surface exposed to the action of this medicine in that canal, and recollect the degree of irritation produced by a common purge, we shall have no difficulty in subscribing to this doctrine; and then, reasoning by analogy, if it act thus in peritonitis, it surely may do the same in iritis.

As I am unwilling to occupy much more of the Society's valuable time, I will now proceed to narrate some cases, in illustration of the remarks which I have offered.

Case I.

James Brown, ætat 24, was admitted a patient at the Westminster Ophthalmic Hospital June 20, 1830. He was a patient at this hospital in the previous month of April with iritis of the right eye, which was speedily cured by the oil of turpentine. He had gonorrhœa at the time, but the discharge from the urethra ceased soon after the eye became inflamed, and has not appeared since. His left eye is now attacked with the same complaint: he says that it has been inflamed for the last three days, accompanied with pain and dimness of sight. The iris is discoloured, pupil slightly irregular and dilated, and there is a bright zone of pink vessels round the cornea. The other tunics remain comparatively healthy. Complains of severe pain round the orbit, and slight intolerance of light. Habeat olei terebinthinæ drachmam ter die.

23*rd*. Pain much relieved: the inflammation and dimness of sight however unmitigated. Has taken the medicine regularly, but it has not produced any uneasiness in the urinary organs. Ordered to continue the turpentine.

24*th*. Not so well: circum-orbital pain worse: conjunctiva and sclerotica more inflamed, and pupil more irregular: complains of slight strangury. To continue the turpentine, and to drink plentifully of linseed tea. To lose also twelve ounces of blood from the left temple.

26*th*. Much the same. Pain and inflammation not relieved by the cupping. To take a drachm of the oil four times a day.

3*rd July*. Has taken his medicine regularly, with the precaution of drinking plentifully of linseed tea, and has not experienced the slightest strangury. He may now be considered as cured, only a slight redness of the sclerotica remaining. The pupil is regular, and acts freely. He says that he suffers no pain, and that his sight is completely restored. As the turpentine gives him no inconvenience, he is directed to continue it a day or two longer.

Case II.

Jane Spittle, ætat 36, admitted May 18, 1830, with syphilitic iritis of the right eye, accompanied with sore throat and eruptions on the

skin. She was ordered a pill, composed of three grains of calomel and a quarter of a grain of opium, three times a day. She did not attend again until June 29, when she stated that she had only taken four pills, when her face became very much swollen, and she was confined to her bed for three weeks, suffering under a dreadful salivation, from which she has not yet quite recovered: her eye and throat, however, gradually got well during that period. She has now returned with a similar attack of inflammation of the left eye, which has been gradually getting worse for the last week. She complains of the most acute pain over the brow, and extending down that side of the face, so intolerable at night that she cannot sleep. The conjunctiva and sclerotica are very much inflamed, leaving, however, a very distinct white line round the margin of the cornea: iris much darker than natural: pupil of the same size as the other, but rather irregular and fixed: the cornea remains clear: the lids are rather swollen and inflamed. Three days back, to relieve the pain, she was cupped, and took a drachm of the vinum colchici at night, but without benefit. She complains also of great weakness, with sickness and loss of appetite: pulse quick and small—bowels confined.

Habeat pulveris jalapæ compositi drachmam statim.

Capiat olei terebinthinæ drachmam ter die, et pulveris ipecacuanæ compositi grana decem nocte.

1*st July.* The inflammation continues much the same: the pain, however, has been less severe at night. To continue the medicines.

3*rd.* Says she suffered more pain last night, and attributes it to not taking her medicine yesterday, the turpentine having caused a good deal of nausea and strangury: bowels very much confined. Let her continue the turpentine, and drink plentifully of linseed tea.

Sumat pulveris jalapæ compositi drachmam cum semisse statim.

6*th.* Much better. The inflammation has considerably diminished, and she has very little pain at night.

Repetantur medicamenta.

8*th.* Nearly well. Very little redness remaining: pupil rather small, but regular. Says she is quite free from pain, and her sight very much improved.

Pergat; applicetur emplastrum belladonnæ tempori sinistro.

10*th*. The eye appears perfectly healthy. She is to continue the medicine however a few days more, as vision is not quite so distinct as it was.

Both these cases were communicated to me by a medical friend now in the army.

Case III.

Thomas Calvers, ætat 23, admitted June 6, 1831, is suffering from severe inflammation of the iris of the left eye. In October last, he had a chancre, and was salivated: he was cured in about a fortnight. A short time before the chancre healed, a discharge, *per urethram*, came on, attended with severe scalding pain on voiding his urine: the discharge continued some time after the scalding ceased. About a fortnight after the gonorrhœa was cured, the throat became inflamed and ulcerated: this was in last February: it has continued painful and inflamed ever since.

A month since the eye became inflamed, and got gradually worse: leeches were applied, which gave him considerable relief. The iris and conjunctiva are very much inflamed; the pupil contracted; the throat in a state of ulceration. Habeat olei terebinthinæ drachmam ter in die.

10*th*. He is free from pain in the eye, and there is not any sensation of itching. His eye felt better on the evening of the 9th. The throat is better: the urinary organs are slightly affected. Repetatur oleum.

13*th*. On the 11th there was a slight degree of pain in the eye, which went off in the evening. On the 12th the pain was more severe. He complains to-day of a slight pain in the eye: the iris is somewhat irregular: a few spots are making their appearance on the back: throat more painful. He has pain in the loins, and a slight degree of pain on voiding his urine. Applicentur cucurbitulæ cruentæ tempori, et detrahetur sanguis ad uncias decem: repetatur oleum terebinthinæ: instilletur gutta solutionis belladonnæ.

The application of the belladonna partially dilated the pupil, and showed plainly its irregularity.

15*th*. Scarcely any pain in the eye. Suffers great pain while at stool, with slight scalding on passing his urine. Pergat.

17*th*. The inflammation of the iris has disappeared: the bowels are violently acted on by the terebinthina: no pain, but slight dizziness. Omit the turpentine, and let him drink freely of linseed tea.

℞ Magnesiæ sulphatis ℥j mane sumenda.

18*th*. The inflammation has recurred, attended with pain, etc. Let him resume the use of the turpentine.

19*th*. The right eye is slightly inflamed: the infus. lini has removed the scalding. Repetatur.

22*nd*. Complains of headache. Applicentur cucurbitulæ cruentæ tempori et detrahetur sanguis ad ℥x.

℞ Magnesiæ sulphatis ℥i. Antimonii tartarisati gr. ij, nocte sumenda. Omit the terebinthina.

The inflammation of the iris in a day or two after this date disappeared, and the man was finally cured of his constitutional symptoms, but the treatment was very protracted.

Case IV.

Wm. Chalfont, ætat 18, admitted July 21, 1829, with syphilitic iritis of the left eye. He reports himself to have had sores on the penis some time since. He has now a copper-coloured eruption (the lichen syphilitica) very plentifully on the back and arms, accompanied with nocturnal pains in his shin bones. He has not had a sore throat, nor has he taken mercury. His eye has been inflamed for three days past, and he suffers severe circum-orbital pain, especially at the lower part: vision is also considerably impaired. The iris is much changed in colour, and is immoveable: pupil regular: conjunctiva inflamed: and the vessels of the sclerotic are of a pink colour, and very numerous round the margin of the cornea, forming a beautiful zone, with a white inner circle immediately surrounding the cornea.

℞ Olei terebinthinæ drachmam: capiat æger ter in die.

22*nd*. Has taken his medicine regularly: makes water more frequently, but without any pain: urine high coloured. He suffered much pain in the eye last night, from which he is now quite free. The iris is not so much discoloured, but the vascularity of the con-

junctiva and sclerotica is just the same as yesterday. Says the medicine makes him feel sick. Continue.

23*rd*. The circum-orbital pain is as severe as ever, but the inflammation is lessened, and vision is improved. He complains of great pain in the glans penis during micturition: urine bloody and turbid. Pergat. Habeat infusum lini ad libitum.

24*th*. Pain round the eye not diminished: the iris is becoming irregular, and more changed in colour, with small globules of lymph adhering to its surface. He has frequent calls to empty the bladder: urine bloody on voiding it. He suffers extreme pain in the hypogastric region, extending also along the urethra to the glans penis. Let him be cupped to ten ounces from the temple, and continue his medicine.

25*th*. Would not be cupped, and did not take his medicine yesterday: he sees better, and does not complain of any pain: the vascularity is not so great: the strangury continues severe. Pergat in usu olei terebinthinæ et infusi lini.

28*th*. Had a purgative on the 26th. Has not taken the turpentine regularly since the last report: he has not any pain in the eye, and vision is quite restored. The urinary organs continue highly irritated: the eruption is paler. Instilletur gutta solutionis belladonnæ. Habeat pulveris jalapæ compositi drachmam.

30*th*. The strangury is lessened: the eye continues free from pain, but the vascularity is not removed: the iris has nearly regained its colour, but is irregular. Let him re-commence the turpentine.

The terebinthina was used for a short time with decided advantage: he again omitted it too soon, and was obliged to resume it. When discharged, the redness had disappeared, the iris had regained its natural colour, and the pupil was regular.

I shall conclude this detail of cases with the narration of one in which the turpentine proved decidedly effectual, its influence being exerted very powerfully on the renal apparatus; a relapse taking place, the disease was removed by mercurial and saline purgatives.

CASE V.

William Anderson, ætat 37, admitted November 5, 1829, states,

that about twelve months ago he had sores on the penis and suppurating buboes, for which he was treated in the Winchester Hospital, and there salivated. About three months after a lichen appeared on the arms, sometimes disappearing, but not entirely, and always re-appearing ere the lapse of a month. There are at present a few spots remaining on the arms, shoulders, and legs, with a large crop at the nucha. He has had a sore throat for the last three months, and, for the last three weeks past, the right eye has been inflamed.

The iris is somewhat changed in colour and irregular: it is much contracted, and does not obey the stimulus of light. The sclerotic and conjunctival inflammation are intense, the latter extending to the lids: vision is nearly lost: he complains of great pain around the brow, and a sense of soreness in the ball of the eye, attended with great lachrymation. Capiat olei terebinthinæ ʒj, ter indies.

7*th*. Iris irregular—more changed in colour: anterior chamber rather cloudy: complains of having suffered severe pain in the brow last night, which lasted three or four hours. (Has only taken three doses of the mixture; two yesterday, and one to-day.) Applicentur cucurbitulæ cruentæ, et detrahetur sanguis tempori ad ʒxij. Pergat cum oleo terebinthinæ.

8*th*. The cupping has removed the pain, and he says he thinks his vision is improved: the iris is still much contracted and irregular, colour not so much changed: the sclerotic inflammation much relieved. Says that he does not experience any nausea, but that he has great pain in the penis after micturition. Bowels confined: has taken his medicine regularly. Habeat pulveris jalapæ compositi drachmam cum semisse statim. Persistet in usu olei terebinthinæ. Applicetur gutta solutionis belladonnæ. Habeat decoctum hordei pro potu ordinario.

10*th*. The pupil dilates a little—is rather irregular: iris still slightly changed in colour: sclerotic inflammation nearly removed: has not any pain either in the eye or head: complains of strangury: has severe pain in the whole course of the urethra, after the discharge of some bloody urine, which occurs every half hour. Omitte oleum terebinthinæ. Habeat pulveris jalapæ compositi drachmam et semisse statim. Repetantur belladonnæ et decoctum hordei.

11*th*. The iris has regained its natural colour, and the pupil is

very nearly regular: vision much improved: there is still some slight sclerotic inflammation: no pain either in the eye or head. Complains severely of the strangury: states that it prevents his sleeping at all at night, as he is obliged to rise every ten minutes. The jalap did not act. Let him lose twelve ounces of blood by cupping from the perinæum. Habeat hydrargyi submuriatis grana sex horâ somni, et pulveris rhei semi-drachmam cras mane. Repetantur belladonna et decoctum hordei.

12*th*. The cupping was practised on the temples by the mistake of the operator: vision much improved: strangury still severe. Pergat.

14*th*. The iris is again much changed in colour, with contracted pupil: sclerotic inflammation very severe. States that his vision is now as imperfect as at the commencement of the complaint: complains of the strangury: has bloody and painful micturition every hour.

℞ Hydrargyri submuriatis grana sex statim.
Magnesiæ sulphatis unciam mane primo.
Pergat in usu decocti hordei.

15*th*. Is free from pain in the eye, and he thinks his vision is improved: sclerotic inflammation appears to be rather diminished: iris still much changed in colour, and pupil irregular: has less pain on making water, and he does not pass so much blood. Repetantur omnia medicamenta.

17*th*. Is much improved: says that he sees much better, and his eye feels stronger and free from pain: strangury less severe. Repetantur belladonna et decocti hordei.

19*th*. Is nearly well. The iris has entirely regained its colour, but he is directed to continue the belladonna for irregularity of the pupil.

Remarks on the Indian Practice of Medicine in Guiana; on the Haiowa-bally, and other Plants employed by the Natives: by Dr. Hancock. *Read June 22nd*, 1836.

The Macoosis, the Caribs, and some other Indian tribes of Guiana, take a very effectual method of relieving themselves when attacked by fever, inflammation, rheumatism, etc., by the use of hot ptisans, made of sudorific plants; with which also they often employ a sort of vapour bath. This combined practice appears to be extremely efficacious. They envelope the whole body of their sick in the aromatic leaves of the *Alpinia odorata*, the banana, or other large leaves; and the patient being slung in his hammock, they make a large fire on each side of it, and give him warm fluids in quantity. By these means they soon bring on a copious perspiration; so that the sweat, flowing from the whole surface of the patient's body to the most depending point, may often, under this treatment, be seen to trickle down in a small stream. This process is sometimes maintained for an hour or more; the patient falls into a sleep, and awakes mostly freed from his complaint, especially if these means be early resorted to.

There are a great variety of plants used by them internally and externally, prepared by hot infusion, and as baths. The more efficient are the leaves of the common cashew (*Anacardium occidentale*), the haiowa-bally, and the turpentine guava. The latter grows in abundance along the banks of the Essequibo, and exhales a strong odour of turpentine. The cashew leaves are a mild and very agreeable aromatic, and seem to possess a nervine or antispasmodic property; these plants, infused together, appear to augment each other's effects. The same means prove most successful against the numerous poisons, animal and vegetable, which abound in hot climates; as also in cases of catarrh, rheumatism, and dysentery, which, in their

incipient stages, are speedily removed by this method; more especially when conjoined with sarsa, coruru (*Lobelia*), haimarada (*Vandelia diffusa*), asclepias, and other potent indigenous alteratives. Many of the most stubborn diseases may be thus removed; such as dropsies, inveterate ulcers, and affections of the skin, not excepting even tubercular leprosy (*Lepra Arabum*), which, although classed amongst the *Impetigines*, is a loathsome disease of the entire system—of solids and fluids—commencing chiefly in the glandular structure; a disease, at present, happily unknown in this country, but very prevalent in hot climates, and, curious to say, in some of the coldest,—it being clearly identical with the Norwegian *Kadesyge*. The disease is generally considered incurable; the reason for which, I think, is not difficult to explain. It is, I conceive, because mankind are ever bent on the delusive search after *specifics* or *single* medicines for the cure of diseases, instead of seeking the co-operation of all the means available, and employing, alternately, combinations of the more efficient known remedies, conjointly with baths and other external means. It will, indeed, be vain to attempt, by the use of any single remedy, removing a stubborn chronic malady; and the medicine, whether simple or compound, unless duly alternated, will, after a time, lose its effect or cease to act on the absorbent and secerning functions; and it is through these functions, that both food, medicines, and poisons, act on the living system. In cancer, for instance, one practitioner attempts its cure by the use of hemlock, another with arsenic or corrosive sublimate. The first medicine fails, another is tried, and so on; the disease gains ground under this feeble practice; whilst the *collective* method, by the combined use of alterative, diaphoretic, and resolvent agents, is seldom thought of. In hot climates we not unfrequently meet with an inveterate complication of distempers, such as yaws, scurvy, leprosy, syphilis, etc., which would never yield but to a union of powerful agents. Some medicines there are which act with much energy on the glands and absorbents, and on the secretions generally; such are senega, lobelia, hel-

lebore, and celandine: and these are amongst the most efficient alteratives. But to resume the subject of the Indian practice:

The infusions or decoctions of divers herbs, roots, and barks, are resorted to by the natives, in fevers; and, for the most part, as hot as they can well be swallowed. This practice, although in general but little noticed, has long since appeared to me to be attended with very important advantages: when thus employed, the active properties of plants are more completely evolved and retained in solution, and are the better fitted to enter the absorbents and capillary structure. This is exemplified in the familiar mode of making tea and coffee, which we find more exhilarating when hot and fresh made, because their more subtle and active principles are thus held in solution; and it accords well with Lord Bacon's remark, that, to obtain the cordial and exhilarating effects of borage, it should be taken hot, in a light and recent infusion.

By the use of these infusions, by vapour baths, and frictions, the natives of hot climates often succeed in arresting, at their onset, the most perilous, ardent, and typhoid fevers. If by such methods we are enabled to stay the ravages of those dire maladies, it is surely better so to do than to stand still, as some advise, or merely employ a placebo, till the disease has worn itself out, and left the patient *hors de combat*. In fact, these simple means are of greater value than all the tortured chemical preparations, from the far-fetched, and often decayed, drugs of the shops; whose chief recommendation (and that only with the ignorant,) is, their high price and distant origin.

The advantages of *Iatroleiptic* methods used by the Indians might indeed be exemplified by referring to a valuable paper by Dr. Sigmond, on endermic medication. The natives employ divers narcotic and acrid plants externally, which is, in general, more safe and beneficial than by internal use.

These people derive additional advantages from the use of medicines fresh and unsophisticated, whilst many of the medical practitioners of Europe and America seem to entertain an

exclusive preference for the drugs brought over sea; and, from delusive theories, they are sometimes led, perhaps, rather to counteract than to assist the efforts of nature.

The *primæ viæ* should indeed be kept free; but the practice of giving strong purgatives in the early stages of acute diseases, has been condemned by the wisest of the ancient physicians; and we do not find that fevers are promptly carried off by purging, as they often are by promoting the functions of the absorbent and exhalant vessels, or by what may be termed the sweating plan, assisted with moderate depletion.

Although, as some assert, the unfashionable and antiquated doctrine of the humours be unworthy of regard in the present enlightened era, yet few will deny that exposure to cold, and obstructed perspiration, are amongst the chief exciting causes of our disorders; and it seems most natural to regard the speedy removal of the cause, as the readiest mode of arresting any malady. Hence, although other experience were wanting, the Indian method of sweating, with the use of baths and frictions, would seem to be, at least, as rational as any other.

Although, in hot climates, the essential properties of plants may be more highly elaborated, yet those of this country are doubtless equally adapted to its diseases, which are not, in general, so vehement as those of tropical countries; and, when we consider the wise adaptations every where manifested in the works of the Creator, it seems not unreasonable to suppose, that every part of our globe is provided with remedies suitable to the disorders of its respective inhabitants. This position, however, has been too well illustrated by our noble and learned president, Earl Stanhope, to require any remarks here. I well know, from experience, that an infusion of sage, balm, and agrimony, with vapour baths, afford the most speedy relief in febrile disorders, when early resorted to—before internal congestion, or inflammation, has become established in vital parts; and that the same means prove most available against animal or vegetable poisons, when carried into the mass of blood; for, as Dioscorides has

justly remarked in his *Alexipharmics*, these poisons, for the most part, act in a similar manner, and are cured by the same means. But besides those just mentioned, many other disorders, acute and chronic, are removed by promoting perspiration, and by the use of divers sudorific and resolvent herbs; and I have known cures thus effected in dropsies, which had placed the usual means at utter defiance. Experience of this sort amongst "the savages," has, in my estimation, greatly depreciated the value of our boasted pathology, our speculations as to the tissues, our affected discriminations and *hair-breadth* distinctions.—When I saw these savages so successfully remove, by one and the same method, various disorders, supposed to differ most widely in their nature, I began to reflect, not only on Rowley's 130 diseases of the eye, but also on Cullen's numerous *genera*, (not to mention species) of inflammations and fevers; on the formal distinctions, sub-divisions, and dogmatical indications laid down for each, as though they were all real entities, and these as distinct, if not so distant, as the antipodes. But where are the broad distinctions between inflammation in one part and inflammation in another,—whether the concomitant, perhaps consequent, fever depends on a lesion of this organ or that, and why so many affected differences in the treatment, for the cure of diseases so similar?

The Indians are very deficient in respect to surgical operations: they have, indeed, no more idea of amputating a limb to save life than of decapitation for the same purpose. Fortunately for them, however, they are very successful in healing wounds and ulcers; so that with them there is much less need of using the knife in a given number of cases than in our magnificent hospitals, where a very summary mode prevails of *curing* limbs by amputation.

I have often known the Indians to make sound cures of limbs which have been doomed to amputation by European practitioners; they often, I may say, show more skill, if not more humanity, in healing sores by constitutional treatment,

than is usually practised in our *asylums*. This is not strange, for they follow nature and experience, whilst we are carried about by a thousand delusive theories. Common sense teaches them what our perverse dogmas deny,—that ulcerations, eruptions, and diseases in general, do not originate without some constitutional fault; and, like Hippocrates, Sydenham, and the wisest physicians of all ages and countries, they refer such fault mainly to the *humours*; although they are, perhaps, not aware of the fact, that these form the chief bulk and weight of our bodies. It may also be observed that they pay no regard whatever to the notions of John Hunter, Home, or other eminent surgeons, respecting the ill effects of the atmosphere upon sores; for, after washing them with strong decoctions of astringent barks, leaves, etc.—as the patient lies in his hammock, (a mode of repose which never occasions excoriations or bed-sores),—they place the limb in a horizontal position, and leave the raw surfaces entirely uncovered and exposed to the air.

Remarks on the Haiowa-bally.

One of the important remedies amongst the Arowaks, is the Haiowa-bally, before noticed, which is employed in all febrile disorders. It is a small composite plant, growing on sandy soils in divers parts of Guiana; a powerful diaphoretic and febrifuge remedy. A specimen of the plant was, some years since, laid before the Medico-Botanical Society.

But as it may be a nondescript, I shall here briefly annex its botanical characters. It ranks, in the sexual system, under the class Syngenesia, and order Polygamia necessaria. *Receptacle* slightly dilated; the common calyx consisting of seven oval leaflets. Male flowers tubular, five or six in number, and quadridentate. *Anthers* sessile, oblong, united in a cylinder. Female florets tubulate, four or five in number, occupying the radius. *Pistillum* bifid, with a small compressed seed. *Leaves* lanceolate, opposite, sessile.

This useful and fragrant little bushy plant, which grows to

about one foot in height, is covered with a soft white down or tomentum. It is found only on dry sandy soils;—abundant at the *sand hills* on the Demerara river; in Pomeroon, and in divers parts of Guiana. It is employed by the natives, in a hot ptisan, in fevers, dysentery, etc.; and topically in baths and fomentations, for pains and swellings of the joints; being, in fact, considered a sort of panacea, as the siruba is amongst the inland tribes. An infusion of the herb made with boiling water operates as a very certain diaphoretic and febrifuge remedy. By drinking it hot, and covering the patient in bed so as to induce perspiration, it will rarely fail to arrest the paroxysm of an intermittent fever. It is also a useful remedy in chronic rheumatism, both as a ptisan and in a vapour bath, or topical fomentation. It is very bitter, and has a most fragrant camphoraceous balsamic odour, similar to that of the Haiowa tree, from which circumstance the natives give it the name of *haiowa-bally;* the latter term signifies similitude.

The foregoing description was taken on the spot of its growth, when the plant was found in flower up the Creek Wakapow, in Pomeroon, April 1812, at the house of Santiago, a famous old Indian doctor, a Spanish Arowak.

The plant I considered at the time to be of a new genus, but I had then no botanical work at hand to refer to, excepting an early edition of the *Genera Plantarum* of Linnæus; and I have since neglected to make any further inquiry as to its botanical affinities. Like the Indians, however, I have latterly been less attentive to botanical distinctions than to the inherent properties of plants: and the vernacular name only, is of use for finding any plant required.

I have noticed here but a few of the medicinal plants employed by the natives of Guiana: but the appliances from the vegetable kingdom, as Sir Anthony Carlisle has well remarked, present to the medical botanist an inexhaustible store, a most extensive field of research, furnishing as it does the chief resources of the healing art.

Copy of a Letter from Sir Robert Kerr Porter to Sir Henry Halford, Bart., etc., accompanying the following Paper on the Cuichunchulli.*

Corveas, June 25th, 1835.

My dear Sir Henry,

It is I verily believe full four years since I had the pleasure of addressing you, but knowing your invaluable time is so beneficially employed for the well being of others in the Old World, it would be unreasonable in me to expect a letter from you, when, in truth, nothing of consequence required it.

Having requested me when we last separated, should any plants present themselves during my sojourn here, of known medicinal virtues, that I should transmit to you all the information I could collect thereon, I now again act on this wish (notwithstanding the Guaco did not *in England* sustain the character it has borne in South America for ages), forwarding a portion of a plant called *Cuichunchulli*, which grows in the vicinity of Bogota, Popayan, and Cuença, in the central and southern parts of Colombia. Its properties you will find fully explained in translated reports accompanying this letter, made to the Venezuelan government by the Medical Board of Caracas. They may be regarded as doubly official, and fully to be relied upon. A small quantity of the plant has recently been received from the interior, indeed so small as to be sold at twenty dollars the ounce, or 3*l.* 6*s.* sterling.† Your own experienced

* Extracts from a memoir, entitled "Observations on the Cuichunchulli and its use as a remedy in the disorder called Mal de San Lazaro, or Cocobay, by E. N. Bancroft, M.D.," were published by Sir Wm. Hooker in the *Companion to the Botanical Magazine*, vol. I. p. 277. In this paper the cases of Jacob Puche and Miss Macpherson are mentioned, but the actual condition of the patients and "the particular effects produced by the medicine" are omitted, as "more suited to a medical than a botanical journal." These are now supplied, exactly as they are recorded in the original Spanish documents.

† The Society having obtained a considerable quantity of the Cuichunchulli from the states of New Granada and the Equator, through the kindness of the Hon. Fox Strangways, Dr. Lindley, President Rocafuerte, and Col. Wright, will feel great pleasure in assisting any medical practitioner who, having under his care a case of tubercular elephantiasis, may be desirous of trying the efficacy of this root.

judgment will soon enable you to decide whether it may become essentially useful to the European medical professors as a remedy in *cases of that class*, at the head of which stands *elephantiasis*. Should you think the Cuichunchulli worthy of attention, I shall feel truly gratified, and perhaps may be the humble instrument of having introduced it into Europe, for it could not be made known to the learned and able practitioners in the profession under more powerful auspices than yours, or in a way more likely to insure its success, from fair and repeated trials.

You will find with the documents a drawing of the plant, as also a small dried specimen of a part of one of its slender shoots, together with a botanical description of the vegetable; I shall therefore not lengthen my letter with any of the details to be found in the documents above named, but merely say, what pleasure it will afford me to hear whether the Cuichunchulli is likely to become a valuable addition to the vegetable remedies now in use.

My dear Sir Henry,
Believe me always yours faithfully,
ROBERT KERR PORTER.

An Account of the Cuichunchulli Plant and its Effects, transmitted by Sir Robert Kerr Porter. *Read December 14th*, 1836.

All the information I can give relative to the Cuichunchulli, or the *Viola parviflora** of Mutis, is as follows:—

Its medicinal qualities, like those of the *Viola Ipecacuanha*, reside in the root. It may be pulverized and given in doses of half a drachm, mixed with a little warm water: this dose is administered during the first days, or until the system is seen to become sensible to its effects. In order to encourage the perspiration it excites, the patient ought to take several cups of the infusion of the Alder, another sudorific plant. Frequently it produces nausea, and even vomiting, lowness of spirits, and great anxiety of mind; violent perspiration, and copious discharges of urine, as well as a strong salivation.

It is requisite that the patient be kept close to his room during the time of administering this remedy.

The number of doses, as well as quantity, must be augmented according to the effects produced; its use ought to be prolonged for a period as symptoms and circumstances appear to call for. When I have tried it, or seen it tried, more than two months elapsed generally before any sensible effects were visible.

As yet I have not seen any decided cases of elephantiasis cured by administering this plant. In two cases I certainly perceived much alleviation. In one of them was observable an almost total disappearance of the greater part of the symptoms of leprosy, which had already far advanced; but it was not either a complete or satisfactory cure. In the other I remarked some favourable change on the spots of the skin, on the ulcers of the nose, and in the pimples. Jointly with this remedy was used washing the interior of the nostrils with a solution of subborate of soda and corrosive sublimate.

* *Ionidium parviflorum Vent. and D. C.*

I have tried the Cuichunchulli, and seen it tried in four or five cases, but, with the exception of the two I have stated, (where I was called in at a consultation with other medical men), its effects were null, or almost imperceptible.

Many other medicinal virtues are attributed to this plant, but without denying all of them, I must venture to doubt them, or at least to believe, they are greatly exaggerated.

(Signed) J. V.

Translation of the original Document from the Spanish.

EFFECTS OF THE CUICHUNCHULLI.

" To the Secretary of State for the Interior Relations of the Republic of Venezuela.

" Sir, " Maracaibo, July 7th, 1834.

" In order to fulfil the request of the Executive in the most satisfactory manner in my power, relative to affording information on the effects produced by the cuichunchulli, I have the honour of transmitting a legalized copy of the treatment, in the case of Jacob Puche, (labouring under elephantiasis,) whilst he was taking the vegetable, known by the name above stated; detailing likewise the favourable progress made towards his perfect re-establishment. These results took place during the short period that a small quantity was used as a remedy (being all that could be procured), and when exhausted the medicines commonly in use were then resorted to. I must inform you that Puche had suffered ten years under this cruel disease, and without the least amelioration up to the day on which the cuichunchulli was given him; remaining an outcast from society, exciting the compassion of his fellow creatures. All his upper and lower extremities were covered with ulcers, his voice nasal, his countenance livid and disfigured, his ears excessively enlarged, and almost deprived of the sense of feeling. Such were the symptoms the patient presented, identifying his malady with that of elephantiasis. The happy results have been, the return of the sense of feeling, of the voice to its natural tone, the face freer from pimples, the ears nearly reduced to

their proper size, the ulcers closed, the appetite and sleep good, and the whole body resuming rapidly its usual soft hair, especially that of the head, which had been very scanty, even before the man was attacked with the disease. I must not omit also to state, that latterly he was perfectly able to mount an ass without the assistance of any one to lift his legs on the animal. This extraordinary advance to a perfect relief from his malady has continued up to this time, proving the very powerful medicinal virtues of the remedy. But complete success was not attainable in consequence of the want of a further supply of the precious plant, and that at the most opportune moment.

"What had been consumed by Puche, was a portion of some sent from Cuença, by Colonel Francisco Casanova, to his family residing here. This vegetable is, as you know, whitish and very fibrous, and grows amongst the stones in the Paramos (bleak heights). The visible effects produced on Jacob Puche were, by its acting simultaneously as a cathartic, diaphoretic, diuretic, emetic, and sialagogue.

"I am, Sir, etc. etc.

(Signed) "Ramon Fuenmayor."

Details of the effects produced by the Cuichunchulli on Jacob Puche, when suffering under Elephantiasis.

October 17*th*, 1833. He took a dose consisting of half a drachm pulverised and diluted in wine, which augmented the secretion of urine, somewhat excited the perspiration, and produced one evacuation.

18*th*. An equal dose was given in the same liquid, it produced a still greater augmentation of urine and perspiration, with two evacuations.

19*th*. A similar dose in tepid water, produced an augmentation of urine, to the number of thirty times during the twenty-four hours, besides the like number of evacuations, with excessive perspiration. The patient informed us that, after the second day's treatment, he found the sense of feeling returning, and it had gradually increased.

20*th*. The dose prescribed was omitted this day, and the pa-

tient was ordered to take on the 21st forty-six grains in addition, making in all seventy-six grains, which produced three copious evacuations, fetid, and of a most extraordinary colour. Up to this time the visible symptoms of amelioration were the disappearance of a tumour that existed on the calf of the leg, and an ulcer situated on the right metatarsus having so changed its character as to give just hope of a speedy cure. A copious perspiration followed, with augmentation of urine and of appetite, as also an increase of the sense of feeling; and during the night the patient had a fourth evacuation, in appearance similar to that before noted.

22*nd*. He took two doses of forty-six grains each, forming ninety-two grains, which having been sent together, the patient swallowed unhesitatingly the double dose. The following morning his countenance appeared most visibly improved in colour, the before-named tumour very considerably reduced in size, and the ulcer almost closed. At nine in the morning three copious evacuations, same in character as the former; the purging continuing until seven in the evening, so that it became necessary to order the suspension of the specific, to observe on the day following whether it ought to be continued.

23*rd*. The profuse discharges of urine, and the copious perspiration continued, with, however, some trifling degree of diminution; whilst the freer movements of the body increased.

24*th*. He took two scruples, which produced three evacuations; the copious discharges of urine, as well as perspiration and salivation, continuing.

25*th*. Similar doses repeated; three evacuations, with continued perspiration, and increase of urine.

26*th*. A similar dose given as on the 25th, the improving appearance of the ulcers continuing; and finding them cicatrizing, particularly those on the hands, we directed their being washed with a decoction, made from the residue of the cuichunchulli, and that the patient should only take the before administered doses every two days.

27*th*. Two doses were taken; no evacuation produced; after having made water twenty-five times, he was suddenly seized with a pain in his groin.

28*th.* Fearing an augmentation of irritation in the urethra, I ordered the suspension of the specific, and the following day (the 29th), gave the dose of two scruples, which produced one evacuation, increased the perspiration and urine, and augmented the sense of feeling, as well as the elasticity of the whole body. In this state, we observed that two ulcerous orifices, which before the application of the cuichunchulli were merely open sores, have since continued suppurating to excess; the discharge is of a character highly favourable.

30*th.* Passed without taking any dose of the plant, not having had sufficient to carry on the completion of the cure. The patient had two evacuations, his perspiration continued, also the flow of saliva, but in a more moderate degree.

November 1*st.* A single evacuation, secretion of perspiration and urine decreasing.

2*nd.* Administered a purgative of two ounces of the sulphate of magnesia, adding ten grains of "antimonio diaforetico," and oxide of "antimonio blanco," which produced twenty-two evacuations. The urine, as also the perspiration, as ordinary in nature.

3*rd.* No evacuation.

4*th.* No medicine taken; however, the whole of the secretions were regular.

5*th.* Another purgative was given, as that on the 2nd; it produced twenty-three evacuations.

6*th.* No medicine given; no evacuation.

7*th.* The patient took, dissolved in water, a scruple and a half of acetate of potash, in three doses, which augmented a little the quantity of urine: only one evacuation.

8*th.* Similar doses as before named; they produced similar effects.

9*th.* Medicine continued; similar effects produced, with a trifling augmentation of urine.

10*th.* Similar medicine given; urine a little augmented, as well as the perspiration: one evacuation.

11*th.* Two ounces of sulphate of magnesia given, and one scruple of "antimonio diaforetico."

12*th.* Two drachms of acetate of potash, dissolved in water, given in three doses; this produced one evacuation, with the ordinary degree of perspiration and quantity of urine.

13*th*. The second part of the contents of the bottle prescribed above given, which produced similar effects.

14*th*. Administered a purgative with equal doses as before.

15*th* and 16*th*. The contents of another bottle were administered, which produced better results than those preceding had effected.

17*th*. A purgative like the former; it produced twelve evacuations.

18*th* and 19*th*. Another bottle of the dissolved acetate given; effects as on the preceding days of its use.

20*th*. A purgative given in equal doses to those before; produced twelve copious evacuations.

21*st* and 22*nd*. A bottle of the dissolved acetate of potash given; effects were produced as on the previous days when administered.

23*rd*. A purgative like the former ones; produced eleven evacuations, and during the day the patient suffered greatly from a pain in his groin.

24*th* and 25*th*. A bottle of the dissolved acetate given; same effects as when previously taken.

26*th*. A similar purgative produced three evacuations; the pain in the groin left the patient.

27*th* and 28*th*. A bottle of the dissolved acetate of potash given; equal effects.

29*th*. A purgative as former ones; ten evacuations was the result.

30*th* and 1*st December*. A bottle of the acetate was administered; same effects.

2*nd*. A purgative; eleven evacuations, the last of which was of a distinct character from all the others, resembling curdled milk.

3*rd* and 4*th*. A bottle of the acetate given.

On the 14th of November an ophthalmia began, which made such rapid progress that, in spite of every medical effort to check it, it became necessary to have recourse to issues. On the 26th of same month, this application produced the gradual decrease of the inflammation, up to the 4th of December, when a suppuration took place, and the ophthalmia rapidly ameliorated. However, it was judged prudent to open two issues more than were then flowing, still using the caustic; this treatment greatly relieved the patient, but did not effect a cure.

On the 31st of December, it being then eight days since any

medicine whatever had been administered, with the exception of the application of the collyrium, the ophthalmia was very greatly decreased; and, with regard to the leprosy, all the sores were healing.

(Signed) Simon Pena.

A faithful copy. (Signed) J. Maria Meoz, Secretary.

Translation.

Statement of the Medical Board of Caracas.

Republic of Venezuela. Medical Board, Caracas, December 24th, 1833.

To the Secretary of State for the Affairs of the Interior.

Sir,

The Medical Board has seen with great interest the official paper you have been pleased to address to me, dated the 13th, requesting information on the medicinal properties of the plant called the Cuichunchulli, with a view of bringing it into general use as a remedy for elephantiasis, in the event of its virtues proving as powerful as popular rumour reports. I have already acknowledged the receipt of your official communication, and now have the honour to inform you, that the opinion which the Board has formed of the virtues of the plant, and of its botanical features, is as follows :—

1st. In a periodical paper published in Bogota, entitled " El Eco de Tequendama," No. 5, it is stated that " the Cuichunchulli" is a plant whose name signifies, in the language of the Indians, " Bowels of the Acure," (probably from its resemblance to those of that little animal,) but its roots are somewhat thicker, being curved in some parts more than in others. The Indians of Cuença, in the department of Asuay, administer this plant for the cure of the elephantiasis, or intense leprosy; the remedy is likewise mentioned in a manuscript by the Abbé Velasco, a native of Riobamba, entitled " The History of Quito," which Señor Modesto Larrea brought from Italy, where

it had been preserved by an executor of Velasco's with the view that at some future time it might prove beneficial to his country. When living he was not able to publish it in consequence of the political state of things, as connected with the government of Spain. The information, however, given by the Abbé Velasco, was published in the Quito Gazette, No. 33, and is as follows:—

"The Tripa de Acure, or Cuichunchulli, is formed of whitish fibres, without any leaf, and issues from underneath stones, soon becoming strongly entangled over them; its virtues were well known to the Indians, but the Spaniards remained perfectly ignorant of them, until the year 1754, when they were revealed from motives of pure humanity to a Jesuit, then suffering under every symptom of a confirmed leprosy, who entreated relief from the Indians. They gave him half a drachm of the fibres of the plant powdered, and infused in wine, previously advising him to take the sacrament. The operation was strongly emetic and cathartic, accompanied by the most violent pains, during twenty-four hours, at the expiration of which time the patient remained free from pain. In a few days the skin began to fall off in pieces, and he was soon restored to perfect health. All this I witnessed in the city of Cuença."

2nd. A practitioner of medicine in Bogota, having received in the year 1826 a copy of the preceding article, corroborated the assertion, that the Indians of the village of Purace, canton de Popayan, were well acquainted with a plant like the Violeta, known by the name of Cuichunchulli, which in the village, and in the chief city, the professors of medicine were in the habit of administering as a purgative to sick children, who had fallen ill from taking the milk of their nurses or mothers, when pregnant; and he had every reason to believe, from the similarity of the name, that it was the same as that already mentioned by the Abbé Velasco. This gentleman procured it from Popayan, administering it first in small doses, and afterwards up

to thirty grains, to five individuals, all of whom were decidedly affected with elephantiasis. Two of them, who had reached the period of ulceration, used it with unabated perseverance; the effects produced were, evacuation upwards and downwards, attended with violent perspiration; and in one of them, a woman that had suffered the suppression of her monthly courses for years, the result of the use of the remedy in question was, that the symptoms of the disease evidently diminished; several of the tumours disappearing, whilst others were considerably reduced in size. The ulcers also presented an improved appearance; in fact, every thing shewed a very considerable amelioration, but no decided cure of the malady. Unfortunately, adds the relation, there was not a sufficiency of the medicine to give to the two most afflicted; nor could a further supply be procured; neither from circumstances could the medical practitioner further continue his attendance.

3rd. During some months, the inhabitants of this city (Caracas) have had their attention particularly excited, by the verbal as well as written relations of various persons, worthy of the greatest credit, who assert their having seen, in Maracaibo, one Jacob Puche, who suffered dreadfully from elephantiasis, but is now nearly cured, in consequence of the administration of the plant called the Cuichunchulli, whose virtues cannot be depended upon, unless sent from Cuença or New Granada.

4th. In this capital, the plant has been already tried on Miss Macpherson, whose case is particularly stated by Dr. Carlos Arvelo, the medical man that attended her; and annexed to this communication will be found his account of his treatment, etc.

From the facts above mentioned, the Board infers, that although it appears certain (and is well observed by him who made the details in the 2nd paragraph of this notice,) the plant in question did not produce those strong, quick, and decisive effects assigned to it by Velasco; yet its salutary

effects in the treatment of elephantiasis have been uniformly observed to be the same in the only four trials which, up to this time, we have any knowledge of; and that in those since narrated in the 2nd and 4th paragraphs, nothing more seems to have been obtained than relief; but it must be remembered that no more good could be effected in consequence of there not being a further supply of the remedy; whilst the two cases of the Jesuit of Cuença and of Puche, in Maracaibo, proved decisively, however, that in every one of the trials the like effects took place, *i. e.*, the alleviation of the symptoms of the disease by the plant, and very probably it will in some cases effect a cure.

Few remedies, even those actually enjoying a solid reputation, have offered better prospects of success on the commencement of their trials; and if we consider the frightful character and incurability of the disease, the vast number of unfortunate victims that so many countries of South America daily present, condemned to a painful and desponding seclusion, as well as to desperation, every exertion ought to be made to try the powers of the plant to the utmost. The government of Venezuela will lend its philanthropic aid, and will give its powerful protection to every individual; but, more particularly, to its own citizens will also offer pecuniary rewards in order to encourage the procuring of the plant, and to assist in the success of applying it as a remedy. Should the cure of but one case of leprosy, or even a little relief be the only results; or should no beneficial effect even be the consequence, a motive so noble and so humane, after the already collected proofs in favour of this remedy, cannot but call forth every expression of veneration and gratitude towards the government on the part of the people.

As to a definition of the peculiar characters of the plant, the Board possesses no means of giving one from itself. In the city of Bogotà, it is stated that the Cuichunchulli of Popayan, found

to be the same as the plant called Featina in the environs of that capital, and in the village of Enemocan, by Drs. Juan, M. Cespedes, and Francisco Mutis, appears to belong to that section of the Linnæan genus *Viola*, to which Ventenat gave the name of "*Ionidium*." It is very probably of this genus, because its roots resemble greatly those of the white ipecacuanha; viz., the *Viola Ipecacuanha* of Brazil. The *Viola parviflora* of Mutis, (the new Granadian plant,) has roots possessing a strong emetic virtue, and they are frequently mixed with those of the *Psychotria emetica* for the purposes of commerce, according to the most respectable botanical authorities. The roots we have been able to see are cylindrical, and in thickish curving lines, whose exterior is of an ash colour, marked with several stripes somewhat whitish; having within a soft farinaceous substance; the skin presenting interruptions, like the root of the Lagartijo, and others of the same character. The interruptions in question are united to the skin or bark by a heart of woody fibres that becomes yellowish in the centre. The flavor of the skin is nauseously bitter, leaving a sharpish taste in the throat, like that of the ipecacuanha: the smell likewise resembles that root. From the lower parts of the thinner roots issue innumerable fibrous filaments, which terminate the whole. We have not had it in our power to define the exact shape of the plant, nor its leaves, or other parts, from the dried and mutilated state in which it came: it would therefore be desirable if a specimen entire and perfect could be brought from Cuença, Popayan, or Bogotà.

Such are the observations the medical board submit to the government, in answer to its official request.

I remain, Sir,

Your most obedient servant,

(Signed) JOSE J. HERNANDEZ, M. D.,

President of the Board of Medical Professors in the city of Caracas.

Elephantiasis, in the Case of Miss Macpherson.

Miss Macpherson, at the age of eleven years, when in the city of Maracaibo, laboured under the effects of a cutaneous disease, which first attacked the lower extremities, and continued extending itself to other parts of the body. On this account a medical man was consulted, and she was placed under his care, following his medical advice, without interruption, for the period of nearly four years; at the conclusion of which time very little progress had been made in the cure. Her parents finding she was seriously declining in a melancholy manner, determined on bringing her to Caracas, whither they removed her at the end of the year 1831. On her arrival she was seen by several members of the faculty, all of whom were of opinion that Miss Macpherson's case was unquestionably that of elephantiasis, and in a very advanced state. The strongest requests were made to me to undertake the case; but I was above all stimulated so to do from my own wishes, under the hope of alleviating the sufferings of this unfortunate young person; notwithstanding there indeed appeared scarce a hope, as nothing seemed left to be done, but to prescribe for her the most active and powerful remedies known in the art. Such were administered, but all proved inefficacious. At each succeeding visit the frightful symptoms of the elephantiasis seemed to be increasing rapidly, shewing the most awful evidences of a disorder not to be doubted. The colour of the face was of a dark red, marked with an expression of the deepest melancholy, the forehead frowning, the eyes reddish and full, with a severe look: the hair of the eyebrows had nearly all fallen off, the ears were thick and lengthened, the voice nasal, the breath fetid; and on various parts of the skin there were spots of a mulberry and gray colour, together with disgusting pimples and ulcers, some of which had even eaten away the nails of the fingers; the greatest cutaneous insensibility prevailed, added to a spontaneous lassitude and general restlessness. Such were the symptoms, or rather the state, the patient presented in the month of November last; enough to show the trifling power the remedies already administered to her had had over the dreadful inveteracy of the disease. In this situation she began to take the cuichunchulli;

a portion of the plant was reduced to powder and administered in wine, from half a drachm to two drachms, in all ten drachms were taken, composing the whole quantity that could be obtained at the time the trial was made. The effects soon visible were, itching on different parts of the skin, but more particularly felt in the lower extremities; nausea, more or less strong and repeated; a flow of saliva nearly to salivation; returning perspiration almost amounting to sweating; giddiness; a discharge in abundance of thick cloudy urine, tending to sediment, and also evacuations of a white, bilious appearance; of the just-named effects, increase of the saliva continued many days after the cessation of giving the medicine. In consequence of what had been administered, the patient experienced the most beneficial alterations in her system, and a happy change for the better in some of the worst symptoms of the disease. She had felt pains in, as well as a distension of, the lower part of the abdomen; these preceded the flow of that watery fluid usually announcing one of those periodical visitations in women, which with her had never yet taken place, notwithstanding she had attained her 18th year; and until this period her breasts had not appeared: but they now began to pain her, and evidently shewed themselves. Her countenance had assumed a smiling look, her colour was much clearer, her ears had become smaller, and had thrown off the scaly substance that encrusted them; her voice was more distinct; the corroding ulcers of her fingers healed, and her hands had acquired such freedom of movement and feeling as enabled her to sew with ease: two small tumours on her right shin had totally disappeared. In fine, she was in far better spirits, and expressed herself without exertion or pain; repossessing all her bodily functions to an extraordinary degree, in consequence of her recent treatment.

I do not pretend, from this trial, either to have faith in the plant as capable of effecting a complete cure, or even from that of Jacob Puche (according to the information from Maracaibo,) to give a thoughtless and unlimited belief to the efficacy of the cuichunchulli. But in medicine, as in all other sciences founded on observation, great success is frequently owing to the most trifling causes or happy casualties; and the medical men feel greatly disappointed in not having had a

sufficient supply of the plant to continue its trial, in order to place the results in a light that might clearly decide on its real merits.

(Signed) ARVELO.

Caracas, December 23d, 1833.

Viola parviflora of Mutis; in Bogotà called Featina, and in Quito, Cuichunchulli.

"The plant resembles greatly the Veronica: its roots are cylindrical and nearly as thick as a goose quill, yet somewhat more delicate; of a waving shape, and of a whitish colour. Its secondary roots are fibrous, and very abundant, appearing between the lumps of earth like the fine threads of the spider's web. The shoots from one of these plants, of three quarters of a yard in height, spread themselves into countless ramifications, which form their extending base. The branches, or rather shoots, bear a vast number of small leaves placed near each other; and two very delicate stipulæ are seen alternately with the leaves on the sides of the slender stem. The pedunculus of the flower is smaller than that of any other of the same genus. The capsule is small, having three cells, which contain six seeds."—Translated from the description given of the plant by Señor Mutis, Professor of Botany in the University of Bogotà.

The drawing is correct as to the shape of the leaves, and as regards their size, being exactly that of the plant. Its broom-like slender branches issue upwards so thickly from the short stem as to present the appearance (at least in the dried state of the plant,) of a bunch of the European genista. The whole of these branches do not exceed in height sixteen or eighteen inches; the root may probably extend downwards, (as shewn in the drawing,) and spread some twelve or fourteen inches more. I have annexed a small dried specimen of a part of one of the tender branches, which shews the position of the leaves, as also some of the stipulæ. (*Pl.* III. *Fig.* 4.)

R. K. P.

[The drawing alluded to in the preceding paper, appears to have been made from dried specimens *incorrectly* put together, and is much inferior to St. Hilaire's figure of *Ionidium parviflorum*, in the *Plantes Usuelles des Brasiliens*. It has therefore been omitted. The plate which has been substituted for it, and which has been carefully copied from specimens found attached to, or accompanying the Cuichunchulli roots presented to the Society, is intended to illustrate Dr. F. Farre's paper on the species of Ionidium which produces the Cuichunchulli.]

On the Chimaphila corymbosa, or Pyrola umbellata—American Winter Green: by John Foote, Esq., Jun., M. R. C. S. and Secretary of the Medico-Botanical Society. *Read February 22nd*, 1837.

Among the medicines which, after much deliberation, have been admitted by the Royal College of Physicians into the new Pharmacopœia, will be found one, which is called the *Chimaphila corymbosa*, in accordance with the description given by Pursh in his *Flora Americana Septentrionalis*. Linnæus gave it the name of *Pyrola umbellata*, which is yet retained by Sir James Edward Smith, Wildenow, and by many American botanists. Michaux suggested its separation from the genus *Pyrola*, and proposed giving the name of *Chimaphila*, in which he was followed by Pursh and others, on the grounds that it possessed a *sessile stigma*, and that the *anthers opened by a subbivalve foramen*. Dr. Bigelow, the Professor of Botany and Materia Medica in Harvan University, who has written a most valuable work on American botany, in three volumes, asserts that there is not any reason for the change, and he does not believe that it will stand the test of time, inasmuch as the stigma and anthers do not differ from the other Pyrolas, and the latter open by *two tubular pores*; he therefore retains the Linnæan name of *Pyrola umbellata*. Sir James Edward Smith also objects to the dismemberment of the genus: he says the only difference is the length of the style. Dr. Bigelow observes that "there can be no doubt that the genus *Pyrola* had better remain entire. In habit, it is certainly one of the most natural genera we possess. All the species are humble evergreens, growing in woods, with creeping roots, ascending stems, and nodding flowers. All of them have their leaves in irregular whorls, flowers with reversed anthers, and retain their style until the fruit is ripe. In inflorescence, one is solitary, two somewhat corymbed, and the rest spiked. The leaves of *P. secunda*, *P. umbellata*, (*Chimaphila corymbosa*,) and *P. maculata*, are usually in two or more

whorls: those of most others in one radical whorl or aggregate: one species is said to be leafless." Dr. Bigelow adds, that if ever the genus *Pyrola* were to be dismembered, it should be as follows, into four distinct genera:—

1*st.* *Style declined, stigma annulate.*
P. rotundifolia, P. asarifolia, etc.
2*nd.* *Style straight, stigma peltate.*
P. secunda, P. uniflora.
3*rd.* *Style incarpated, calyx five-leaved.*
P. maculata.
4*th.* *Stigma immersed, calyx five-toothed.*
P. umbellata.

The *Pyrola umbellata* is a very common plant in the United States, and indeed in all parts of North America, extending over the whole continent as far as the shores of the Pacific. It is also to be met with in the forests of Siberia, and in the northern and temperate countries of Europe. In the United States, it is known by the names of winter green and ground holly, but is much more frequently called (at least in New Jersey and in Pennsylvania) by the name of *pippsisseva* or *phipsesawa*, which is one of its Indian appellations. It delights in shady woods, where it is protected from the sun, and can only be reared with great difficulty when transplanted from its native soil. It flowers in June and July, a period somewhat later than that of the other species of *Pyrola*.

The genus *Pyrola* belongs to the same class and order, in the sexual system of Linnæus, as the *Arbutus Uva ursi*; to wit, the class Decandria, and order Monogynia. It is also a member of the same natural assemblage, the *Bicornes* of Linnæus and the *Ericæ* of Jussieu. In its botanical affinity and medicinal properties, the *Pyrola umbellata*, and the *Arbutus Uva ursi*, are very nearly allied.

The genuine characters of the *Pyrola*, as given by Dr. Bigelow, in the second volume of his work on American Botany, which has been already alluded to, are as follow:—

The calyx is mostly five-parted; the petals five; the anthers inverted, opening by two tubular pores; the capsule five-celled and five-valved. The species *Pyrola umbellata* has the following characteristics. The leaves are wedge-shaped and toothed; the flowers somewhat umbelled; the calyx five-toothed, and the style immersed.

"The root of the *Pyrola umbellata* is woody and creeping, sending up stems at various distances; it is perennial, and of a yellowish colour. The stems are ascending, and somewhat angular, from six to eight inches high; they are marked with the scars of former leaves. The leaves are clustered in irregular whorls, from one to four in number; they are evergreen and coriaceous; have very short petioles; are wedge-shaped, sub-acute, serrate, smooth, and of a deep shining green colour; the lower surface is somewhat paler. The flowers grow in a small corymb on nodding peduncles, and are marked with linear bractes about the middle; they are variegated with purple and white. The calyx has five roundish sub-acute teeth or segments, much shorter than the corolla. The petals are five in number, roundish, concave, and spreading; they are cream coloured, with a slight tinge of purple at the base. There are ten stamens. The filaments are sigmoid, the lower half fleshy, triangular, dilated, and slightly pubescent at the edges; the upper half is filiform. The anthers are two-celled, each cell opening by a short round tubular orifice, which points downwards in the bud, and upwards in the flowers. The pollen is white. The germ is roundish, depressed, furrowed, obscurely five-lobed, with a funnel-shaped cavity at the top. The style is straight, above half as long as the germ; is inversely conical, inserted in the cavity of the germ, and concealed by the stigma. The stigma is large, peltate, convex, and obscurely five-rayed. The capsules are erect, depressed, five-celled, and five-valved. The seeds are linear and chaffy, very numerous and minute."*

* Bigelow's *American Botany*, Vol. 2.

From an analysis which was made by Dr. Wolf, a physician residing at Gottingen, who published a tentamen on the *Pyrola umbellata*, it appears that one hundred parts contain eighteen of a bitter extractive principle; 2,04 of resin; 1,38 tannin; a slight portion of gum, and the rest is fibrine and earthy salts. The resin, he describes, as being adhesive, of a brownish colour, readibly soluble in ether and alcalies, burning with flame, emitting, when ignited, a resinous odour, and leaving a white cinder. From Dr. Bigelow's experiments, the statement respecting the small quantity of resin contained in the *Pyrola umbellata* is fully confirmed. He adds, that spirit appears to be the best menstruum, but, singularly enough, remarks that water procures more of the virtues from it.

The *Pyrola umbellata* obtained great reputation as a popular remedy for fever and rheumatism, for the removal of which it is still occasionally employed. From its celebrity as a popular medicine, the American physicians were induced to afford it a trial, by which means its valuable diuretic properties were discovered. It is considered to be a useful palliative in strangury and nephritis, as well as a diuretic of great utility in cases of dropsy. Several of our transatlantic brethren also describe it as a tonic, astringent, topical stimulant, and sialagogue. Schoef, who mentions it in his *Materia Medica*, merely alludes to it as an astringent and corroborant; which properties Dr. Zollickhoffer says it certainly possesses in a considerable degree; and to the former indeed, Dr. Barton, the late Professor of Materia Medica, Natural History, and Botany, in the University of Pennsylvania, seems inclined to ascribe its diuretic powers. He says that the *Pyrola* is considerably astringent, and the quantity of astringency appears to be nearly the same in the leaves and in the stems. Dr. Eberle, in his work on Materia Medica, who mentions its astringent properties but slightly, says that, when chewed, it imparts an aromatic pungency to the taste, and, when bruised, it has a strong and unpleasant smell. It is, however, best known to the profession as a diuretic, and is

considered by several physicians to exert an influence similar to that possessed by the *Arbutus Uva ursi*. Dr. Wolf, whose analysis of the plant has been already mentioned, states, that he made a strong infusion of the plant, a table-spoonful of which he gave every hour, sweetened with sugar, and used in the same cases for which the whortle-berry is prescribed, and with decided advantage. He also found it relieve the scalding in the inflammatory stage of gonorrhœa. Dr. Somerville, when deputy inspector of military hospitals in Canada, gave it a trial in several cases; and, in a paper published in the *Medico-Chirurgical Transactions*, adduces some very interesting facts demonstrative of its good effects in dropsical diseases. He employed it in the form of a strong infusion, and remarks that, inasmuch as it is an agreeable medicine to the stomach, increases the tone of the system, and promotes the appetite, it is in many cases preferable to the majority of the diuretics, which are, generally speaking, very disagreeable. Sir Walter Farquhar, it is said, gave the *Pyrola* to a lady labouring under ascites, and its diuretic action was very strikingly manifested. On the recommendation of Dr. Somerville, Dr. Marcet tried the extract of the plant at Guy's Hospital, with decided advantage, in the dose of fifteen grains. Dr. Barton says that, "all his trials and inquiries respecting this plant have convinced him that it is an important antilithic, not less so than the *Uva ursi*."

Dr. Eberle does not seem inclined to place much reliance on this opinion: he says, that he has used it in some cases of this kind, but did not derive any particular advantage from it; and he adds, that its antilithic powers are entitled to very little attention. Dr. Zollickhoffer, speaking of its diuretic action, says, that it has been advantageously employed as a remedy in anasarca and other dropsies, and considers that we are warranted in asserting it to be "certain, prompt, and effectual, and equally competent, with many of the articles belonging to this class, to the removal of some of the diseases in which diuretic

remedies have been successfully exhibited." He, however, does not speak of his own experience, but judging from the cases narrated by other practitioners. "It is mostly given," he adds, "in the form of a strong decoction, to the extent of a pint a day. The dose of the extract is from ten grains to a scruple, given twice or thrice in the twenty-four hours." Dr. Satterly gives his opinion also in favour of its diuretic action. In a case in which Dr. Mitchell administered it, the urine discharged was almost black: it appeared as if a few drops of a solution of the sulphate of iron had been put into an astringent infusion. Dr. Mitchell also employed it with advantage in the treatment of several cases of intermittent fever, and, during the American revolutionary war, it was used as a tonic remedy in typhus fever. Dr. Zollickhoffer has seen good effects from its use in several cases of dyspepsia, and in one case of chronic rheumatism. In this instance, it was continued for some time before the disease was removed. He considers the root to be a sialagogue. When chewed, it excites a sense of heat and an increased flow of saliva: it is said to afford relief from pain in cases of tooth-ache. The root of the *Chimaphila maculata*, or *spotted-leaved Pippsissewa*, is also used for the same purpose. Dr. Barton, Dr. Eberle, Dr. Zollickhoffer, and Dr. Bigelow, speak of its powers as a topical stimulant; they recommend the application of the bruised leaves, which Dr. Barton says, sometimes induces redness, vesication, and desquamation of the skin. Dr. Zollickhoffer considers this action of the *Pyrola*, or, as he calls it, the *Chimaphila umbellata*, to be very uncertain. Dr. Miller, of Franklin, made a strong decoction of the leaves, the officinal part of the plant, and with it prepared a cataplasm, which he used with advantage in the treatment of various chronic indurated swellings, which were removed by this means. It is not stated whether any internal remedies were administered at the time.

A Narrative of Experiments, instituted with a view to ascertain the relative Strength of the Medicinal Qualities possessed by various similar Vegetable Extracts, procured at the most accredited sources in London: by W. H. Judd, Esq., M.R.C.S., Surgeon in the Scots Fusileer Guards, Fellow and Librarian of the Medico-Botanical Society, and Corresponding Member of the Royal Society of Arts and Sciences of Antwerp. *Read March 8th,* 1837.

The great differences daily observed in the relative strength and effects of vegetable extracts, (although obtained at the same season of the year, and from the same species of plants,) as exhibited by their action on the animal economy; the widely-different methods adopted by the best pharmaceutical chemists to procure them, coupled with the urgent existing necessity that each preparation of its kind should, in a similar dose, always, as far as difference of constitution admits of, be followed by precisely similar effect in mitigating suffering and controlling disease; such are reasons, I trust, more than sufficient to induce this learned Society to permit my occupying a portion of their valuable time, whilst briefly relating the results of some experiments upon these vegetable extracts; and, lastly, to draw their attention to a subject of vital importance, not only to medical practitioners, but also to the community at large. Having stated the reasons that gave rise to this inquiry, I shall commence by comparing the effects as shewn by experiments made with various extracts, prepared from a species of plant well known to the ancients, and most extensively employed by the moderns in the practice of physic, viz., Hemlock; and in treating on this subject shall, as far as the nature of the inquiry admits, endeavour to avoid recapitulating the mode of analysis, so ably planned and scientifically executed

by the late lamented Professor Geiger;* and shall as carefully abstain from mentioning those effects that appear to be already clearly established by the present Professor Christison, in an elaborate paper on "the poisonous properties of Hemlock and its alkaloid Conia." His writings, however, on a subject so highly interesting and important, contain parts bearing so closely on my inquiry, that some little mention of them seems unavoidable, especially as to material points on which my experiments did not enable me, in several instances, to come to the same conclusions as to the effects produced by the Extractum conii, at least, on animals. The alkaloid and its combinations, with the exception of the muriate, I have not yet tried, considering them too scarce and too dangerous for general medicinal use: though their effects are very curious in a scientific point of view, I nevertheless have preferred experimenting with the preparations from this plant termed extracts, believing them to be the more common, safe, and useful form of remedy. For this purpose they were obtained from the most respectable pharmaceutical chemists, and were made from the plants of last summer.

The first of the extracts was prepared by Mr. Battley,† as described on the records of this Society, by exposing the expressed juice with $\frac{1}{7}$ of its bulk of water, in a Wedgwood evaporating basin, over the fire, until reduced to a proper consistence.

The second was prepared by Messrs. Allen,‡ in vacuo.

The third was prepared by Mr. Squire,‖ by inspissating the expressed juice to the consistence of an extract, by spontaneous evaporation.

The preparations varied considerably in colour, odour, and intensity of taste.

* His work was put into my hands by our noble and indefatigable president, Earl Stanhope.

† Fore Street, City of London. ‡ Plough Court, Lombard Street.

‖ Chemist to the Queen, Oxford Street, London.

The effects of the first and third of the extracts, so prepared, were compared with each other, and also with opium, as to their power of alleviating cough, and procuring sleep during consumption, etc., by administering similar doses of them to patients, as may be exemplified by the following cases.

Case I.

August 25*th*, 1836. John —— was suffering from consumption, with incessant cough, expectoration, etc.; I prescribed for him

Extr. conii gr. iv, at bed time, (Squire's preparation.)

26*th*. He rested well, and scarcely coughed during the night.

27*th*. The extract was repeated, and, to use the patient's own words, "he had a pretty good night."

The medicine was now changed by my ordering, at bed time,

Extr. conii gr. iv (Battley's preparation.)

28*th*. The patient had no sleep, and, towards morning, he was so worn and his cough so troublesome, that I was obliged to give him a large dose of opium.

29*th*. Lest the former failure should have arisen from some accidental or unknown cause, a second dose of Battley's extract was given, and followed by a similar result.

Case II.

August 25*th*. William ——— had abscess and effusion into the chest, accompanied by cough: he was ordered

Extr. conii gr. iv, h. s. s. (Squire's preparation.)

26*th*. He passed a tranquil night, slept well, and coughed little.

27*th*. The extract was repeated with equally beneficial effects.

28*th*. The patient again slept, and had what he called "a good night."

Capiat extr. conii gr. iv (Battley's preparation.)

29*th*. He rested badly, coughed, and complained of want of sleep all night.

The extract repeated.

30*th*. As he had not slept, Squire's extract was given.

31*st*. He rested much better, and coughed little.

September 1st and 2nd. The extract was repeated, and he rested both nights as well as on the 31st.

CASE III.

August 25th. Mary ——. A case of cough, with hæmoptysis, in which I prescribed

Extr. conii gr. iv (Battley's preparation.)

26th. The patient stated she had not benefitted by the medicine, and was much the same.

27th. The extract repeated last evening, and the patient coughed all night.

Extr. conii gr. iv (Squire's preparation.)

28th. She had a much better night: the cough was far less troublesome.

Rep. extr. conii.

29th. The medicine caused rest: the cough was quiet.

Having mentioned a sufficient number of these trials to shew the vast difference in amelioration of symptoms experienced by patients taking equal doses of the two extracts, I shall next lay before the Society the results of several experiments on animals, made in the hope of ascertaining correctly the relative strength and efficacy of the preparations. Improvement in our art, and obtaining more certain results when these drugs are administered, being my inducement for this undertaking, I thought it best to begin by administering small doses, noticing carefully their effects, and increasing *gradatim* their quantity until death resulted from their acting as poisons. I was inclined the more strenuously to follow this plan of proceeding from Professor Christison's remark, in his very excellent paper, in which he says, "I wish I could have added to these observations on the poisonous effects of Conia and Hemlock, some account of their physiological properties in small doses, etc." I conceived that by giving an equal weight of each extract to the same individual or animal on different days, that a fair comparative view of their effects was most likely to be obtained;

and also that several living creatures, at a time, should be put under the influence of the medicine, as it would afford the most advantageous contrast. The young, the adult, and the aged animal were, for similar reasons also, selected. The doses were introduced into the stomach, the natural channel, instead of the veins, cellular tissue, or pleura, lest expression of pain from the wounds, etc., might be taken for symptoms, and lead to false conclusions.

To shorten this communication as much as possible, I shall at once relate the experiments made between November, 1836, and February, 1837; trusting you will not think that I have described the effects of small doses too minutely, as the utility of so doing will become evident when contrasted with that of larger ones, detailed in a more advanced part of this paper.

Exp. I.

November 10*th*, 1836.

At 1 o'clock P.M. Three grains of Extractum conii (prepared by Battley) were dissolved in a drachm of milk, and, by the help of a spoon, carefully poured down the throat of a healthy young cat: she was held quietly by an assistant during this proceeding.

10 m. p.* She gaped, lay quiet, and gaped again.

20 m. p. She stretched out her hind legs, crossed the room, stretched them again, and lay down in a dark corner.

38 m. p. Her respiration was altered, she was unwilling to move, and when compelled to do so tried to escape into another dark corner. When brought back to the centre of the room, she was listless and did not move away, but lay down, folded her legs, closed her eyes, and appeared to be dosing, yet was not in sound sleep.

45 m. p. Her senses remain entire, she lies with her eyes closed, but alive to every sound. On a stranger walking backwards and forwards, placing his foot within two inches of her nose, she opened her eyes and looked at him, but was too indolent to move.

* The letters m. p. are intended for *minutes past*, marked in the experiments detailed in this paper.

50 m. p. Slight noises do not cause her to direct her ears to where they come from, as usual.

55 m. p. She stretched her fore legs, extended the left fore paw straight upon the floor, and remained dozing with her head upon it. She is aware of being walked past, yet will neither open her eyes nor move, although nearly trodden upon.

2 o'clock P.M. Still sleeping in an unusual posture, with her head down and neck extended along the floor; stirring the fire woke her; she ran out of the room, and being brought back immediately, fell asleep upon the spot.

10 m. p. She is now dozing, not as before, but in a natural position.

24 m. p. She listens to noises, lies with her eyes half closed in the same place, and seldom moves.

40 m. p. She is still dozing with her head upon her paw. Presently she got up lazily, and having stretched her hind legs, lay down upon the same spot and dozed again. She is unwilling to be roused, but can walk or run, if compelled.

Exp. II.

November 17*th*.

At 10 o'clock P.M. Three grains of Extract of Conium, (Squire's preparation,) dissolved in a drachm of milk, were given to the same young cat that had been the subject of the former experiment.

20 m. p. She lies in the centre of the room, quite indisposed to move. Once she stretched her hind legs, gaped, and, on being lifted up, again lay listlessly down on the same spot.

28 m. p. She was so drowsy that even brushing her whiskers did not rouse her. On being forced to move, she dragged her hind legs, and to my great astonishment, actually walked backwards,* finding it, I suppose, more easy than to progress forwards; yet she had power to stretch her hind legs at that time, but it appeared to require a strong effort to do so. When laid down, her head soon dropped, as she only seemed able to sustain it whilst roused.

* A similar effect is produced by slicing away the cerebrum; and, I conclude, the medicine, lessening the flow of blood to this part, produced a similar half paralytic state of the hinder extremities.

55 m. p. Being lifted upon her feet, she stretched her hind legs, but appeared very averse to move, and slept on.

2 o'clock. On being waked from slumber and forced to walk, spasmodic catches took place as oft as she tried to expand her hind legs, and she made cramped and feeble movements in stepping.

10 m. p. She is sleeping in an unnatural position, with her neck stretched, and head supported by the point of her nose on the floor: she is not insensible to sounds, but dozes off again immediately they cease.

25 m. p. Still sleeping in the before-described unusual position: when roused will not walk; the muscles have not yet regained their power to support the head during her dozing.

35 m. p. When roused, she stretches her limbs and back repeatedly.

45 m. p. The effects of the medicine are subsiding, but she still stretches herself.

Exp. III.

November 20th.

At 1 o'clock P. M. Six grains of Extractum conii (Battley's preparation,) were given to the same young cat.

46 m. p. She lies quiet, blinking unusually.

2 o'clock. She rose, stretched, and lay down again, but was unaffected by stiffness, which was produced in twenty-eight minutes by half the dose of Squire's preparation.

5 m. p. She slept, and when waked up used her legs freely.

29 m. p. She is sleeping naturally, with her head resting on both paws.

40 m. p. She has slept until now. When roused, she stretched herself and lay down again, and being moved did so again.

55 m. p. She still lies sleeping, with her head upon her paws.

3 o'clock. When roused up, she gaped and washed herself, as it is called.

14 m. p. Being set at liberty, she ran away.

Having remarked so much difference between the effects of these two extracts, I was induced to use a third from a different source, as may be observed in the next experiment.

Exp. IV.

November 27th.

At 2 o'clock. Six grains of the Extract of Conium (Allen's preparation) were given to the before-mentioned young cat.

20 m. p. There is no effect as yet visible.

30 m. p. She lies nodding, with her eyes shut, her head dropping lower and lower until the point of the nose lodges on the floor, where it still remains. Her respiration is quickened.

35 m. p. When lifted up and roused, she stretched her limbs, curved her back, and could only be induced to walk a yard before she lay down again.

45 m. p. She lies sleeping quietly.

50 m. p. Being roused, she stretched herself twice and lay down again.

3 o'clock. When waked again, she stretched, gaped, and lay down.

10 m. p. Stretched her legs once more.

27 m. p. Gaped and stretched.

50 m. p. Stretched her back and each leg, as if to extend them completely.

No other symptoms worthy of detail were observed.

Exp. V.

December 2nd.

At 2 o'clock P.M. Six grains of Extractum conii (Squire's preparation,) were administered to the same young animal.

5 m. p. She was instantly seized with a fit of coughing, which lasted several minutes. I observed this symptom more than once during the experiments; perhaps it arose from the increased secretion of mucus, which, in these animals, generally follows large doses of Conium.

40 m. p. When disturbed, she used her hind legs with lessened facility; there was a partial rigidity of the extensor muscles; her movements exactly resembled string-halt in the horse.

50 m. p. She is sleeping in an unusual posture, with the point of her nose resting on the ground.

3 o'clock. She is sleeping soundly, and hears noises; if waked and enticed, she walks with a cramped gait, but is averse to move.

15 m. p. She is dozing again, and her head falling by nods or jerks towards the floor.

40 m. p. Blinking drowsily. When lifted upon her feet, she will not move from the spot; she still has catches, or spasms, in the hind legs. Little else occurred worthy of record.

The effects of six grains being slight, the dose was considerably increased in the succeeding experiments.

Exp. VI.

December 2nd.

At 1 o'clock P. M. Ten grains of Extract of Conium (Battley's preparation) were given, in a drachm of milk, to a ferocious old cat, by means of a syringe.

10 m. p. Her respiration appears hurried, which may be from passion, as she remains in a state of angry excitement, growling and spitting ever since the dose was put down her throat.

30 m. p. She growls on, and shews no effect from the extract.

45 m. p. Signs are now evident of its effect by her blinking her eyes, nodding her head, growling, and trying to resist sleep.

2 o'clock. She remains drowsy, alternately nodding and growling at distant intervals.

30 m. p. She gradually recovered without further narcotism, or other symptoms.

Exp. VII.

December 7th.

At 1 o'clock P. M. Ten grains of Extractum conii (Squire's preparation,) were injected, by the œsophagus, into the stomach of the same ferocious old cat, after which she lay growling and spitting as usual.

9 m. p. She appears subdued, blinks, and is drowsy.

20 m. p. The growling has ceased, except when she is roused, and then she exercises her vocal powers in a suppressed tone, with her eyes nearly closed.

40 m. p. She growls when approached; if left to herself, she dozes; the head sinks, and it appears she cannot resist the effect of this

extract, through continued passion, as she appeared to do after the other.

2 o'clock. She will not move unless compelled, and then progresses growling and slowly, with her hind legs cramped and half bent.

15 m. p. She dozes unless roused, will not move but by compulsion, and then draws her legs along without one-third extending them; they are cramped, and she growls in a subdued tone, diminuendo ad finem. She is inactive, lazy, and unwilling to be disturbed.

45 m. p. So indolent, she lies looking wistfully at a dark corner, but has not resolution sufficient to make the effort to walk to it. Her breathing is hurried and irregular.

3 o'clock. Her eyelids drop; she growls at being so oppressed by sleep, but is compelled to doze.

10 m. p. The soporific effects are ceasing, and the door being opened she escaped. Considering these but slight symptoms produced by so large a dose, and having thus felt my way, the quantity was again increased in the succeeding experiment.

Exp. VIII.

December 9th.

At 3 o'clock P. M. Twelve grains of Extractum conii (Battley's preparation,) were given to the young cat.

30 m. p. She is sleeping; when waked up, she stretched twice.

50 m. p. Still sleeping in the peculiar position before remarked, with her neck extended, the point of her nose resting on the floor, and not on her paws.

4 o'clock. She is still dozing in the same unnatural position.

30 m. p. When roused, she stretched herself, but no cramp of the legs appeared to have been produced by the extract.

5 o'clock. Sleeps soundly in a natural posture.

15 m. p. When set on her feet, she stretched herself, and has free use of her limbs.

30 m. p. She still sleeps, but less soundly.

40 m. p. She is sleeping with her nose on the floor, shewing that some effect of the medicine remains.

6 o'clock. She is still under considerable narcotic influence.

Exp. IX.

December 16th.

At 4 o'clock P. M. Twelve grains of the Extract of Conium (Allen's preparation,) were given to the same young cat.

30 m. p. She lies quiet and composed, and, if roused, moves without impediment.

5 o'clock. She is sleeping in the before-remarked unnatural position, with her neck extended, and her nose upon the ground, as in the former experiment. When roused, she stretched herself, moved, stretched again, and then reposed, with her neck and head stretched out as before.

30 m. p. She has continued to sleep with her nose on the floor, and, on being roused, she stretched her hind legs.

6 o'clock. The effects of the medicine gradually ceased.

Exp. X.

December 24th.

At 3 o'clock P. M. Twelve grains of the Extractum conii (Squire's preparation,) were given to the same young cat that was the subject of the two former experiments.

15 m. p. The animal slept, and on being roused, her hind legs were seen to be affected to a great degree, so much so that she could not extend them one-fourth of the natural distance, and was compelled to drag them after her, at a very slow pace.

30 m. p. When forced, she uses her hind legs slowly and feebly.

4 o'clock. The pupils are dilated; she will not move, except when obliged, and is scarce able to support herself, for she progresses with her legs straddling, resting frequently, and making many efforts before she can reach a corner not three yards distant.

15 m. p. When made to walk, to which she is very averse, she goes straddling and cramped.

40 m. p. She walks better, though the muscles are still cramped. The effects of the medicine are diminishing.

5 o'clock. She is sleeping with her nose on the ground, and, when roused, stretched her body as before related in these experiments.

Exp. XI.

December 31*st.*

At 2 o'clock P. M. Twenty grains of the Extract of Conium (Allen's preparation,) were put down the œsophagus of the ferocious old cat, with a syringe.

15 m. p. She is much quieter than ordinarily, growls in a subdued tone, and is evidently affected.

35 m. p. She lies blinking and drowsy.

45 m. p. When roused, she is too indolent to move from the spot, but lies spitting and growling at those that disturb her.

50 m. p. Lies in the same position, blinking her eyes, and nodding her head: her respiration is hurried; she tries to avoid sleep; her legs are not cramped.

3 o'clock. She lies dozing and blinking, and, alternately, waking and growling.

10 m. p. She possesses full command of her legs, and, from the lapse of time, is now not likely to have them affected.

4 o'clock. No other symptoms arose from the medicine.

Exp. XII.

January 9*th,* 1837.

At 2 o'clock P. M. Twenty grains of Extract of Conium (Squire's preparation,) were put, by means of a bent tube, down the throat of the ferocious old cat; a little of it was wasted through her struggling.

15 m. p. She lies growling at being treated so unceremoniously.

50 m. p. There have arisen twitches in the muscles of the head and neck, and her respiration is hurried.

3 o'clock. Being made to move, she shewed evident signs of rigidity in the muscles of both hind legs.

10 m. p. She sleeps, for her eyes are closed during several minutes in succession.

24 m. p. She lies dozing and nodding.

40 m. p. She is sleeping soundly, with the point of her nose resting on the floor. She lies in a very awkward position, but seems too much oppressed to change it.

No other symptoms worthy of mention occurred.

Exp. XIII.

January 16*th.*

At 2 o'clock P. M. A drachm of Extractum conii (Battley's preparation,) dissolved in an ounce of milk, was put down the throat of the same ferocious old cat.

15 m. p. This extract is producing its effect, for she is already blinking and stupid, growls in a subdued tone, but has complete command of her limbs.

30 m. p. She lies sleeping, but no effect is yet evident from the action of the muscles.

4 o'clock. She is dozing, but is easily disturbed by accidental noises.

30 m. p. When roused, she possesses free use of her legs.

5 o'clock. She still continues under the influence of the medicine, yet her muscles did not become affected during this experiment.

Exp. XIV.

January 16*th.*

At 4 o'clock P. M. A drachm of the Extract of Conium (Allen's preparation,) was given to a large full-grown cat.

30 m. p. She exhibits, at present, no change of condition, and is walking about.

5 o'clock. She lies blinking, and moves reluctantly, occasionally stretching her hind legs.

15 m. p. She is reposing in her natural position.

30 m. p. Was roused, and again stretched her hind legs.

6 o'clock. Is still drowsy, but exhibits no other symptoms worthy of mention.

Exp. XV.

January 23*rd.*

At 4 o'clock P. M. A drachm of Extractum conii (Allen's preparation,) was injected into the stomach of the ferocious old cat.

30 m. p. She lay blinking and growling in a subdued tone, but walked naturally when compelled, having the free use of her limbs.

5 o'clock. She has been dozing, though unsoundly, waking up at intervals and growling.

30 m. p. She has slept in the usual position until now, when, being roused, she has stretched her hind legs.

6 o'clock. She has slept until this time, and stretched her hind legs on being roused. No further effects followed, so that sleep was the only predominant symptom in the two last experiments.

Exp. XVI.

January 30th.

At 3 o'clock P.M. A drachm of Extractum conii (Squire's preparation,) was injected into the stomach of the ferocious old cat; a portion returned and was lost.

10 m. p. Her hind legs were so cramped that she drew one after the other slowly and stiffly, and, being unable to extend her limbs, she could not walk.

40 m. p. She fell down upon the side of her head, and lies stretched out, immovable, in this uncomfortable position. She has contrived to turn her head over, by resting the point of her nose on the floor, in order to direct her eyes towards me. She breathes almost wholly by the diaphragm, performing violent forced respirations, at long intervals; spasmodic twitches occur in the muscles of her nose and face. The pupils are dilated, but she retains her senses; spits, though feebly, at those that go near her, and thus shews, to use a quotation, as to her ferocity,

"The ruling passion strong in death."

When a candle is held near her face, the spasms and muscular contractions are much increased. When her ear is pulled, she attempts to spit at the person doing it.

55 m. p. The heart contracts, or rather trembles, about 165 times per minute, its action is a mere flutter: the breathing is very laborious. She makes spasmodic attempts to swallow; her tongue is drawn in and out her mouth. There are spasmodic twitches of the whole body: she cannot raise herself from the side fallen upon, and the legs remain in any position they are placed in.

4 o'clock. She can just raise her head from the floor, but is so

helpless it falls back again: she spits and groans at intervals. She made an effort to draw herself along, by sticking her talons in the carpet, but was too powerless to accomplish it.

30 m. p. The influence of the medicine continues.

5 o'clock. She can, at last, just raise her head to spit and groan, but it falls down again immediately. She tried to progress, by flapping her paws upon the floor, like a turtle, and succeeded in turning one-half round, but fell over on to the opposite side. Subsequently to this effort, she lies with her head stretched straight out; the contractions of the heart are a mere flutter.

20 m. p. The pupils are less dilated; she can mew in a faint tone; her head trembles, and she cannot support it. She got her fore paws round a chair leg, as a fulcrum, and tried to draw herself along on her side, but could not succeed, for want of help from her hind legs.

50 m. p. She has now raised herself on to her belly, and lies mewing and angry, because she cannot walk. She cunningly rests against a chair, to prop herself up; spits, but cannot move from the spot.

6 o'clock. The door being opened, she made an effort, raised herself on her legs, and, tottering, walked a yard towards it, rested on her belly, and at last, by several efforts, succeeded in gaining the kitchen, where she slept off the remaining effect of the medicine.

Exp. XVII.

January 23*rd.*

At 3 o'clock P.M. A drachm of the Extract of Conium (Squire's preparation,) was given to the adult cat.

10 m. p. She is so much affected in this short time as to be obliged to walk slowly, and almost drag her hind legs, but is narcotised in a less degree than the young cat in Experiment X.

20 m. p. When forced to move, she hops, from being unable to put the right hind leg to the ground. She is giddy, I conclude, because she straddles to keep her balance, and totters.

40 m. p. She will not move, except when compelled; progresses, straddling with her hind legs and resting at intervals, being scarce able to support herself.

4 o'clock. Moves slowly, still straddles with her hind legs, scarcely able to preserve her balance.

15 m. p. The pupils are dilated, both fore and hind legs are so cramped she can scarcely move at all.

40 m. p. Three of the legs are free from cramp, but she hops and sidles in moving, from the left hind leg still being cramped.

5 o'clock. She is still a little stiff in all the legs, but the effects of the dose are diminishing.

30 m. p. She walks better, the effects of the Conium are subsiding.

6 o'clock. Nothing further occurred worthy of remark.

Exp. XVIII.

February 12th. The temperature of the adult cat was 98° by the thermometer, and the action of the heart 140 per minute.

At 3 o'clock P. M. Two drachms of Extractum conii (Allen's preparation,) were put down the œsophagus of this adult black cat.

7 m. p. She sneezed several times, and immediately afterwards a clear white frothy saliva issued in a stream from both nose and mouth, as if she was copiously salivated. She could just run, but her head tottered, and her gait was unsteady.

10 m. p. She lies with her eyes closed, but opens them occasionally, and has sneezed several times more.

15 m. p. Tears now run down from both eyes, like symptoms of a cold; her chest is flaccid, and her breathing diaphragmatic.

40 m. p. The pupils are dilated; she has no perceptible cramp, but is unwilling to move.

50 m. p. The contractions of the heart are reduced to 70, the respiration is less embarrassed.

4 o'clock. Transparent saliva is still running from her mouth in a stream, and in such quantity as to have formed puddles on the floor. She makes frequent attempts to swallow and get rid of the stringy saliva, that is in such quantity as to obstruct her respiration. She has free use of all her limbs. The influence of the extract is lessening. Her temperature is reduced to 80°. There are slight spasms of the muscles of the shoulders and body. The breathing is performed by interrupted catches; the chest is nearly flaccid; the heart beats but 56 per minute. The

animal was now killed, to prevent further suffering, and to examine the state of its heart and blood.

Sectio.

The chest was immediately opened: the vena cava ascendens and descendens, and the right auricle and ventricle were gorged by dark blood; the lungs and left side of the heart were empty; the blood had not lost all its vitality, for it slowly coagulated, and underwent a separation of part of its serum.

Analysis.

Blood from the heart was placed in small evaporation dishes. One portion of this fluid, on being stirred with caustic potash, immediately gave out the well-known mousy odour of conium. Not choosing to trust the evidence of a single analysis on so delicate a point, a fresh portion of blood was placed in a retort, fitted with a bent glass tube, a small piece of potash being added, it was placed on a sand bath; the odour of conium came over so strongly into an inverted receiver, as to place the fact of the blood containing that narcotic beyond doubt, both to me and a medical friend that witnessed all these experiments.

Exp. XIX.

March 1*st*. The temperature of the large ferocious cat, by the thermometer, was 91°. Her heart contracted 144 times per minute. This animal had been kept twenty-four hours without food, for purposes that are explained in the course of this paper.

At 3 o'clock P. M. Two drachms of Extractum conii (prepared by Squire,) were attempted to be injected down the œsophagus of this animal. Generally we succeeded in giving every drop, but this time, between her struggling and afterwards bringing up part from the stomach, it was concluded that near two scruples were wasted. The syringe was scarcely removed before foaming at the mouth and nose commenced, as in the last experiment with the adult cat. Thick transparent saliva came away in streams, so that I may truly assert that this extract produced symptoms within one minute of its being introduced.

3 m. p. The eyes are turned upwards and outwards; the respiration is slow, interrupted, and spasmodically performed, and, as far as can be distinguished, takes place but five times in a minute, and is accompanied by a snuffling noise, from being impeded by the quantity of mucus and saliva that hang about the nose and throat.

6 m. p. Her nose is held up towards the wall, or to any crevice, as if anxious to get out into the open air. The pupils are scarcely perceptible, from the eversion of the globes of the eyes, are much dilated, and from the motions of her head, I conclude she is vertiginous.

12 m. p. She lies with her body in almost a fixed position, with her eyes still turned up, so that only the whites can be seen; she appears insensible.

20 m. p. On a stick being placed behind her, she made a violent effort, got upon her feet, and progressed swiftly and staggering, not by steps but by leaps, and thus she bent her course half round the room by a frightful spasmodic jactitation of her limbs, bounding a yard at a time from the ground, and especially directing her elevated nose towards a small opening between the folding doors, as if compelled to obtain air. In returning, she ran her head two or three times against the legs of the furniture, and, in a few minutes, fell down upon her side exhausted. She made several swift and forcible efforts to strike her head with her paw,* but missed her aim every time. Probably some pain or swimming in the head induced this attempt. She is violent in every movement. The action of the heart is a mere flutter.

24 m. p. She lies extended on her side, alternately affected by spasmodic twitches in the limbs, trembling of the tail, and spasm in the muscles of the lower jaw; then spasms of the right fore leg, followed by spasms of the left hind one, and then the reverse, as if these movements took place in the same course that the nerves were accustomed to cause the limbs to follow in running. The action of the heart could no longer be felt, spasms ceased, and death took place twenty-six minutes after the dose was given.

* Doubtless this effort hastened her dissolution, as happens at times in patients suffering from an over dose of digitalis, or when affected by erethismus mercurialis.

The symptoms in this well-marked experiment occurred in such rapid succession, they required noting as quickly as the pen could move, which, I regret to say, prevented the pulsations of the heart being again counted, or the fallen temperature being remeasured nearer to the termination of the life of the animal.

Sectio.

The chest was instantly opened into. The lungs were collapsed, nearly empty of blood, and of a rose colour. The heart was quiescent, but remarkably hard, the cavities of its *right side* being exceedingly distended with dark blood; those of the *left* were almost empty, and the small quantity they contained was scarcely brighter coloured than venous. A ligature was passed round the vessels: both heart and lungs were removed from the chest and placed on a hot plate, and a warm saline solution applied to the former (after the method pursued by Dr. Stevens); the latter were then inflated and exhausted to imitate artificial respiration, but in vain; for contraction could not be excited in either auricle or ventricle, nor did acupuncture cause any renewal of contractility. The stomach still contained more than half the extract injected, but not the slightest marks of inflammation existed in its coats. Both the arteries and veins of the mesentery were filled with dark blood. The intestines were carrying on their peristaltic motion; one coil was carefully drawn out of the abdomen, and submersed in a saucer of transparent juice of conium, which instantly destroyed its life, and the part ceased to propel its contents; nor did puncturing with a needle afterwards renew the intestinal action, as it would have done had the animal been killed by drowning or common violence. A portion of another coil was next treated in a similar way, and in like manner perished. No unusual turgescence, or increased vascularity, existed in the vessels of the brain,* nor was there any serum in the ventricles, and not more than three or four drops could be obtained from the whole theca vertebralis.

Analysis.

A portion of the cerebrum, a slice of the cerebellum, and a part of the medulla spinalis, were all subjected, in separate glass tubes,

* The contrary has been stated by authors.

to the action of Liquor Potassæ, and other tests: one and all of them yielded evidence of the mousy odour of Conium, in sufficient quantity to prove its existence in their substance. A drop or two of clear serum, from within the theca, was treated with pure Potash, and, in a few minutes, gave off a similar odour, in so powerful a degree as to leave no doubt of the presence of Conium; and the well-known odour was also eliminated, by tests, from a portion of red muscle from the loins, and of pink flesh from the back.

Having detailed a considerable number of experiments, which clearly exhibit the effects on the animal economy induced by Conium that follow with a constancy of similarity, in different creatures, dependent on some immutable law of nature, I shall briefly recapitulate the symptoms as they occurred in a succession that may not prove uninteresting to the physiologist, and that may not be less useful to the medical practitioner when called to cases of poisoning.

Doses of from 3 grains, to 20, of Extractum Conii produced

- Inactivity
- Yawning
- Stretching
- Nodding
- Blinking
- Dozing
- Sleeping
- Rigidity
- Walking backwards
- Cramps
- Spasm
- Palpitation
- Fluttering
- Hurried respiration.

Doses of from ℈j to ʒij of Extractum Conii produced

- Diaphragmatic respiration
- Slow respiration
- Vertigo
- Straddling
- Loss of muscular power and balance
- Dilated pupils
- Rolling and eversion of the globes of the eyes
- Sneezing
- Lachrymation
- Flow of salivary fluid from the mouth
- Shaking of the head
- Endeavours to obtain air
- Involuntary evacuations
- Death of the heart; the senses remaining entire to the last.

In order to profit by these highly-instructive experiments, it follows, as a matter of course, that we should make a careful review of the principal symptoms induced, and learn from the state of the different viscera how and at what moment their functions were arrested; and, with the aid of such assistance, endeavour to trace out the effect produced by the medicine given; why it in some cases suspended, and in others destroyed life.

First, then, from these premises, I have proved that on Conium being introduced into the living stomach, it is conveyed by the absorbents into the blood; and that, in a very few seconds, it reaches the interior of the heart by that channel.

Secondly; the direct action of Conium seems to lessen, or destroy, the power of generating heat, the muscular excitability of the system, and the contractility of the heart in particular. This, indeed, may be considered as demonstrated by the 18th experiment; for, at its commencement, the contractions of the heart were 140, and the animal's temperature 98°; but in fifty minutes after the dose, its contractions had decreased to 90, and the temperature to 80°; and, after a lapse of ten minutes more, its action rapidly diminished to 56, and kept on decreasing. In all the experiments, in which sufficiently large doses were employed, the diastole and systole at first were disturbed and quickened, then weakened and rendered slower and slower, until they were reduced to a mere flutter. Therefore, I conclude, when the heart is under the influence of Conium, that, from acting more slowly and more feebly, it sends out less and less blood to be arterialized in the pulmonary cells, consequently that more and more dark blood accumulates in the cavæ and other veins, and that ultimately, from the weakened state of the heart's action, the supply to the brain and lungs ceases, and death therefore ensues, as shewn in the last experiment. This view of the deranged functions, I conceive, is amply borne out by the examinations of the animals after death; for, in effect, was not the heart found inactive and dead* the instant loco-

* From the direct application of Conium in the blood to its muscular substance.

motive power had ceased in the body, and so exhausted of excitability as to be incapable of being roused by the usual stimulants? Were not the venæ cavæ, ascendens and descendens, and the right auricle and ventricle found gorged by venous blood? the lungs found collapsed, their vessels empty, and their parenchyma of a rose colour, from having transmitted modena-coloured blood? The brain and medulla spinalis were perfectly blanched, the ventricles empty, and arteries free from congestion. I trust it will also be remembered that the intestines were found in activity, but that they had their peristaltic motion arrested, and their muscular coats killed on the local application of Conium. Hence there is, I consider, full and sufficient evidence, inducing me to believe that the symptoms arose directly from Conium in the blood killing the sensibility of the heart, and not the brain; for intelligence remained to the last, which never could have happened had the brain been poisoned. It must be fresh in the memory of many present, that when that frightful scourge, the malignant cholera invaded this country, that in those cases where unarterialized blood pervaded the whole system to a degree that changed the white man to blue; that in like manner did the heart lose its power, and the integrity of the senses remain. In that very curious disease the blood, after death, was generally found fluid, or scarcely coagulated, as in these experiments. This state of blood is always common where the body perishes as a consequence of killing the blood. Dr. Coindet particularly states that the juice of Conium prevents coagulation; and so nicely does this point appear to be balanced, that in experiment XVIII, in which Allen's extract nearly, but not quite, destroyed the animal (for its life was put an end to mechanically), only a portion of the blood was in consequence coagulated: but in experiment XIX, in which Squire's excellent extract quickly killed the whole of the blood, it remained fluid; and, both in the latter and other similar instances, the Conium was satisfactorily detected in that fluid. Yet does Dr. Christison in his work, speaking of this class of poisons, say, "but it has not been

settled whether they operate by being carried by the blood to the part on which they act, or by producing on the inner membrane of the vessels a peculiar impression, which is conveyed along the nerves," (vide p. 717.) Now this latter theory seems to me seeking a very complex solution of a very simple fact, (as to Conium at least,) since by analysis it is clearly proved that the blood conveys the poison at once to the heart and muscles; the nerves are the next parts affected by its presence; and spasm, cramp, palpitation, loss of excitability and contractility ensue: hence come irregular and diminished expansions and contractions of the muscles, and ultimate death of the heart.

I do not mean to assert that the brain and nerves do not suffer; they must, if only from receiving dark blood and less than a sufficient supply, from a heart whose healthy contractions are, by Conium, reduced to a mere flutter. This does of course impair the activity of the sympathetic and spinal systems of nerves. But I never could observe amongst the animals experimented upon, any symptom approaching to delirium, much less to the fantastic form described by some authors, as a consequence of Conium.

Mathiol relates the case of a vine-dresser and his wife, who, after eating of this root by mistake, "became so delirious that they ran about the house knocking themselves against every object that came in their way."* The above furnishes a most extraordinary coincidence with the actions of the animal in the 19th experiment, that ran several times headforemost against the furniture of the room; thus affording an unexpected confirmation of the truth of his report, and also teaching us how very similar the effects produced by some medicines are on man and brute animals; which therefore gives us more firm reliance upon knowledge collected from these sources. But I am not inclined to attribute these acts of running against the furniture to delirium, because the animal was perfectly sensible, knew the sight of a stick, etc., but rather to her eyes being drawn

* Gmelin's *Pflanzengifte*, I. 604.

upwards and inwards, probably from some effect produced through the stomachic plexus and sympathetic on the abducent nerves of the eye deranging her vision; whilst the cat was excited to move by pain in her head, a sensation which in a state of nature, I conclude, she is a stranger to. This suffering was probably well indicated by the animal making several attempts to strike its forehead with its paw; and I am somewhat borne out in this supposition, by pain in the head being known to occur in the human race from over doses of this substance.

I cannot agree with Professor Christison, when he says "muscular contractility seems wholly unaffected by the indirect action of the poison;" if so, why do the muscles become useless* when the poison is taken in by the stomach? However, although their action is suspended, it is not by true paralysis, for they ultimately recover; I believe it to arise from the brain and nerves not receiving blood enough to support their energy, and to enable them to control the muscles.

I shall next proceed to compare the changes observed during the examinations of the two last animals with those found in the post-mortem inspections of the human subject, after poisoning with another of these vegetable extracts, viz., Opium, little doubting that both in the symptoms induced, and in the appearances produced, their action will be found to differ to a degree little anticipated by many, but more especially by writers that have grouped these plants together in treatises as similar narcotics.

A comparative view of the effects and changes after Conium, and of those after Opium.

Conium.	Opium.
Brain unnaturally free from blood;	Brain gorged by blood.
Ventricles almost dry;	Ventricles full of serum.
Lungs empty of blood;	Lungs so full of blood that it runs out in a stream on cutting them.

* In some part of their works, Orfila and Christison both speak of paralysis as a consequence of conium.

Stomach, its villous coat and œsophagus, white;	Villous coat, and œsophagus red.
Right side of the heart gorged by dark blood, left empty;	The heart's cavities all containing blood.
Heart dead to stimuli;	Heart's state as to excitation unknown.
Intestines active and white;	Intestines inactive, red, and inflamed.
Blood, dark and fluid in both veins and arteries;	Blood found fluid at times, not always.*
Death of the heart;	Death of the brain, I conclude, from the other symptoms.

From comparing the state of the viscera, we have here positive proof that the effects of preparations from these two plants differ widely. Indeed I much doubt whether Conium, which has hitherto been classed as a narcotic, is, by its direct action, capable of producing sleep, by rendering the vessels of the brain turgid, as Opium does: on the contrary, for in the animals experimented upon, the brain was found exsanguined and blanched after Coninm had been given to an extent that destroyed life. During these experiments I observed a defluxion being produced in the human subject, and a cough being kept quiet from breathing the vapour of the muriate of Conium, which pervaded the room in such volume that it clung to our skins, tasted upon our lips, and impregnated our clothes for days, yet no disposition to sleep was induced by it. Last night (April 4th) I took a dose of the best extract to ascertain its effect. At first I felt excited and kept awake, and the heart acted during that time quicker than natural; next, the breathing became slower, the contractions of the heart feeble, and the pulse small and weak. I fell asleep whilst counting my pulse, and found on waking in the morning that I had just overslept my usual time by one hour. Conium, in small doses, by its action on the heart, lessens

* Vide Knape's *Annals.*

for a time the volume of blood sent to the brain and muscles, and thus undoubtedly produces a state of quietude that disposes in a remarkable degree to repose. The state of somnolence induced by Conium on the human subject and animals, appears to last only during the first two or three hours; but it is sufficient, in all narcotics, that they begin the habit of sleep, for, after that, nature carries it on herself, and generally until the dawning of the morn awakens the universe, or, in some cases, until the long-continued action of sleeping becomes fatigue. The repose of the cerebrum, called sleep, is a very curious state. Much sleep induces the want of more sleep, and, like other habits, a disposition to it grows upon us. Some of the cats, after being frequently experimented upon, acquired the habit of much sleep, and they retired into cellars and slept during two or three days in succession. They came out to take food, and immediately retired to sleep again. The nerves of these animals certainly were in some way or other acted upon, or exhausted by the medicine, beyond the mere effects observed at the time of the experiments, for they all ceased to catch mice after being dosed a few times with Conium. None of them appeared to acquire the power of bearing narcotics like the Opium eater, and therefore they were not experimented upon again until about a week or more had elapsed.

The medicinal effect of Conium is very peculiar, and, I am sorry to add, but little better understood in our day than it was in the time of the Greek and Roman physicians; therefore, I cannot well avoid some brief notice of the opinions and statements of more modern writers on the subject, that we may see how far they are explained or borne out by these recent experiments as detailed to this society.

Linnæus describes of Hemlock, "its inebriating, poisonous qualities."

Ray found Hemlock seed, in quantity, in the crops of birds (that were not poisoned by it), and this, too, at a season of the year when other of their natural food was plentiful.

Boerhaave took two grains of its pulverized leaves daily during years, and remained uninjured.

Hooper, amongst the moderns, says, " it is believed to be a very active poison, but that it is so is not the fact, for I found difficulty in killing an animal with so large a dose as ʒij of the common extract of the shops.

*Orfila** gave ʒij to a dog without any effect.

Gmelin has given an instance in which " ℥iij of the juice of the herb were swallowed daily for eight days with as little effect."

Thus we have opinions as to the qualities of Conium of the most opposite tendency from the first men of their day; and were it not for prolonging this paper to an undue extent, I might cite dozens of opinions equally discrepant. Undoubtedly some reason must exist for so many persons of great celebrity considering this plant as highly poisonous, and as many equally talented individuals almost innocuous. From closely observing the effects of its extract, I am disposed to regard this plant as but slightly poisonous, and possessing other medical qualities hitherto unnoticed.

I learn from the best authority that 2 cwt. of good Conium plant yield 50 lb. of juice: 16 oz. of this juice yield but 1 oz. of extract; therefore 3 oz. of the juice are equal to about ʒiss of the extract. Hence I cannot be surprised that a quantity of juice equal to ʒiss of the extract, did not poison a dog in the hands of Gmelin, when a much larger quantity would not kill a smaller animal in mine, vide Experiment XVIII: and, doubtless, many other disputed points, as to the noxious qualities of Conium, might be as easily reconciled.

Various parts of this plant, indeed, have their juice of different strength: that of the root is least powerful;† that of the stem next in strength; that elaborated by the leaves stronger, and that of the seeds strongest of all.

* Orfila *Toxicologie générale*, II. p. 305.

† Three pounds of it did not kill an animal.

Several of our members have inquired when the plant should be gathered for use. I should say in June, just as it breaks into flower, and those growing in dirty, boggy situations should be preferred, as they are the most potent. This has been practically proved by a medical friend of mine.* It is undoubtedly needful that the collectors should taste each stem as they gather it, and cast away such as are tasteless, and too young to be sapid. A learned gentleman of this society in one of his excursions, (I allude to Dr. Hancock,) had the ingenious curiosity to taste stems of growing Conium, on the banks of the Bristol Channel; and he kindly communicated to me, that late in the year, about September, few of them possessed any flavour, and that many of them then were totally useless.

In speaking of preparations obtained from this plant, I must not omit mentioning an important remark of the late Professor Geiger, viz., "that the dried leaves of Hemlock and some extracts of their juice do not contain any Conia;" and on comparing the slightly poisonous effects of Conium with the deadly action of Conia, I am led to infer that the latter is not contained in the plant in its natural state, but that it is an educt resulting from the process employed to obtain it. The aroma or mousy smell of its preparations is supposed to depend upon a volatile oil, a substance said to act very feebly. Dr. Withering states the proper dose of extract of Conium to be from gr. v ad ℈j; therefore the dose of extract given in several of the first of these experiments may be considered to be small, but I am convinced they were as large as should be commenced with in the human subject, if the preparation be of the best kind; for ten grains of Squire's excellent extract would undoubtedly produce alarming symptoms in a stomach unaccustomed to its use. Christison, alluding to narcotico-acrid poisons (at page 717 of his Treatise,) says, "in large doses, therefore, they act chiefly as narcotics, in small doses as irritants;" but in this he is clearly wrong, for less sleep was produced in any of these experiments when the

* Mr. Goodger, late of the Marylebone Infirmary.

doses exceeded ℈j. (Vide Exp. I. to XII.) Indeed, to meet the fact he ought to have reversed the statement; for when from three to ten grains were given, the animal lay composed or slept soundly; and so far from either small or large doses acting as irritants, the mucous coat of the stomach and intestines remained as white after as before poisoning by Conium had been inflicted.

Much of the activity of the effect of the doses given I found to depend upon whether the stomach was empty or full. Fasting accelerates the action of the lacteals in a surprising degree. During repletion, drachms of poisonous narcotics, producing hurried respiration, fluttering of the heart, spasm of the voluntary muscles, total loss of motive power, involuntary evacuations, and partial cessation of circulation: all this frightful train of symptoms may be endured for hours in succession, and the animal will recover: give but a third of the dose, from the very same jar, after a twenty-four hours' fast, and it will be followed by a more rapid succession of similar symptoms, and produce death in a few minutes. (Vide Exp. XIX.) Coindet, of Geneva, relates a case of an old woman that took two ounces of an infusion of Conium with a glass of whiskey, fasting, and it killed her in an hour; hence before giving our prognosis in all cases of poisoning, it is needful to ascertain whether the stomach was full or empty, or how long the sufferer had fasted before taking the suspected dose, and if possible the quantity actually swallowed.

Narcotics, during a full stomach, frequently prove less fatal from vomiting being then spontaneously induced by the conjoint presence of the food and the poison, before the stomach is lulled into a state of fatal repose by their influence, to say nothing of the actual dilution, as it were, of the poison, by its being mixed with the food and other contents of that viscus. Excitement of mind decidedly lessens the action of narcotics: hence I found most difficulty in poisoning the most ferocious tempered cat. The violent effects of large doses of Conium al-

ways began to lessen, or cease, about two hours after its administration.

In concluding this hastily written paper, I will not waste time by touching on the various applications of this plant already made, as a remedy for rheumatism, syphilitic and malignant ulcers, cancer, etc. etc., but shall merely draw the attention of this society to the vast power displayed (during the experiments) by its extract in lessening the quantity of blood sent to the brain and medulla spinalis—to its lessening the forcible contractions of the heart: virtues possessed by few medicines with which we are acquainted; to which evidence I may add the no trifling experience of Professor Christison, when he says that "Conia exhausts the nervous energy of the spinal chord." These physiological facts at once suggest that Conium should prove an invaluable remedy in the treatment of three very fatal diseases for which we possess no specific, viz., hypertrophy of the heart, phrenitis, and inflammation of the medulla spinalis. The latter disease is one that, like Atropos in the dark, cuts the thread of life in many cases wherein the cause of death (the theca not being opened) is never discovered. In the treatment of such diseases, after depletion, I should recommend that small doses of the extract of Conium, without waiting for the action of purgatives, be steadily repeated every two hours, until the action of the remedy is manifest in the system, or mitigation of the symptoms ensue. In hypertrophy of the heart, the remedy should be given rather more cautiously; and by properly-graduated doses, I imagine we might regulate the hurried and forcible contractions of that viscus, and bring its action almost to nature's standard. Lastly, habitual costiveness, and want of secretion in the bowels, may often be remedied by two or three grains of Extractum Conii, with as much Pilula hydrargyri given at bed-time; this will be slowly followed by regular evacuations. The above combination of drugs acts particularly upon the rectum; and, when the dose is too often repeated, produces in some a sort of chronic dysentery. I throw out these hints to the

profession after having witnessed the power of Conium in reducing the action of the heart, to exsanguine the brain and medulla; and may safely assert, if physiological experiments teach us any thing as to the nature of remedies, that then is Conium a valuable auxiliary in these diseases.

And now at the termination of a long paper and many experiments, in which as to simple Conium I have ventured, I hope diffidently, to differ from one of the most able writers of our day, let me stop to do the professor justice. He experimented with Conia—I experimented with the extract of Conium; he by introducing the poison into the system through wounds, or by dropping it on a surface—I by passing it into the stomach by the usual channel. Now, when various preparations from the same plant were used, and in different ways, ought we to expect the results to be similar? They are not, they could not be; yet, in my judgment, both sets of experiments prove the learned professor to have been undoubtedly right, in more than half believing the Athenian state poison to have been the spotted Hemlock. Take, for example, the quantity (a drachm dose) spoken of by Thrasyas into consideration—the acute knowledge of the executioner, who, from frequent experience, being aware that this quantity was but just enough, exclaimed, that "nothing could be spared for a libation to the Gods:"—take the description of Nicander, that it makes the eyes roll—and the soul-stirring narrative of the last hours of Socrates, by Plato his pupil; compare them with the symptoms produced by large doses of the extract of Conium (instead of those following Conia), and they will be found to tally minutely with the symptoms described and the mode of death,—"his limbs grew heavy, became cold and stiff; the executioner then predicted that when the poison should reach the heart,* Socrates would expire,—and now the parts above the lower belly were cold, Socrates answered not, but in a short time was convulsed. The man then uncovered him. His eyes were fixed, and when Crito observed

* Even the executioner of that early period knew that conium acted upon the heart.

this he closed their lids." Professor Christison then goes on to state, if this narrative be altered to a modern toxicological description, it is plain that the Athenian state poison must be regarded as producing spasm and coldness of the limbs, gradually advancing to the internal parts, causing death eventually by acting on the heart and respiration, and without affecting the function of the mind even to the very last. In conclusion, I must state my belief that Conium was the Athenian state poison, and that its effects could not have been more accurately described than in the words above cited, or in the symptoms recently exhibited during these experiments. It is interesting enough, by help of the historian, to prove, that, in spite of every change of climate and of soil, the Hemlock of our day retains the very same qualities that it was known to possess 400 years before the Christian era.

Remarks on the Haiowa Amyris ambrosiaca Willd., and on some kindred species: by Dr. Hancock.

Read April 26th, 1837.

On the extended forests of British Guiana, and those which stretch between the Orinoka, Rio Negro, and the Amazon, nature has lavished her treasures in delicious fruits, balsamic and aromatic, and highly medicinal plants, the most fragrant flowers, and majestic trees. There we find the balsam copaiba, the mara, the cow-tree, bursera, balsamoreal, the olo, siruba, arakusiri, akyari, and numerous others. But, amongst all these, there is none perhaps more highly valued by the natives, for its balsamic product, than the *Haiowa*, as this tree is called by the Arowaks; or, as it is termed in the Orinoka, *Tacama-haca* and *Encienso*; it appears to be the *Amyris ambrosiaca* of Willdenow; *Icica heptaphylla* of Aublet and Decandolle.

These trees abound in great numbers on the higher sandy lands of the interior, scattered amongst others, over the primeval forests; and not grouped, as we often observe in the plants of northern countries. The Haiowa tree attains an elevation of forty or fifty feet; the bark is gray and furrowed; wood reddish towards the centre; the branches straight, horizontally spreading; the leaves winged, consisting of two or three pair, with an odd one; petiolate oblong, acuminate, of a smooth shining green. The flowers are small, white, axillary and corymbose; the calyx consists of one leaf, very small and entire; the corolla of four concave pointed petals, rather deltoid or triangular; the filaments eight, very short, bearing subulate erect anthers, longer than the filaments, and shorter than the corolla; pistillum; germ trigonal, pointed; style none, or very short; stigma simple, capitate; fruit coriaceous, in figure various on the same tree, but mostly oval; the apex slightly bent to one side, four-valved, containing one or two oblong seeds. The fruit, leaves, and bark, abound with a sweet odoriferous balsam or gum-resin.

The species of this genus have been strangely multiplied and confounded; great misconception prevails regarding their balsamic products; and, by some unaccountable error, the poison of Worary, or that of Ticunas, has been attributed to one of the species, which has hence been denominated by the botanists, Amyris toxicofera.*

"The gum Elemi," says Decandolle, "is obtained, as asserted by some, from *Amyris elemifera*; by others, from *Icica heptaphylla* of Aublet." It comes, however, indefinitely from *Icica decandra, I. Guianensis, I. Icicariba,* and perhaps some others; hence, probably has arisen its distinctions into *oriental* and *occidental.* But the fact is, the genus is almost exclusively American; there being no true species of *Amyris* (nor of *Icica*) well ascertained in the East Indies, unless we except the Karunphul, or the *Amyris nana* of Roxburgh.

Thus, too, the gum *Carana* is referred by Humboldt to his *Amyris Carana,* of the Rio Temi; and also, doubtingly by Decandolle: and says Jourdan, "on ignore quel est le végétal qué fournit cette risine." It is the produce of the *Amyris altissima,* or Akiari of the natives: a specimen of which I had the honour to present to the Society some time since. It is called cedar by the wood cutters, and is one of the finest timber trees in Guiana: the Indians form their best pirogues or great canoes of it.

The balsam or gum-resin of the *Haiowa* exudes from the trunk and branches, either naturally or from incisions cut in the tree; and may be collected in great abundance, in the dry season and about the full moon, when its exhalations load the air with a grateful odour.

It is a curious fact that, on the high lands of the interior, all

* See Willdenow Spec. Plantarum; Gray's Supplement to Pharmacopœia, etc. etc. Some years ago I laid before the Medico-Botanical Society a specimen of the plant which furnishes the Worary or Ticuna poison; for these names refer to one and the same thing, being an extract obtained from a bush-rope or climbing plant of the Strychnos family, and used by the Indians to poison their arrows.

the gummy balsamic, or terebinthinous juices of trees, are (even in the same species) much more abundant than on the flat alluvial coast of Guiana; and I believe the same is observable amongst the West India islands. The *Hymenæa courbaril,* or locust tree, yields its resin in abundance inland, but most sparingly near the coast; and the same is the case with the merey or cashew. The Balsam copaiba is obtained in the dry season; its deposite, like that of *Siruba,* occurs in profound reservoirs of the trunk, and often near the heart of the tree.

The fruit of the Haiowa has a bitterish, sub-acrid taste, with a fragrant smell, being replete with the balsam, from which it may be squeezed out between the fingers; its properties, no doubt, being much the same as the famed Carpobalsamum, formerly known in the shops.

These exudations from different species of *Amyrideæ* are so abundant in the interior of Guiana, that ship loads might be brought here, and would serve for giving strength and durability to cordage, with greater advantage than pitch and tar. The Indians, amongst other uses, mix it with Arnotto paint, and oil of Carapa for anointing their bodies. When fresh from the tree it is semi-fluid, but hardens by long exposure to the air. Were the Haiowa collected and preserved, in the same manner as the balsam of gilead, (the product of another species of this genus or natural family,) that is, drawn in bottles and kept closely corked, I doubt not it would be found equally appreciable as a medicine. "The real balsam of gilead," says Dr. Thompson, "rarely or never makes its way into this country, Canada balsam being substituted for it. The odour is strongly pungent, but this is lost by exposure to air. This balsam was esteemed, in the earlier ages, as a medicine possessed of almost universal virtues; and, at the present day, the Arabs use it in all complaints of the stomach and bowels; and regard it as a powerful antiseptic, and preventive of the plague."*

* *London Dispensatory.*

The Haiowa is likewise regarded by the natives of Guiana as one of their most sovereign remedies. It is taken with honey or milk; and its fumes are inhaled for coughs, the balsam being placed for this purpose on a heated stone, and thus carried into more immediate contact with the diseased parts. The carana and olo-gums are used in the same manner; and these gum-resins, united with oil or tallow, form excellent healing ointments, either for recent wounds or old ulcers: but containing as they do, besides resin and essential oil, a portion of gummy and extractive matter, these ointments should be strained whilst hot.

The bark of the Haiowa is much valued by the natives in fevers and dysentery. They make a strong decoction of it, and take large draughts, so as even to cause vomiting and perspiration.* They think little of taking two or three vomits per diem, when labouring under fever or dysentery: diseases, indeed, being there more violent, demand more decisive measures. They not only take the decoction internally, but form baths of the same for assisting the transpiration; and they consider it very useful against spasms, convulsions, palsies, nervous diseases, etc. The gum or balsam itself, taken internally, is considered by the natives as a great restorative in atrophia or emaciation, coughs, and hectic.

I have heard numerous cases of the efficacy of this remedy related by persons of undoubted veracity, who could have no motive to deceive in such a matter.† The remedy, however,

* Willdenow remarks, that the *gum* or balsam of *Amyris ambrosiaca* is employed as a remedy in dysentery.—*Spec. plant.*

† Mr. George Angle, Store Keeper, in George Town, Demerara, of a spare consumptive habit, told me he had laboured under a severe cough, with purulent spitting, and hectic emaciation. He had tried, without advantage, a great variety of medicines, and being reduced almost to a skeleton, his case was considered hopeless. He was advised, by those who had witnessed the success of Haiowa in similar cases, to give it a trial. He took a tea-spoonful of the recent fluid balsam, twice or thrice a day, in new milk; and continuing it for about three or four weeks, he recovered sound health: said he took no other remedy, but only used some ptisans, as barley-water, milk, and a bland diet, to which for a long time previously he had been restricted. The case of Mr. Baeker, of Essequibo, was one of a similar kind, and so far advanced, that his friends considered his

should of course be resorted to early, to give the best chance of success: the patient ought to guard against obstructed perspiration by suitable clothing, and a diaphoretic regimen; together with the use of sarsa and the garden balsam (*Justicia pectoralis*). The same remedy and regimen are equally applicable in chronic dysentery; in ulceration of the bowels, or of other parts; and may doubtless be considered as at least amongst the most successful auxiliaries in the treatment of these cases, as well as in phthisis or consumptive disorders, so frequent and destructive in this country.

A prejudice, however, prevails against the use of balsamic and terebinthinous remedies; and I have known the use of wine and beer allowed, when the balsams were interdicted as too stimulating. When the latter are employed, the spirituous stimuli should indeed be avoided, and a cooling bland diet employed: under such regulations, the efficacy of balsamic and even more stimulant remedies are often of most signal benefit; as, for instance, in the use of balsam copaiba, cubebs, etc., for gonorrhœa, however acute or inflammatory the disease: but then, the antiphlogistic and diaphoretic regimen should be observed, and even bleeding performed when the excitement runs high; in short, it is the conjunction of these two seemingly opposite means which proves the most efficient in divers inflammations, fevers, and internal lesions. Many are the errors and misconceptions about the heating or ill effects of balsams, which arise, I conceive, from inattention or neglect of the due accompaniments under their use.

The balsamic remedies have indeed been regarded with much suspicion since Dr. Fothergill's well-meant cautions were put forth against their general use:*—but that able physician appeared to take a rather partial view of the subject, and erred,

restoration almost as a miracle. After being *given over*, he said, by the faculty, a cure was effected by taking the Haiowa with milk, and the use of barley as a diet.

* Vol. II. of his Works.

I conceive, by confounding the peculiar stimulus of the balsams with that induced by stimulating food and drink.

It must be granted, that the use of terebinthinous or balsamic medicines may prove hurtful when employed in excess, especially in vigorous constitutions, and whilst we neglect the due precautions above noticed, for counteracting the inflammatory diathesis, by antiphlogistic diaphoretics and evacuants, bland diet and dilution.

I found at the outskirts of Angostura, a dicœcious species of *Fagara*, (*Amyris* of Sprengel,) two small trees about twelve feet high, growing near together: they had a smooth bark, leaves prinnate, and the common petioles winged as in *Quassia amara*; the wood remarkably brittle and white. One of them was broken down by the wind or some accident, but so strong was the vital principle, that some weeks afterwards, passing that way, to my surprise I found it, although prostrate on the ground, putting forth leaves and flowers at the same time with its mate, it being attached to the stump by a slender strip of bark. These plants, like the *Cassiæ*, *Jacaranda*, and many others, lose their leaves in the dry season, and put forth fresh ones in March and April at the commencing rains, when all vegetable nature, after a long drought, again acquires new life.

I found this to be the tree which yields the *Balsamo-real*, which I had heard exceedingly praised by the Spaniards as a remedy in phthisis, gout, nervous and spasmodic disorders. This balsam is of a yellowish green or golden color, sub-acrid, bitterish, and very fragrant. The male plant has eight stamens, and the whole tree is so similar to Jacquin's *Fagara octandra*, that I should have taken it for the same but from its being dicœcious.

The balsam is given out in very small portions, and I never obtained enough to make trial of its much-vaunted properties; which, however, are probably not very unlike the exudations from its kindred genera: at the same time, I do not consider these exudations generally to be, in medicinal powers, so strictly

allied as is usually represented; they being mostly assimilated or classed together as *stimulants*, under the head of terebinthinous products. It is true they are all more or less stimulating; many of them, however, possess peculiar properties, although, perhaps, not so strongly marked as are some other proximate principles, such as extractive matter and the alkaloids.

The *olo*, so called both by the Arowaks and Caribs, is a small tree, the *Icica guianensis*. It is that which yields the best *gum elemi* of the shops; and, as Aublet remarked, its odour approaches much to that of citron. It is called in Cayenne *Bois d' encens*. The Arakusiri (or *Beaume rakasiri*) is noticed in several European Pharmacopœias, although no one gives any information as to its origin, which, in the *Pharmacie Universelle*, is said to be unknown. By turning to Aublet, however, a description and a good figure will be found in his *Icica Aracouchini*. This also is a small tree, and a comparatively rare species. Its balsamic juice is highly valued by the Caribs as a necessary part of their toilet, being mixed with the red paint *roncon*, with which, at all their feasts and dances, they perfume and decorate their bodies. They also apply it to wounds, and inhale its fumes in pectoral complaints. The Macoosis, and other inland tribes, usually substitute the recent gum akyari (carana) for all these purposes.

As to geographical range, the olo and haiowa are found near the sea coast of Guiana, and most of the species flourish but little above the common level of the ocean. Fermin says that the rakasiri comes from a tree near the Amazon; that it is a sovereign remedy applied hot to recent wounds and old ulcers, and, taken inwardly, arrests fluor albus and the most stubborn gonorrhœas.*

* For further remarks on the resinous and balsamic substances found in Guiana, see Brewster's *Journal of Science*, October, 1829.

On the Bark of the Ulmus Campestris: by G. G. Sigmond, M. D. *Read May 10th*, 1837.

Some botanists have been sanguine enough to entertain the idea that in this country might be found a substitute for every product of the vegetable kingdom, now imported to us from other regions, which has been found serviceable in the maintenance of health or in the recovery from disease; although this expectation cannot be realized, it is most gratifying to know that this island abounds with a vast variety of plants, which possess innate virtues of a very marked character, and are capable of producing energetic influence upon diseases, for whose cure the most expensive foreign drugs have been required to be imported.

The barks of many of our trees possess much medicinal virtue, and many of our ancient herbalists pursued inquiries into their effects with an ardour and sincerity for which we ought to be most grateful, and from which we may yet doubtless derive considerable benefit. If we should be enabled to find in our islands substitutes for mezereon, for sarsaparilla, and for cinchona bark, we shall be conferring on our fellow countrymen a benefit which will be appreciated by all those who are capable of judging of the importance of the objects we have in view. Amongst those plants which may prove not unworthy the notice of the profession is one from which I have had ample opportunities of deriving great advantages.

Ulmus campestris, or the elm, has been known as the depository of a mucilaginous principle which exists throughout it. This is obtained with great facility from the bark after maceration in water. It has been employed as a local application to burns and wounds with some success. This occasionally exudes spontaneously, and has been noticed by Dr. Thomson of Glasgow, who has given it the name of Ulmin. It quickly, after its exudation, concretes into a hard, black, shining mass. It is perfectly tasteless; it is soluble in water, but not in alcohol; from the watery solution it is precipitated by nitric acid, and

by hydrochloric acid in the state of resin. Berzelius seems to think that there is a similar exudation existing in every bark, of which it forms a component part. There is a striking medicinal power residing in the inner bark, or that which is nearest to the wood, which, from some experiments which I have made, I consider to be of great importance in the cure of various eruptive diseases. This inner bark affords a quantity of mucilage upon mastication, which is tenacious, viscid, and bitter, but is devoid of all odour. The smaller branches are more bitter than the trunk; and the slender twigs abound so much in the mucilage that it can be drawn into thin threads: these twigs and the smaller branches, if gathered in the early spring, yield up their virtues to boiling water. Four ounces of fresh elm bark, bruised, boiled in four pints of water, form a thick decoction, possessing a bitterish taste, somewhat mucilaginous, inodorous, and of a brown colour. Banau thinks that the tree does not yield so much of its virtue if it be above ten or twelve years old: those who obtain it for the London market seem to have no fixed rule for stripping the bark, and I believe that there is little or no difference in the effects which are produced by it, if it be collected in the early spring, but that there is less of mucilage in that which we have in autumn, although I have derived from it the same curative agency at that period of the year.

If in boiling the decoction too much heat be applied, the mucilaginous principle disappears, and a much greater degree of bitterness is evolved. My attention was first directed to this bark by the terms of approbation in which it is spoken of by some of the older herbalists, who considered it a vulnerary; and, in the language of Quincy, "it makes a good gargarism for sore mouths, occasioned by heat and sharpness of humours. Some have supposed it to possess great virtues in curing cutaneous foulnesses." Lettsom, in the *Medical Memoirs,* says that he tried its efficacy in a case of lepra icthyosis, which had resisted antimonials, mercurials, combinations of sarsaparilla, of mezereon,

and various topical remedies, such as saturnine applications and mercurials: success attended its internal administration. There is likewise a case of an old man whose body was most severely afflicted with a similar disease; there were fissures and deep ulcers upon the hands and feet, with daily desquamation of scales, which could be collected from the bed to which he was confined in handfuls: his sight and his hearing were likewise affected. By a use of this remedy internally, and also by its external application as a lotion, health was completely restored. Banau has likewise employed it in various herpetic eruptions, in scabies, in tinea capitis, in old ill-conditioned ulcers, to cancerous and scrofulous sores, and likewise in some of the exanthematous diseases. Notwithstanding these testimonies in its favour, I am not aware of its having been employed to any extent by any other practitioner. I felt much disposed to learn its efficacy when an opportunity offered, for, from the views I entertain of the nature of most cutaneous affections, I felt persuaded that it possessed considerable power, and as some instances presented themselves where I could not employ sarsaparilla and mezereon, I was determined to give it a fair trial; and, from many successful cases, I am led strongly to recommend it in those states in which those plants would be administered, and it is not only equally successful in many instances, but in others its effects are more speedy and decided.

It gently stimulates the kidneys into secretion; the quantity of urine is increased and also the quality; for on application of the Litmus test it will be found that more acid is secreted, and, after some continued length of time, there is a red deposit, which evinces that the bark has been successfully administered: very shortly after this production the diseased state of skin is very quickly exchanged for a more healthy appearance. To those who reflect upon the intimate connexion that exists between the skin and the renal excretion, there need be no other cause assigned for this amendment. It has been the opinion of modern physiologists, that the term alteratives in the Materia Medica

has no legitimate meaning, and that we do not possess any means by which we can slowly change the condition of any of the organs or tissues of the human body; but I think the decoctions of many vegetable substances produce a most remarkable agency upon the human body, and that they alter the quality and quantity of both the secretions and the excretions, and thus materially influence the health of the system. The varieties of eruptions have been so well explained, both by Willan and Bateman in this country, and by Rayer in France, that it would be useless for me to dwell upon their diagnostic distinctions, or to state further than that they have their seat principally in the true skin, but that the epidermis and the rete mucosum participate in almost every variety of eruption, that where, from some retardation in the pores of the skin, there is an extraneous deposition, all the cutaneous system is affected, and that it requires some stimulus adapted to the circulating medium by which absorption takes place to restore the skin to its healthy functions. In cases of scaly disease the *Ulmus campestris* is more particularly serviceable; in all the varieties of lepra it produces a most marked influence. In a young girl admitted into the hospital,—a case which had excited amongst my pupils the most marked interest as well from the urgency of the symptoms as their inveteracy—it quickly proved the truth of my previous expectation. The disease had commenced about two years before her admission; notwithstanding she had enjoyed opportunities of being under the care of some experienced physicians, the skin had never once been free from large dark brown scaly patches, which were copious upon the legs and arms, and more especially upon the knees and elbows. The bend of the arm presented a very singular appearance from the irregularity of the surface of these scales, formed from the coalescing of a number of small ones and the deep furrows made in their centre. These thickened laminæ were, at the time of her admission, about the size of a half-crown upon the joints, whilst smaller scaly patches extended themselves over the greater part

of the extremities; they were nearly of a circular form, their borders a little elevated, and whilst the centre wore a shining appearance, the circumference had a red and somewhat angry surface: this state was unaccompanied by pain, by itching, tingling, or any sensation, besides that of stiffness on moving the limbs, and some degree of soreness when any but smooth surfaces came in contact with them: the little girl was in every other respect in good health, enjoyed a good appetite and sound sleep, but had formerly occasionally complained of pain on her right side. The bowels were regular, the urine straw-coloured, and gave very slight indication of the presence of acidity. Three times in the course of the day four ounces of elm bark in decoction were admiministered; the recovery was rapid: once or twice only were cathartics used, for they generally determine too much to the bowels, and hence prevent that action upon the kidneys which I believe to be essential to the operation of the bark. The scaly crusts gradually detached themselves from the skin, leaving the cuticle red and shining, which began from the centre to assume a more healthy appearance; the larger dark brown patches were the first to fall off, and as the skin began to recover only large red lines in the circumference were visible. In similar cases I have been equally successful. The following was drawn up by Mr. Foote, the Secretary to your Society, when he was my pupil at the Marylebone Infirmary.

June 2nd, 1832. Susannah Kiteley, aged 16, 21, Spring-street, Portman-sq., of leucophlegmatic temperament, affected with a scaly eruption, especially about the knees; the scales drop off occasionally, leaving a red unbroken surface beneath, and the scales again return on the same place. It appeared three months ago on the knees, extending down the legs and feet, and has latterly, within a fortnight, spread upwards on the thighs, body, and on the hands and arms. She has been in service for two years: at the last place, where she remained twelve months, she was frequently fed on salt meats. After staying there eight or nine months this eruption made its appearance.

Pulse moderate, about 76; bowels not very regular; tongue slightly furred; catamenia have not yet appeared; appetite very bad. Is apparently of a weakly habit, but, from her mother's report, appears to have suffered hitherto merely from sick headaches, to which she is very much subject.

℞ Pulv. jalap gr. xviij s. m. mitte vj.

Is to live chiefly on vegetable food.

5th. Bowels opened by the medicine; the scales are clearing off.

Decocti ulmi cyathus vinosus bis die.

Oxym. hyd. gr. vj, aquæ calcis oj, lotio nocte mane utend.

9th. There are fewer scales, and the eruptions are apparently lessened on the lower extremities, but extending on the arms and hands. Bowels confined.

Pulv. ut antea.

16th. Bowels not open; skin clearer; maculæ less in number, and apparently not so irritable. Pergat.

19th. Continues improving. Pergat.

July 19th. Has been improving since last report: is nearly clear.

22nd. Discharged cured.

I have likewise found it very serviceable in tinea capitis, and more especially when it has been used as a wash externally. In those extensive papulous eruptions, known by the name of lichen, which usually terminate in scurf, the lichen simplex, which attacks the face and skin sometimes periodically, very quickly yields to the remedy; and in the milder cases of erysipelas, when the constitution has not in any way participated, I have been in the habit of using this remedy with a success that has now enabled me to lay the result of my observations before you.

In those affections of the skin where the papulæ are in a state of high irritation amounting to inflammation, I have uniformly found lotions or applications of mercurials, such as the unguentum hydrargyri nitratis, or ointments of lead, to be rather injurious than beneficial; in such cases it is that I have observed so much benefit from the bark of the elm, internally taken and externally applied, and in almost every stage of cutaneous dis-

ease. There are likewise some states of the skin in which papulous eruptions and erythematic blushes are indicative of diseased states of the internal mucous membranes, and likewise of various dyspeptic symptoms. Thus we observe where leucorrhœa exists, or where disease has been induced by dram-drinking, that redness of the skin and disordered functions of the skin are visible; in such instances the use of the elm-bark for some weeks, with attention to diet, has been productive of the best consequences, and I have had the satisfaction of seeing some of those eruptions, which have for years baffled every attempt of the medical man, yield to a determined course of the elm-bark. It is of importance to continue it for some time, and to attend to the state of the bowels during the period in which it is taken. The state of the urine should be carefully observed; and it will be found that, after some little time, much acid will become developed, which most probably is determined from the blood, and would have been deposited in the skin and have produced some of those disordered states which the elm-bark appears destined to avert.

Upon Odoriferous Bodies: by G. Sigmond, M. D., F. M. B. S., etc. etc. *Read February 22nd*, 1837.

The infinite variety of odours, their use in the great economy of nature, their extraordinary influence upon animated beings, have not escaped the attention of the inquiring mind of man: he has examined them as far as his limited means would allow, he has applied them to his use, both in health and disease, but he has by no means attained that information which can enable him to derive those advantages from their existence which their singular powers prove that they possess. Early as the days of Democritus of Abdera, the subject was discussed; he commenced an inquiry into the cause of vegetable tastes and odours, which he ascribed to the primitive particles of which plants respectively consist. The physicians of antiquity, ever anxious to apply all the knowledge of the age in which they lived to the cure of diseases, employed odours as remedial agents. We find Aretæus recommending them in epilepsy, Aetius in diseases of the stomach, Actuarius enumerates those that were to be placed in the Materia Medica, Oribasius inquired into their nature; whilst the schools of the philosophers indulged themselves in various abstruse speculations: thus the followers of Plato fancifully considered them as the food upon which aerial beings live. Every object in creation seems to have its own peculiar odour, oftentimes so minute as to escape the most delicate sensibility, at other times so intense as to be capable of destroying life. We observe in the mineral kingdom powerful exhalations from many of its objects, each distinguished from the other, such as those of sulphur, of copper, of lead.

In the animal kingdom the same law exists, each diffusing around the particular exhalation of its species, as the dog, the pig, the fox. Man himself exhales the odour peculiar to his species, and different races of men are to be distinguished by their smell. The Indian, in a moment, however dark may be his position, knows the European from the native by this

quality. It is influenced in man by health, by disease, and by passions of the mind; nor was Dr. Hallam incorrect when he stated on a public occasion, that he could distinguish madness by the smell: the experienced physician in a moment recognizes the miliary fever by the odour of the perspiration, and by the same test he knows that mercury has had its peculiar influence upon the constitution; or that in rheumatism the sweating has been produced by opium and by ipecacuanha. In animals the scent is of the greatest importance; by this they are enabled to discover their prey, or to ascertain the period at which the female is fitted for generation. It appears, however, that none of the brute creation are sensible of the odours which arise from the vegetable kingdom, with the exception of the cat: this is the only animal which is supposed to be capable of deriving any gratification from this sense; to her the marum or the nepeta are sources of the greatest pleasure; if the latter be bruised, she will uproot it, and dwell over it until it be completely destroyed. Of the sense of smell in the brute creation, man has taken some advantage; thus for the pursuit of the fox or the wild game, he trains his dog, and the rapacious Spaniard was enabled, by means of the blood hound, to track the miserable Indian; whilst, as if to redeem the character of man from so foul a stain, the gentle hermit of Mount St. Bernard employs the same means to rescue, in the midst of the snow-storms, the benighted travellers in the mountain passes.

But it is to the vegetable kingdom we are so deeply indebted for the delicious perfumes of nature. What can be more perfect "than the balmy breath of incense breathing morn," with its thousand dewy odours? The natural fragrance of the fields wins the senses of those most accustomed to the artificial odours of false taste; the sweet herbs which belong to the order Labiatæ, disperse around the meadows a luxuriant aroma; the various species of thyme impart their sweet breath to the arid waste, whilst the more cultivated fields derive from the balmy calamint their aromatic sweets; the stagnant pools that overrun

the marshy ground and would bear upon the wind disease and death, have their baleful vapours corrected by the mints. Doubtless, many of these odours perform various functions in the economy of nature, which to us are unknown or imperfectly understood; probably the insect, whose visit to the flower is necessary for the purpose of impregnating the plant, is attracted by the odoriferous principle, whilst some foe to vegetable life is kept at a distance: and we sometimes find that when the aroma is no longer exhaled, numerous insects, whose duty it is to relieve the earth from dying and decaying matter, commence their laborious operations, and are harbingers of death to the plant. The power of vegetable odours upon the human frame has not much occupied the attention of the botanists, yet they have at various times been led to a consideration of their uses in diseases; and facts have not been wanting to prove to us that considerable benefit may be the result of inquiry. Travellers have told us, and we have no reason to doubt the fact, that those who sleep in houses of which the wood is principally composed of the cinchona bark, escape the intermittent fever of Peru: whether it is from the odour of the quinine, or from some peculiar principle residing within it, we know not; but certain it is, that tic douloureux has been more than once effectually cured by the inhalation through the nostrils of this remedy; and in one of the volumes of the *Lancet* you will find two cases thus described to have been cured. Boerhaave was struck with the power of odours, and several of his school inquired into the subject, but they were too sanguine and rather excited discussion, than collected facts or reasoned deliberately.

Linnæus, to whom every thing in nature was a fresh object of research, who indefatigably inquired into every object by which we are surrounded, and who has pointed out such rich fields for cultivation, and from which such harvests are yet to be gathered, gave a small portion of his time to the consideration of the aroma of vegetables; and in those delightful

volumes called the *Amœnitates Academicæ*, we find some essays upon this subject, which ought to form the foundation on which to erect a useful and ornamental superstructure. These volumes, though not immediately written by himself, or at least not bearing his name, have always been considered to be Linnæan authority, as they were the thesis of his pupils, and were published under his own immediate direction, at least, the seven first volumes, the others being printed after his death. One of the postulatums of Linnæus was, "that the qualities of medicines are in a general way to be determined by their effects on the organs of smell and of taste; and he likewise laid it down as a rule that the sapida, or those which strike the taste more sensibly than the smell, operate upon the vascular system; whilst the olida, or those which more sensibly act upon the olfactory nerves, operate on the medullary or nervous system:" he says, "sapida in fibras, olida in nervos agunt." In the papers which form the *Amœnitates Academicæ*, are to be found three dissertations which elucidate these views; and they are of very singular interest, as well from the facts they bring forth, the arguments that are to be deduced from them, and the clear manner in which the views of the great leader in botany are illustrated. One of these is entitled Odores Medicamentorum, and is by a distinguished pupil, Wahlin. He ascribes to the odours the greatest power; and conceives that they indicate the qualities which are possessed by different bodies, and by which they produce their various effects upon the human frame.

They are divided into seven classes.

1. Aromatici, such as cinnamon, cardamom.
2. Fragrantes, ... saffron, jasmine.
3. Ambrosiaci, ... musk, musk geranium, etc.
4. Alliacei, ... onion, leek, garlic, assafœtida.
5. Hircini, ... herb Robert, stinking orach.
6. Tetri, ... opium, hyoscyamus.
7. Nauseosi, ... white and black hellebore, tobacco, colocynth.

Each one of these classes not only varies in its sensible odour, but by that odour we are to judge of the medicinal effects of each substance. Thus the aromatici excite the circulation, the fragrantes stimulate the debilitated nerves, the ambrosiaci give tone to the heart, the alliacei act upon the transpiratory system, the hircini or nauseating upon the bowels and kidneys, or the uterine system: and he very ingeniously explains their mode of action, and forms upon this basis a very elegant and learned system of materia medica and of therapeutics. Fragræus has carried on the idea, and has written a dissertation upon medicamenta graveolentia; he divides them into subinsipida, acria et amara, and then subdivides these into two orders, one of great power, the other of lesser action: the first class contains the stronger and the weaker narcotics; the second embraces the fetid, the carminative, and slightly purging plants; the third the more powerful and the bitter substances: he then enumerates the diseases in which these classes are to be employed, and uses much ingenuity upon the subject. It would doubtless be a matter of great importance to collect the aroma issuing from plants, or to preserve them so as to obtain in disease a fresh addition to the healing art. Mons. Fee observes that in some plants the aromatic spirit is free, and then it is dissipated by drying; this occurs chiefly in flowers, it cannot be given either to water or to spirit, but it may be retained by the aid of fixed oils. In other plants it is in combination with the essential oil, and in this form it may be united with water, and with alcohol, but scarcely with fixed oils. In others, again, it is in union with a resin or a gum resin, and then it may be collected in concrete masses by wounding the plant, or by distillation. Some effluvia are so volatile that they must escape all means whatever of being even appreciated by our senses. A thousandth part of a grain of musk will diffuse itself over a space that can scarcely be calculated in reference to its own volume, and any substance in which it has been kept will retain its peculiar odour for a long series of years. To trace the effect of each aromatic body

upon the human system, to shew how various emanations instantaneously destroy life, as in the case of the effluvia from hydrocyanic acid, or to point out how they act upon the passions of the human mind, would be a subject of vast and important research, upon which few have ventured to enter; but I purpose on a future occasion to direct your attention upon these subjects, limiting myself now only to some leading points which your discussion must elucidate, and from your considerations I shall be hereafter guided as to the manner in which these studies are to be pursued.

Among the interesting subjects which are worthy our investigation, and which can only be ascertained by actual experiment, is one that has gained some attention in India—can we by any artificial culture impart either to plants or to any part of them increased odour? It has been imagined from an early period that by some peculiar management of the earth in which the roots are imbedded, that this object can be effected; whilst others have asserted, that by watering plants which have little or no scent with aromatic fluids, we can give to them a more distinct aroma—that we can by such means alter the secretions—that even the sap will undergo some unusual change in its circulation in the leaf, and that there will be developed a stronger aroma than would under other circumstances be given forth. It was my intention to have dwelt upon this subject, but I think it will be better for this Society to try some experiments on so interesting a subject, before any conclusions are actually supposed to be arrived at. When we see the extraordinary changes that occur from the manure in which plants are imbedded, when we find fruit increased in flavour and in fragrance, we are almost led to place some reliance upon that which we have heard. In the nursery grounds in which medicinal plants have been grown, various experiments have been tried for their culture; and where the dead bones of animals that have considerable animal matter adhering to them have been used, it has been found that their powers have been increased, and with their

powers the external appearance and likewise their qualities. It is likewise observed, that where the onion grows the rose has much more sweetness and delicacy of odour, and some attempts have been made to ascertain upon what principle this depends; it has been ascribed to the presence of ammonia, and hence experiments have been made by which, through means of the alkali, this fragrant plant might be rendered still more acceptable to the senses.

Some years since the attention of the scientific in India was turned to the pretensions of some gardeners there, who declared that they were in possession of a knowledge by which wonderful improvements might be made in the cultivation of fruits, in rendering plants odorous, in obtaining rose-water, and more particularly the essential oil to which the application of attur or otto of roses is given. In the Transactions of the Agricultural and Horticultural Society of India, published at Serampore in the year 1829, is a translation of a curious work on gardening: the original has been ascribed to the Rajah Mitrajit. Amongst a number of very curious and singular recipes is the following:—Take out the earth from the root of a tree which does not produce fragrant flowers; embrocate it with the bruised seeds of janum, motha, and khus, (*Eugenia Jambolana, Cyperus rotundus,* and *Andropogon muricatus,*) and then fill it up with fresh earth; and afterwards boil the same things in water, and when cool, water the tree with it: this management will render the flowers fragrant. This treatment applied to shrubs producing odorous flowers will increase their scent; and if applied to fruit trees, will render the fruits sweet-scented; but it must be performed on young plants. Another recipe it to the following effect:—Let the ber tree, (the *Zizyphus Jujuba,*) be watered with honey and the juice of kyth (*Feronia elephantum*) mixed with jethumud (Liquorice) and sesamum seed, it will bear fragrant, sweet, and large fruits. The limits to which a paper must be confined prevent me, on the present occasion, from doing justice to the singular subject

which is now brought before your consideration; but I am persuaded that when we reflect upon the wondrous changes produced by cultivation; by artificial arrangements of heat, of air, and of light; by the process of manuring which is yet in its infancy, that we shall agree that we have yet hopes of attaining, by experiment founded upon just principles, a greater knowledge of our power over vegetation than we at the present period possess: and if we can add to our materia medica, by an inquiry into the odoriferous principles, any new means for the cure of the diseases by which we are afflicted, we shall not regret the time, the labour, and the expense, which such a subject must demand.

A Letter to the Secretary of the Medico-Botanical Society of London.

Sir,

I have the honor to lay before you the statements of some of the most eminent medical practitioners in India, relative to a highly nutritive alga which has been introduced there by me from Ceylon, and which I am anxious should obtain the sanction of your society. The following extracts are from letters addressed to the editor of the *India Journal of Medical Science*, published at Calcutta, and which appeared in March, 1834.

On the Composition and Properties of the Fucus amylaceus: by W. B. O'Shaughnessy, M. D., Assistant Surgeon H. C. Service. *Read June 28th*, 1837.

"Gentlemen,

"I beg leave to forward to you the results of the analysis you requested me to make of the vegetable substance you sent me, under the designation of an edible moss, and which, as far as I can ascertain, has not been described by scientific writers. It is a very small and delicate fucus of white colour, and flattened filliform shape. The longest of the separate individuals in the specimen I received, did not exceed two inches from the ciliary processes corresponding to the root, to the extreme of its ramifications, which were not very numerous or regular. I could not discover any organs of fructification, perhaps owing to the season of the year when the fucus was collected. As it is, however, my chief object at present to contribute to the chemical history of the substance in question, I shall not enter into its description more minutely, but I shall venture, for mere convenience of reference, to apply to it the provisional term of fucus amylaceus, from its remarkable and important peculiarity of containing a large proportion of true starch.

"I proceed to describe the results of the analysis, and I shall subsequently offer a few very brief remarks on the relations the fucus amylaceus bears to other edible congenerous vegetables; and I shall

then point out the mode in which its alimentary ingredients may be made most available in culinary preparations.

Analysis of the Fucus amylaceus.

Sec. A.

"1. Twenty grains of the fucus in its dry state were macerated for twenty-four hours in cold distilled water. A great increase of bulk was produced, the fucus still retaining its natural outline and proportions as if seen through a powerful magnifying lens: on pouring off the water, and removing all mechanically adherent moisture, the twenty grains of the dried vegetable were found to have imbibed of water fifty-four grains.

"2. The decanted fluid, A 1, was neutral to test paper; did not coagulate on boiling; had a strong saline but no bitter taste when evaporated to the consistence of a syrup; it afforded a flocculent precipitate on the addition of alcohol.

"3. The precipitate, A 2, when collected and dried, weighed 0·80 grains; it was soluble in water, hot and cold; was precipitated by alcohol and sub-acetate of lead; and with all other re-agents gave the usual character of gum.

"4. One half of the fluid from which the gum had been thus separated, A 2, when diluted with water, gave precipitates with the nitrates of silver and baryta, but not with acetate of ammonia, tartaric acid, or chloride of platinum.

"5. The remaining half of the fluid, A 2, evaporated to dryness; and the residuum, calcined on platinum foil, gave a saline mass weighing 0·65 grains.

"From these experiments it is obvious that the fucus under examination differs from the Iceland moss in containing no bitter principle, that it holds in combination 4 per cent. of gum, and 6·50 per cent. of muriate and sulphate of soda.

Sec. B.

"1. Ten grains of the fucus were cut into very minute shreds, and boiled for twenty-four hours in two ounces of distilled water, which was constantly renewed as evaporation required: when allowed to

cool, the liquid gelatinized, the jelly being mixed with an abundance of undissolved shreddy masses.

"2. The jelly, B 1, re-dissolved by boiling, and filtered through muslin, was neutral to test papers; free from bitter taste; transparent and colourless; gave no precipitate with tincture of galls; with iodine gave a faint and very transitory blue tinge when cold; was very soluble in caustic potassa, from which it did not gelatinize; acetic acid added in excess to the alkaline solution, separated the jelly unchanged in the form of a clear coagulum.

"3. A particle of the insoluble residuum on the filter, B 2, when quite cold, was agitated with distilled water in a small glass tube and iodine added; the particle became gradually blue but the fluid was not affected: the contents of the tube were then boiled, allowed to cool, and more iodine added, with exactly the same effect—the starch remaining in the particle of fucus and not being dissolved from it by the boiling water.

"4. The solid residue, B 2, weighing 3·50 grains was boiled in alcohol; the alcoholic fluid separated and dissolved and gave traces of wax.

"5. The same solid particles, B 2, thus freed of wax, were reduced to a very fine powder by diligent trituration: the powder was boiled in distilled water, the solution filtered and allowed to cool; iodine now struck with it an intensely blue colour; two grains of solid insoluble matter containing no starch were left on the filter in the experiment.

"6. These two grains were insoluble in water or alcohol, and with the strong alkalies and acids exhibited the characters of ligneous fibres. Macerated, it gave a minute saline residuum composed of sulphates and phosphates of lime and traces of iron.

Conclusions.

"The preceding experiments shew that the fucus under examination is composed of vegetable jelly, nearly identical with the pictin of Braconnot (experiment B 1 and B 2), true starch (exp. B 2 and B 5), wax (exp. B 4), gum (exp. A 2 and A 3), sulphate and muriate of soda (exp. A 4), sulphate and phosphate of lime and traces of iron (exp. B 6), and, lastly, ligneous fibres (exp. B 5 and B 6).

These ingredients further existed in the following proportions in one hundred grains of the fucus:—

Vegetable jelly	54·50
True starch	15
Wax	a trace
Ligneous fibre	18
Gum	4
Sulphate and muriate of soda	6·50
Sulphate and phosphate of lime	1
Iron	a trace
	99
Assume the traces of wax, the iron, and loss, at	1
Total	100

"You are of course aware, that several individuals of the Lichen and Fucus families are possessed of valuable alimentary or medicinal properties; while some, such as the *Cetraria islandica*, or Iceland moss, combine both these virtues in a remarkable degree. The very disagreeable bitterness of the lichen, although removable, it is true, by immersion in an alkaline solution, must ever constitute a material obstacle to its general alimentary consumption. In one important particular, namely, its containing no true soluble starch, the Iceland moss is, moreover, far below the *Fucus amylaceus* in alimentary value. The same observations apply almost as aptly to the celebrated *Cladonia rangiferina*, or rein-deer moss, which is quite as bitter as the former. Among the *Fuci*, several very curious individuals are included; some of which are of known alimentary utility. One of the most singular of these is the *Gelidium corneum*, valuable from the immense quantity of soluble and nutritive pictin which it contains, and from its entering, according to the statement of Mons. Fee, into the formation of the edible swallow's nests of the Javanese highlands. The *Laminaria saccharina* is interesting from the fact of its containing sugar. It is highly esteemed in Japan, where it is extensively used as an article of diet; being first washed in cold rain water, and then boiled in milk or broth. Another, the *Durvillæa edulis*, of Bory St. Vincent, is sold commonly as a vegetable for the table in the

markets of Chili; but I believe it has never been subjected to chemical examination. In Great Britain, the *Chondrus crispus* has recently attracted much attention. This production abounds on the western coasts of Ireland, round the Orkneys, Hebrides, the Scilly Islands, etc. Indeed every where, except on the limestone or chalk maritime districts, it enjoys high popular celebrity as a remedy in phthisis, and in Ireland it is but too well known as the occasional resource of a famishing population. By long decoction it affords a considerable quantity of a nutritious but nauseous jelly; the unpleasant flavour being chiefly owing to the very large proportion of sulphate of soda it contains. Starch, however, does not enter into its composition; so here this individual also yields in value to the *Fucus amylaceus*, which contains no bitter or unpleasant principle, no iodine, and but a very moderate proportion of sulphate of soda.

"From the preceding remarks the probable value of the *Fucus amylaceus* may be readily inferred. With regard to the best mode of rendering it available as an article of diet, I made several experiments, which I need not describe minutely, but the results of which afford some useful indications.

"In the first place, from the tendency of pectin or vegetable jelly to form insoluble compounds, with saline and earthly bases, it is necessary to steep this fucus for a few hours in cold rain water, as the first step in its preparation: this removes a large proportion, if not the entire, of the sulphate of soda, leaving all the gelatine and starch. It should then be dried by the sun's rays and ground to a fine powder; I say ground, for cutting or pounding, however diligently or minutely performed, still leaves the amylaceus globules so mechanically protected, and so closely involved in an external sheath of tough ligneous fibre, that scarcely a particle of the starch can be extracted by boiling, even though the decoction is prolonged for several hours. For the experimental proof of this statement, the reader is referred to the analysis, Sec. B, 1, 2, 3, and 5. When ground, on the contrary, boiling for twenty-five minutes or half an hour dissolves all the starch and gelatine; the solution, while hot, should be passed through muslin or calico, and thus the ligneous fibre is removed: lastly, the strained fluid should be boiled down till a drop placed on a cold surface gelatinizes sufficiently.

"With milk and sugar, and flavoured with lemon juice or sherry, this substance, when prepared as I direct, would afford the invalid a pleasant article of diet, especially at sea, where other jellies or their materials cannot be so easily preserved. As I am informed that this fucus is found abundantly on the eastern coast of Bengal, I entertain considerable hope of its being hereafter found available also in several processes of art and in various manufactures, to which it would be perhaps misplaced to allude more minutely in the columns of this journal.

"I am, Gentlemen,

"Your faithful servant,

(signed) "W. B. O'Shaughnessy,

"Assistant Surgeon, H. C. Service.

"General Hospital, Calcutta,

"February, 1834."

Note from Dr. N. Wallich, Superintendent of the Botanic Garden.

"The esculent sea-weed, which has been analysed by Dr. O'Shaughnessy, is called by the Malays agar-agar. I have no doubt that *Fucus lichenoides*, Herb Linn, described and figured in Mr. Dawson Turner's beautiful work on *Fuci*, vol 2, p. 124, t. 118, is this very species; the variety quoted there from Gmelin's *Historia Fucorum*, tab. 8, fig. 2, seems likewise to belong to it, while this last author's *Fucus edulis*, (not the species so called by Stackhouse,) is considered a variety of it.

"One or more of the *Algæ coralloides* and *Agara*, described by Ramphius in the *Herbarium Amboinense*, vol. 6, pages 181, 182, and pages 185-187, have reference to the agar-agar, and the fourth species of *Agarum*, which he designates *A. lactucarium*, sive *Lactuca amara Malaica*. Agar-agar seems to be the identical species. Tab. 74, fig. 3, and tab. 76, fig. A, B, and C, of this work, may be considered as indifferent representations of the plant. The agar-agar is briefly noticed as a commercial article in Mr. Crawford's *History of the Indian Archipelago*, vol. 3, page 466.

(signed) "N. Wallich.

"Botanical Garden, Calcutta,

"February 24, 1834."

Extract from Mr. Crawford's work just alluded to.

"The last marine production I shall mention is agar-agar; a kind of mucus which is soluble in water, and in which it forms a gelatinous matter. The Chinese use it in this form with sugar as a sweetmeat, and apply it in the arts as an excellent paste.

"It is probable it might be used in the same manner by us, and might prove a cheap and useful substitute for the expensive gums we now import. It forms a portion of the cargoes of all the junks. The price on the spot where it is collected is very low, seldom exceeding one and a half or two Spanish dollars a picul; or from 5*s.* 8*d.* to 7*s.* 6*d.* per cwt."

The above recommendations led to its employment by the following medical authorities, whose certificates, copied from the originals in my possession, are here given.

"Sir, "December 14, 1836.

"In reply to your note I beg leave to state, that I have for many years past been in the habit of recommending the Ceylon moss jelly, as prepared by you, to all my convalescent patients; and a great majority of them have preferred it to any other, either vegetable or animal jelly.

(signed) "S. Nicholson,
"To Mr. Previté." Surgeon, General Hospital.

"Sir,

"I can have no hesitation in speaking in the most satisfactory manner of the jelly prepared by you from the Ceylon moss, for I have been in the continual habit of prescribing it as a diet for convalescents ever since I first heard of it; and I can with truth say that I know no better food in such cases.

"Sir,
"Your obedient servant,
(signed) "J. R. Martin,
"Presidency Surgeon.
"Calcutta, Dec. 8, 1836."

Certificate as to the Ceylon moss, by the Apothecary-General.

"I have used the Ceylon moss frequently as an article of nourishment for invalids and children, and find it answer every purpose of arrow-root or sago; and in most cases to be much more agreeable to the habits of a sick person, than the other descriptions of farinaceous food generally in use.

(signed) "A. R. JACKSON, M. D.,
"Surgeon Officiating Apothecary, H. C. S.

"H. C. Dispensary,
"December 13, 1836."

"I have much pleasure in giving testimony in behalf of Mr. Previté's Ceylon moss. It is an admirable article of food, peculiarly well adapted to the delicate stomach of an invalid; light and easy of digestion, it is at the same time very nutritious; far superior indeed, to any thing of the kind I ever met with. I have employed it extensively and can recommend it with confidence.

(signed) "W. H. GOODEVE, M. D.,
"Professor of Anatomy and Medicine,
"Medical College.

"Calcutta, Dec. 15, 1836."

"Fort William,

"Dear Sir, December 13, 1836.

"I have examined and tried the Ceylon moss, and am of opinion that it is a valuable article of sick diet; the more so in cases where animal jelly cannot be obtained without delay, and when it is not so fitting for a weak state of the stomach as that of the Ceylon moss.

"Very truly yours,

(signed) "FREDERICK CORBYN,
"Garrison Surgeon.

"To Mr. Previté."

"Sir, "Calcutta, December 13, 1836.

"In reply to your note in which you request my opinion upon your Ceylon moss, I can merely repeat what I said in my capacity as

editor of the *India Journal of Medical Science*, viz., that I have tried it myself, and found it unequalled as a light and nourishing food for the sick.

"I beg to apologize for not having sent this reply earlier.

"I remain, Sir,

"Yours obediently,

(signed) "J. T. PEARSON, M. D.,

"To Mr. Previté." "H. C. Service.

"I hereby certify that I have made extensive trials of the Ceylon moss, introduced into notice by Mr. Previté; and I have also subjected it to chemical analysis.

"For details as to its chemical properties, I may refer to my paper on the subject in the *India Journal of Medical Science*.

"I need only repeat here that I consider it an excellent article of diet for invalids. It is very nutritive; easy of digestion; and free from any disagreeable or prejudicial qualities.

(signed) "W. B. O'SHAUGHNESSY,

"Professor of Chemistry,

"December 10, 1836." "Medical College, Calcutta.

"I have had many opportunities of recommending the Ceylon moss jelly, prepared by Mr. Previté, in cases of extreme debility, and in early convalescence after fever, dysentery, and other complaints, where none other than the most delicate nourishment could be administered; and I can confidently bear testimony to its value as a light and grateful article of food under such circumstances.

(signed) "WALTER RALEIGH, Surgeon.

"Calcutta, General Hospital,

"December 8, 1836."

"From all that I have seen of the Ceylon moss in trials made at the General Hospital, and elsewhere, I am satisfied that it is a very light and pleasant food for invalids, and particularly adapted for the nourishment of children.

(signed) "D. STEWART, M. D.,

"Assistant Surgeon to the General Hospital.

"Calcutta, Dec. 13, 1836."

"Mr. Previté,

"I enclose you Dr. Nicholson's opinion of the moss jelly. I can add my own experience of its utility to the account he has given; and may with truth affirm that Mrs. Palmer lived on it when she could take nothing else, and when, in fact, every thing else was denied her by the medical men.

"Your obedient servant,

(signed) "S. G. PALMER, Civil Service.

"Calcutta, Dec. 15, 1836."

"Mr. Previté,

"I beg to send you the medical opinion of Dr. Raleigh on the efficacy of the moss jelly, and I take advantage of the opportunity it affords me of expressing to you my hope, that it may meet with the encouragement at home it so deservedly merits, and of which I have had occular proof.

"I know in two cases, of my own family, of the invalids being sustained by the jelly, and its retention by them when all other aliment failed. I may add with truth, I have seen life prolonged by this excellent and grateful vegetable diet. With every good wish for its success, and speedy voyage to yourself,

"I remain, yours obediently,

"HENRY PALMER, H. C. Civil Service.

"Calcutta, Dec. 9, 1836."

Opinion of the Editors of the India Journal of Medical Science, by Messrs. Grant and Pearson, No. 12, vol. 1.

"Of the virtues of the Ceylon moss we can ourselves speak from experience. As a light and nourishing food for the sick, it appears to be unequalled by any thing that we have ever met with.—*India Journal of Medical Science for July,* 1834."

Extract from the India Journal of Medical and Physical Science, edited by Fred. Corbyn, Esq., for December, 1836.

"It was some time ago brought to the notice of the readers of this journal, that Ceylon moss would be of great value in the sick

chamber, in cases wherein jelly is prescribed. We have now the satisfaction of stating that it has been tried by most of the practitioners at the presidency, and the expectations regarding its value as an article of diet for the sick found invaluable.

"We should here mention, that the public are indebted to Mr. Previté for bringing the value of Ceylon moss to notice. When that gentleman was at Ceylon in 1823, he found the natives in the habit of dissolving and making it into a species of glue or size; it then occurred to him that it would probably make an excellent jelly for table use: on trial he was not disappointed, and from that period he has been in the habit of using it for that purpose. As Mr. Previté is about to return to Europe, we take this opportunity of stating, that the public have been indebted to his ingenuity and zeal, in preparing pulverized milk, bread, and other important articles of diet for invalids, proceeding on long voyages."

In submitting the above to the favourable consideration of the Medico-Botanical Society,

I have the honor to be,
Sir,
Your most obedient servant,
J. PREVITE.

21, Grove Terrace, St. John's Wood,
June 26, 1837.

The following is the method by which the nutritive qualities are best obtained :—

Put into a clean stew-pan a table-spoonful of prepared marine moss, add to it a pint and a half of hot or cold water, boil it gradually for twenty minutes, then take a little in a spoon and let it cool for a minute or two to see if the liquid is sufficiently boiled to congeal firm; if not, let it boil until it is, then strain it through a cloth into another stew-pan while it is warm, so as to draw all the liquid from the sediment produced by the moss. The sediment to be well squeezed. Add to the liquid a table-spoonful of fine loaf sugar, half a table-spoonful of lemon-juice,

a table-spoonful of sherry or not at the option of the maker, add a small piece of lemon-peel, and a very small piece of cinnamon; boil the whole gradually for ten minutes, and pass it once or twice through a piece of flannel into a basin or tumbler, and in ten minutes it will be fit for use.

Should it be required to be very clear and transparent (which is not necessary for an invalid, as by clarifying it partly loses its strength), add the white of an egg, well beat into froth, before the second boiling, and taking care that after the second boiling it rests for some minutes by the fire-side, with some hot charcoal on the cover of the stew-pan so as to render it perfectly clear; otherwise, by adding the white of an egg, it will have the appearance of milky white, which is not so pleasing to the eye, although in quality the same. When clear and of a lemon colour, pass it two or three times through a flannel jelly-bag: let it cool, or it may be taken in a liquid state, if preferred by the patient.

This jelly is equally good for the table as for the sick chamber, and will congeal in the hottest day without ice. Blancmanges and Italian cream can be made with this marine moss without the addition of isinglass; but in that case the jelly must be made much stronger before it is mixed either for the blancmange or cream, and at all times it must be blended when it is warm. The quantity it will take for a mould of either is two table-spoonfuls of moss to a quart of water, and that reduced to half a pint, which will cost about sixpence only, whereas the isinglass would cost at least three shillings.

The Ceylon marine moss has also this great advantage over isinglass or any other moss that is known at present, that it will stand firm and good for twenty-four hours in the hottest days we have in India; whereas it is well known that neither isinglass nor any other will stand firm for half an hour, not even with the aid of ice. The prepared moss also possesses another great advantage above all others, that a most delicious gelatine can be made from it in about fifteen or twenty minutes; whereas

it would take hours before any sort of gelatine could possibly be obtained from any other source, either animal or vegetable; and, therefore, for the sick chamber, I consider this substance a very great acquisition, where time with an invalid is often an object.

The Ceylon marine moss has been pronounced by the whole of the faculty of Calcutta to be unequalled for its delicate and nutritious qualities, and it has been particularly and highly recommended for the use of the sick. When all other nourishment has failed, this has proved successful; and I have no doubt that, when the article is better known by the faculty of England, it will be much more appreciated, and will receive the same patronage and support which it has done from the whole of the faculty in India for the last thirteen years.

Observations on some of the Medical Plants mentioned by Shakspeare: by S. Rootsey, Esq.

(Concluded from Part II, *p.* 96.)

Plantagenet. "Let him, that is a true-born gentleman,
And stands upon the honor of his birth,
If he suppose that I have pleaded truth,
From off this brier pluck a *white rose* with me.
Somerset. Let him that is no coward, nor no flatterer,
But dare maintain the party of the truth,
Pluck a *red rose* from off this thorn with me."
1st Part K. Hen. 6th, a. 2, s. 4.

The red bud of the *Rosa gallica* is the colour which the French call gules, a term used in heraldry and by Shakspeare—

"Now is he total *gules,* horribly trick'd."—*Hamlet,* a. 2, s. 2.

The word is, however, Persian, and means the globular unexpanded flower of any rose. It is also a Welsh word for a globe, as of a dew-drop.

The single and double velvet roses, or *Rosa holoserica,* are most likely referred to as the *deep vermilion,* and, perhaps, the *crimson* roses. These are varieties of the *R. centifolia,* which is preferred in medicine for the distillation of rose-water.

——— "hoary-headed frosts
Fall in the fresh lap of the *crimson* rose;"
Midsummer-Night's Dream, a. 2, s. 2.

Again,

"Nor did I wonder at the lilies white,
Nor praise the *deep vermilion* in the rose."—*Sonnet* 98.

"Let one attend him with a silver bason,
Full of rose-water and bestrew'd with flowers;"
Taming the Shrew, a. 1, s. 1.

"But earthlier happy is the rose distill'd,
Than that, which, withering on the virgin thorn,
Grows, lives, and dies, in single blessedness."
Midsummer-Night's Dream, a. 1, s. 1.

The blush of this rose and its greater paleness is an everlasting theme of the poets.

"How now, my love? why is your cheek so pale?
How chance the roses there do fade so fast;"
Midsummer-Night's Dream, a. 1, s. 1.

"She did it with
A pudency so rosy."—*Cymbeline*, a. 2, s. 5.

"The roses on thy lips and cheeks shall fade
To paly ashes."—*Romeo and Juliet*, a. 4, s. 1.

"Patience,—thou young and rose-lipp'd cherubim;"
Othello, a. 4, s. 2.

The ottar is said to be obtained partly from the *R. semper-virens* and partly from the *R. moschata*, which latter is repeatedly introduced by Shakspeare, who remarks its being subject to the canker.

"Some, to kill cankers in the musk-rose bud;"
Midsummer-Night's Dream, a. 2, s. 3.

"And stick musk-roses in thy sleek smooth head."
Midsummer-Night's Dream, a. 4, s. 1.

In the following verses he joins the musk-rose with the eglantine, most probably so named from its flower resembling an eye, as eagle from aquila.

"I know a bank whereon the wild thyme blows,
Where ox-lips and the nodding violet grows;
Quite over-canopied with lush woodbine,
With sweet musk-roses, and with eglantine;"
Midsummer-Night's Dream, a. 2, s. 2.

The *Eglantine* of Shakspeare was most likely our ordinary sweet brier, the leaves of which are considered as a substitute for Chinese tea. This plant is the *Rosa rubiginosa* of Linnæus, who has likewise given the name *R. eglantina* to a variety of the *lutea*, and which was once apparently more common with us than it is now, and more highly esteemed than the *rubiginosa*.

"With fairest flowers,
While summer lasts, and I live here, Fidele,
I'll sweeten thy sad grave: thou shalt not lack
The flower, that's like thy face, pale primrose; nor
The azur'd hare-bell, like thy veins; no, nor
The leaf of eglantine, whom not to slander;

Out-sweeten'd not thy breath : the ruddock would,
With charitable bill, bring thee all this ;
Yea, and furr'd moss besides, when flowers are none,
To winter-ground thy corse." *Cymbeline*, a. 4, s. 1.

The roses best adapted for " pot pourri," from preserving their fragrance in the dried state, are those of the *Rosa provincialis*. They formed part of the stock in trade of that sad spectre of an apothecary, whose shop was visited by Romeo.

" Remnants of packthread, and old cakes of roses,"
Romeo and Juliet, a. 5, s. 2.

They were likewise used as ornaments by the Jemmy Jessamies of that age.

" Would not this, sir, and a forest of feathers, with two Provencial roses on my razed shoes, get me a fellowship in a cry of players, sir ?"—*Hamlet*, a. 3, s. 2.

I imagine the *Rosa cinnamomea* is the rose of May, and the early rose mentioned in the following passages.

Ophelia. " Oh, rose of May !"—*Hamlet*, a. 4, s. 5.

Again ;

" Cesario, by the *roses of the spring*,
By maidhood, honour, truth, and every thing,
I love thee so, that, maugre all thy pride,
Nor wit, nor reason, can my passion hide."
Twelfth Night, a. 3, s. 1.

I might have remarked of the eglantine, that Milton distinguishes between it and the sweet brier, which may arise from his acquaintance with the yellow rose ; but as he speaks of its being twisted

" Through the sweet brier, or the vine,
Or the twisted eglantine,"

it is generally understood that he alluded to the honeysuckle. Shakspeare makes a distinction between the honeysuckle and the *woodbine*.

" So doth the woodbine, the sweet honeysuckle,
Gently entwist,—the female ivy so
Enrings the barky fingers of the elm."
Midsummer-Night's Dream, a. 4, s. 1.

Though Sir James Smith, in correcting Curtis, writes it—

> " So doth the woodbine, the sweet honeysuckle,
> Gently entwist the maple."

But that devoted botanist having neglected to mention the edition he referred to, I cannot without research determine his accuracy. I think it likely they may apply the one to the *Periclymenum* and the other to the *Caprifolium*.

The word woodbine is evidently a genuine English name, indicating an inhabitant of our woods, and is therefore certainly applicable to the wild kind or *Periclymenum*. The fragrance of the mellifluous honeysuckle seems to require the solar influence to bring it to perfection, and, therefore, the name applies to the garden kind, or *Caprifolium*.

> " And bid her steal into the pleached bower,
> Where honeysuckles, ripen'd by the sun,
> Forbid the sun to enter."
>
> *Much Ado about Nothing*, a. 3, s. 1.

> " O thou honeysuckle villain! wilt thou kill God's officers, and the king's ?"—*2nd Part K. Hen. 4th*, a. 2, s. 1.

The etymology here would scarcely be guessed at; the word is homicidal. In the instance where the lush woodbine is said to form a canopy, and in the following passage, it is evident that Shakspeare does not essentially distinguish them.

> ——————" who e'en now
> Is couched in the woodbine coverture :"
>
> *Much Ado about Nothing*, a. 3, s. 1.

Trifolium repens is here called honeysuck, and the name might be applied perhaps to primroses, and all those flowers from which good honey may be sucked. A handful of honey may be shaken at once from a bunch of the *Edwardsia*, or *Sophora tetraptera* flowers.

Peas and *Beans* are not generally considered as medical plants, but I have a few remarks to make upon their names, which, if not " fancy free," may perhaps be excused in a paper of this description.

I believe the word *poison* is the same word as *Pisum* or peason, and that the name is strictly applicable to the poisonous *Lathyrus* of the Mediterranean, which is considered by Martyn as intermediate between *L. sativus* and *L. Cicera*. The seeds of a *Lathyrus* were once brought to me in Bristol as having poisoned a child, and my attention was accordingly arrested to the circumstance. One of these seeds I put into my garden, but it did not vegetate. It could not have been the seeds of the *Lathyrus semine punctato* of Bauhin; and I therefore consider it highly important that the attention of our Society should be directed to this genus. The name *Cicer*, as also *Cichorium*, *Sicera*, etc., all come from the Hebrew word שָׁכַר, to be intoxicated.

> " Hide not thy poison with such *sugar'd* words."
>
> *2nd Part K. Hen. 6th*, a. 3, s. 2.

Perhaps also the word *bean* may have the same origin as *bane*, and apply to the bean of the laburnum of the Alps. Henbane is thought to have been the plant forbidden by Pythagoras. Shakspeare alludes to the poisonous property of another plant considered to be that which banes sheep. This is a plant well known to some farmers, who purposely bane their sheep, if of a particular breed which they would keep to themselves, just before they deliver them to the butcher. Whether this plant be the *Hydrocotyle*, a *Carex*, or a *Poa*, I have not ascertained, but I suspect it to be the *Glyceria fluitans*, or pigeon-bent, as Shakspeare alludes to its sweetness.

> " I will enchant the old Andronicus,
> With words more sweet, and yet more dangerous,
> Than baits to fish, or honey-stalks to sheep;
> When as the one is wounded with the bait,
> The other rotted with delicious food."
>
> *Titus Andronicus*, a. 4, s. 4.

I have called the grass " pigeon-bent," for when I was travelling in Sweden, my guide, who was an Englishman and a native of Cambridgeshire, seeing me notice it, said " that is what they call pigeon-bent, sir, at Royston, where they say,—

The pigeon never knows more woe
Than when it does a benting go.

For when the pigeons are deprived of their peat they immediately fly away and have recourse to that grass." The sweet seeds of it are called manna seeds; and I believe the word honey-seed of Shakspeare is put for homicide in the 2nd Part of King Henry 1st, a. 2, s. 1.

"Oh, thou honey-seed rogue! thou art a honey-seed."

Mr. Brown has given it the name of *Glyceria* from its containing an abundance of saccharine matter. It has been analyzed by Sir Humphrey Davy, and the results published by Mr. Sinclair, if I remember right, at the end of his work upon grasses.

The word *Vervein,* which is here applied to *Erysimum officinale,* seems to come from *veruina,* a javelin, or from *veru* and *venenum,* quasi broach-bane, or dart poison. The *Menyanthes,* whose leaves resemble those of *Faba* somewhat in shape, I always call bogbean rather than buckbane or buckbean, but I think it likely that bane and bean are nearly synonymous.

Having mentioned the *Laburnum,* I wish to add that I suspect it to be indigenous to our island, as it is called in the old Scotch law by a name which is not uncommon in England, that of awburn. I therefore suppose that the true auburn colour is that of its flowers, and that the tree may once have abounded in those places which bear that name.

"Her hair is auburn, mine is perfect yellow:"
Two Gentlemen of Verona, a. 4, s. 4.

In the Merry Wives of Windsor, Shakspeare says again,

"No, forsooth: he hath but a little wee face, with a little yellow beard; a cain-coloured beard."—A. 1, s. 4.

Which cain-colour may perhaps be the same with auburn. Whether the word laburnum be named, as Littleton supposes, "*quod habeat flores labiles,*" and which was rejected by the bees, probably from the cytisine it contained, I will not determine, nor whether the English name may not come from the

same root as the Greek ἀβρύνομαι, glorior, from its glorious appearance when in flower.

Misseltoe. It is considered, but I know not whether justly so, that the viscous berries of this plant are poisonous. Shakspeare gives it the epithet baleful.

> " The trees, though summer, yet forlorn and lean,
> O'ercome with moss and baleful misletoe."
>
> *Titus Andronicus*, a. 2, s. 3.

The leaves are prescribed in epilepsy; but although I have known a great deal administered, yet I have not heard of their efficacy, but, on the contrary, that the physicians have been disappointed. I immediately recognized the powder of them in the medicine recently advertised for that disorder by Dr. Graham. The faculty would do well to ascertain the result of that gentleman's experience.

Senna, in Arabic سنا, derives its name from a Hebrew word used in *Is.* 36, 12, which I should translate " *sedes liquidæ.*"

> " What rhubarb, senna, or what purgative drug,
> Would scour these English hence?"—*Macbeth*, a. 5, s. 1.

As for *Rhubarb, Rha barbarum, Rha ponticum*, etc., it is believed that the name of *Rha* is from the place of its growth, namely, the river Rha or Wolga.

Aconitum is thought to derive its name from ἄκων, *jaculum*, from its use in poisoning arrows. It seems to be synonymous with *Conium*, which exists in the compound word *Dorycnium*, of which the first part, δόρυ, is our English word dart.

> ——— " though it do work as strong
> As aconitum, or rash gunpowder."
>
> *2nd Part K. Hen. 4th*, a. 4, s. 4.

Gerard gives a long account of the *Ranunculus Thora* having been used in Europe for this purpose; he says that its effect was counteracted by the *Anthora*, a species of aconite. Perhaps the words *Thora* and *Anthora* have the same relation to each other as the *Conium* and *Aconitum*. I apprehend the term spearwort, given to *Ranunculus Flammula*, has the same meaning, and that the

plant contains a similar virus. Many others of the same natural order, such as *Eranthis hyemalis*, may possess the same principle.

Prune, Pruin, or *Pruina.*

"There's no more faith in thee than in a stew'd prune."

This fruit is named from the waxy bloom upon its surface, from which circumstance it is also called plum.

"Let me see; what am I to buy for our sheep-shearing feast? Three pound of sugar; five pound of currants; rice: I must have saffron, to colour the warden pies; mace; dates,—none; that's out of my note: nutmegs, seven; a race or two of ginger; but that I may beg: four pound of *prunes*, and as many raisins o' the sun."

Winter's Tale, a. 4, s. 2.

"He a captain! He lives upon mouldy stew'd prunes and dried cakes."---*2nd Part K. Hen. 4th*, a. 2, s. 4.

"Mass, thou lov'dst plums well that would venture so."

2nd Part K. Hen. 6th, a. 2, s. 1.

Sugar. I have already hinted that sugar derives its name from its affording an intoxicating beverage. Shakspeare mentions it again.

"Why strew'st thou sugar on that bottled spider."

Richard 3rd, a. 1, s. 3.

Rice. Oryza is called עָרֵס in Hebrew, which, notwithstanding the difference in the letters, is of the same root as the word חָרַשׁ, ploughed. Both of these words are identical with the name of Ceres, the inventress of tillage and the use of corn. *Oryza* therefore, or rice, is the original corn which supplanted the mast, nuts, and fruits, at the invention of agriculture. In medicine, it is recommended as an astringent food.

Currants, or *Passulæ Corinthiacæ,* evidently the small raisins of Corinth or Coranto. In like manner,

Raisins I consider as named from the place where they were originally cultivated, namely, "Resen, which is between Nineveh and Calah, the same is a great city."

Saffron comes from the Hebrew צָפִירָה, the morning, and is, therefore, named from its aurora colour.

Mace, I consider has the same origin as the English mesh, of a net, implying the network which envelops the nutmeg, or, perhaps, from musk, like meg, in nutmeg, quasi *nux moschata*.

Dates, the fruit of the palm, so called from its resemblance to fingers or toes; it was used as an ingredient in pies.

——— "baked with no date in the pie,"
Troilus and Cressida, a. 1, s. 2.

Dates are a very agreeable food, and an acre of them would support twenty times as many human beings as an acre of wheat.

Ginger, or *Zingiber*, or ζιγγίβερι from its stimulating pungency, is formed upon the same basis as the word *spur*, by a replication of the first syllable or letter; and the words race, radish, and radix, are certainly the same.

Manna is a Hebrew word, equivalent to our mince. It is a kind of honey-dew dropping from the *Tamarix* (v. Burckhardt) in small particles. There are several kinds.

"Fair ladies, you drop manna in the way."
Merchant of Venice, a. 5, s. 1.

The manna, therefore, of Shakspeare must have resembled the true kind more than that of the shops, which is obtained from a kind of ash.

Ratsbane is the *Nux vomica* of the shops; the word bane, as I have already mentioned, I believe to be the same with *venenum*, and the animal seems to have been called a rat from its swimming like a raft or ratis; it therefore applies to the water-rat. The fatality of ratsbane is well known to country people; and where it is desirable to kill a dog or other favorite animal, without pain, it is often used.

"I had as lief they would put ratsbane in my mouth as
offer to stop it with security.—*2nd Part K. Hen. 4th*, a. 1, s. 2.

"I would, the milk
Thy mother gave thee, when thou suck'dst her breast,
Had been a little ratsbane for thy sake!"
1st Part K. Hen. 6th, a. 5, s. 4.

"Set ratsbane by his porridge."—*Lear*, a. 3, s. 4.

Lavender, from the Latin *lavo*, to wash, seems to have been named from its use as a perfume for the baths.

> " Here's flowers for you ;
> Hot lavender, mints, savoury, marjoram ;
> The marygold, that goes to bed with th' sun,
> And with him rises weeping."—*Winter's Tale*, a. 4, s. 3.

Mint. The word mint is derived, by a metathesis, from the Hebrew מִתָּן, *mentam excitat.* There seems to be an alkaline quality in mint, perhaps ammoniacal, which prevents milk from curdling ; and it is not impossible that it may therefore possess the property ascribed to it, of curing the bites of rabid dogs.

> " Thou mint, thou columbine."
> *Love's Labour Lost*, a. 5, s. 2.

Columbine. Upon the authority of Clusius, the best botanist of his age, it appears that the seeds of columbine have the same virtue as the ergot of rye, and mint would seem to have been generally used for aphrodisiac purposes, hence the poignancy of the poet's satire. Its flower is a picture of domestic harmony, representing five pigeons in a family, tête-a-tête.

Savoury is clearly named from its agreeable savour.

Marjoram is the same word as *Amaracum*, and comes from the Hebrew word מָרָק, broth, from its use as a potherb.—*Judges* vi. 19.

Marygold. This word, like marybud, comes from the Greek μαίρω, *luceo*, and denotes the dazzling brightness of the flower. It is one of those observed to be phosphorescent. The word *Lychnis*, applicable to the *Lychnis chalcedonica*, may have the same meaning ; this flower, however, on a bright and hot summer's day, I once removed into a dark place from the broad sunshine, and observed no phosphorescence under those circumstances. The evening primrose may sometimes be seen a mile off at night by the light it gives out ; and the daughter of Linnæus observed the phenomenon at Upsala as attendant upon other plants, though, so far as the *Tropæolum* is concerned, I was informed, by Professor Afzelius himself, that he first no-

ticed it in that plant. Gerard's account of piony, exceedingly characteristic of his kind of learning, will be read with interest, for he cites ancient authors as having noticed it in that and other plants.

> " No, no, I will rob Tellus of her weeds,
> To strew thy green with flowers; the yellows, blues,
> The purple violets, and *marygolds*,
> Shall, as a chaplet, hang upon thy grave,
> While summer days do last."..*Pericles*, a. 4, s. 1.

The other word, gold, is the same as the word gall and gules, meaning balls and buds of the colour of *fel* or *flavus*, or yelk or yellow, from whence the metal is called gold.

Rue, or herb of grace.

> " Indeed, sir, she was the sweet marjoram of the salad,
> or, rather the herb of grace."—*All's Well*, a. 4, s. 5.

This plant has been much used at the period of nature's sorrow, and hence is an emblem of sorrow and also of grace.

> " Here did she drop a tear; here, in this place,
> I'll set a bank of rue, sour herb of grace:
> Rue, even for *Ruth*, here shortly shall be seen,
> In the remembrance of a weeping queen."
>
> *Richard 2nd*, a. 3, s. 4.

Rosemary. But rosemary for remembrance.

> *Ophelia*. " There's rosemary, that's for remembrance; pray you, love, remember: and there is pansies, that's for thoughts.
>
> *Laertes*. " A document in madness; thoughts and remembrance fitted."—*Hamlet*, a. 4, s. 4.

> " For you there's rosemary and rue: these keep
> Seeming and savour all the winter long:
> Grace and remembrance be to you both."
>
> *Winter's Tale*, a. 4, s. 3.

The Latin name, *Rosmarinus*, suggests the etymology of this word either from its favorite habitat being in the reach of the spray of the sea, or from its glossy, glassy flowers resembling the sea-green dew.

" Beauty is but a vain and doubtful good,
A shining gloss, that fadeth suddenly ;
A flower that dies, when first it 'gins to bud;
A brittle glass, that's broken presently;
A doubtful good, a gloss, a glass, a flower,
Lost, faded, broken, dead within the hour."

Passionate Pilgrim.

Its funeral use is alluded to by the poet :—

" Dry up your tears, and stick your rosemary
On this fair corse."—*Romeo and Juliet*, a. 4, s. 5.

Thus rosemary was a kind of forget-me-not, an endearing name sometimes applied to the hawk's eye, *Veronica Chamædrys*, sometimes, as in Gerard, to the *Ajuga Chamæpitys*, perhaps, by mistake for the *Euphrasia officinalis* or the *Teucrium Chamædrys*, and sometimes, and I think with most propriety, to the *Myosotis palustris*, which, from its resembling the brightest " eye of blue," I take for the true eyebright, which is the name it bears about Bristol.

On the Species of Ionidium which produces the Cuichunchulli, and on the specific identity of I. microphyllum and I. paviflorum. By F. J. Farre, M. D. F. L. S. Conservator, M. B. S.

As some uncertainty appears to exist with respect to the species of *Ionidium* which produces the Cuichunchulli, Sir W. Hooker* having pronounced it to be *I. parviflorum*, Vent., Dr. Lindley,† *I. microphyllum*, Humb., and Dr. Bancroft,‡ a new species, *I. Marcucii*; and as the Medico-Botanical Society have received from different sources a considerable quantity both of the root and the plant to which it belongs, I have taken the opportunity of carefully examining all these specimens, and comparing them with authenticated specimens, plates, and descriptions of the two former reputed species.

The specimens in the possession of the Society are—

1. Plants in flower and fruit, and ripe seeds, collected in Riobamba, and communicated by Dr. Bancroft, marked "*Cuichunchulli, Ionidium Marcucii*," ex. fig. 1. a. b.

2. Samples of the root, with which are numerous leafy branches in flower and fruit, collected chiefly about Riobamba, communicated by Vis^{t}. Rocafuerte, President of the Republic of the Equator, and Colonel Wright, confidential agent for the same, marked "*Cuichunchulli*," ex. fig. 2.

3. A similar parcel of the roots and branches from the Hon. W. Fox Strangways, communicated by Dr. Lindley, marked "*Cuichunchulli de Cuença*, ex. fig. 3.

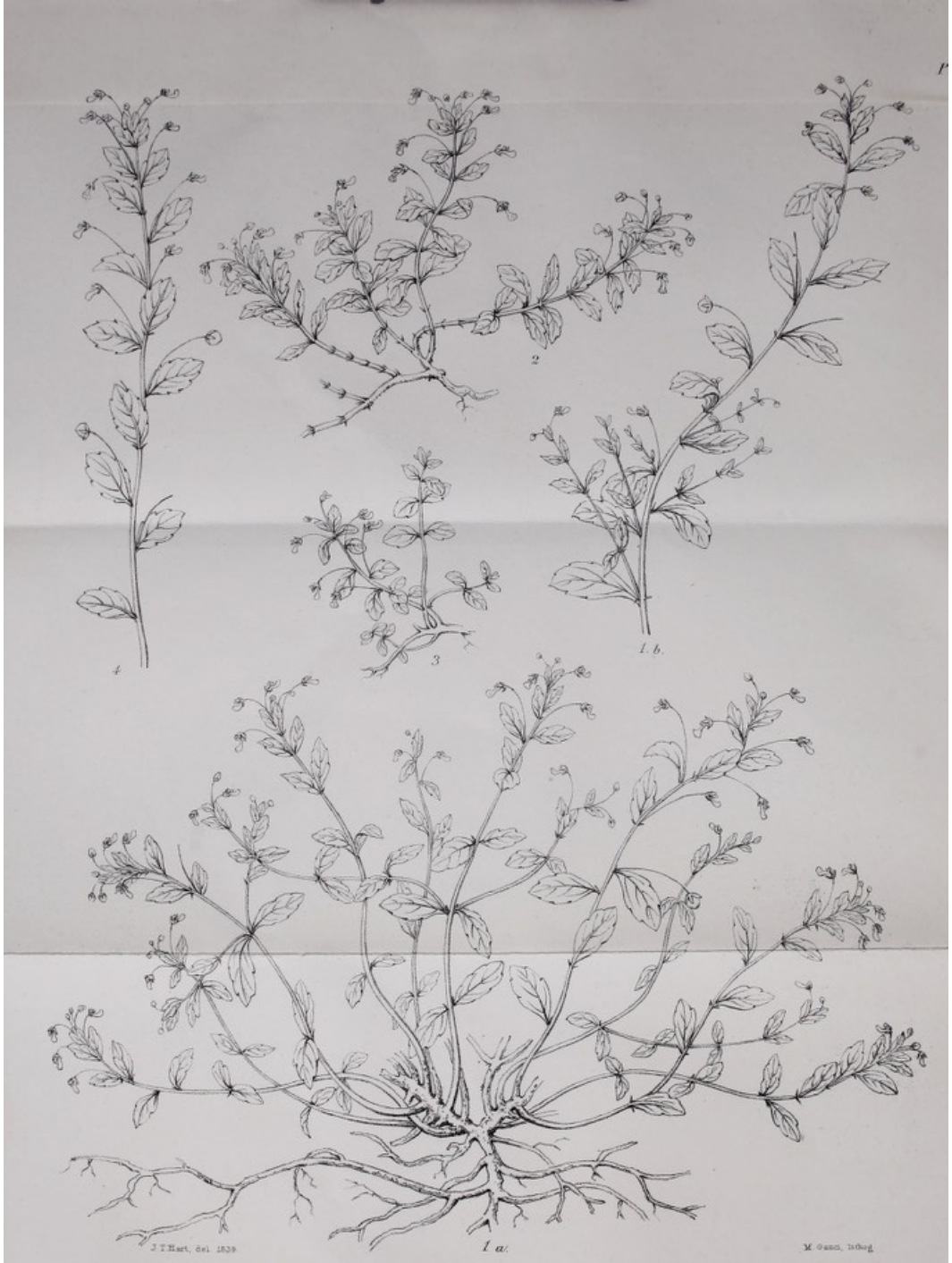
4. A single branch, with a drawing and description of the plant, communicated by Sir R. K. Porter, from the interior of Columbia, marked "*Viola parviflora*, or *Cuichunchulli de Cuença*," ex. fig. 4.

These specimens I have carefully compared with the specimen

* Comp. Bot. Mag. vol. I. p. 278.

† Flora Medica, p. 98.

‡ Observations on the Cuichunchulli. Comp. Bot. Mag. ib.



Ionidium parviflorum. Cuichunchulli.
Trans. Medico Botanical Society. Vol. 1. p. 206

of *Viola parviflora* in the Linnean Herbarium, the more perfect specimen of the younger Linnæus in Sir James Smith's Herbarium, marked *parviflora,* and Sir James Smith's description, taken from these specimens, in Rees's Encyclopœdia, Art. *Viola,* with the fuller descriptions of *Ionidium parviflorum,* and *I. microphyllum,* and the plate of the latter in the *Nov. Gen. et Sp.* of Humboldt and Bonpland, with the excellent figure of *I. parviflorum,* in Aug. de St. Hilaire's *Plantes Usuelles des Brasiliens,* Liv. 4. t. 20, and with Sir W. Hooker's observations on specimens of Cuichunchulli, received from Dr. Bancroft, in the *Companion to the Botanical Magazine,* vol. 1, p. 277.

I have also received, through the kindness of Mr. Battley, a communication from Mr. Blundell, of Liverpool, together with a number of the *Gaceta del Gobierno del Ecuador,* and of the *Gaceta de Venezuela,* each containing an article on the Cuichunchulli; one of which is a report of the cases of S. S. Jacobo Puche and Angel Casanova,* the other professes to point out the difference between the genuine Cuichunchulli and *I. parviflorum.*

On examining the specimens 1, 2, 3, I find that the roots are long, branched, and tortuous, of a grey or light ash colour, the thickest being about the size of a crow-quill, and consisting of a woody centre, surrounded by a somewhat spongy bark wrinkled or fissured transversely, and terminating below in innumerable fibrous filaments. They proceed from a short subterranean stem, which gives off immediately above the surface of the ground a multitude of slender spreading shoots, rarely branched, except at their base, (fig. 1. a.) These shoots or branches are tubular, two-angled, with hairy furrows between the angles. The leaves are most frequently opposite (fig. 2.) yet often

* The case of Angel Casanova is similar to that of J. Puche. The Cuichunchulli was administered in the same doses and produced similar effects, viz., salivation, perspiration, increase of urine, and alvine evacuations. It is added that, a fresh supply of the root having been obtained, both patients were *perfectly cured.*

alternate (figs. 1, 3.), sometimes the lower opposite the upper alternate (fig. 1, a.) or opposite on one branch alternate on the adjoining one (fig. 3.), or alternate on the primary branches opposite on those which arise from them (fig. 3.); more or less scabrous, and minutely hairy and ciliated, ovate, tapering into a short petiole, which is scarcely so long as the two lanceolate stipules. The peduncles are hairy on one side, and vary from once to twice the length of the leaves. The petals are purple, the labellum unguiculate, with a broad two-lobed limb. The anthers connate into a tube; the style clavate; the capsule nearly globular, trigonal, three-valved, six-seeded, each navicular valve bearing two elliptical shining brown seeds, attached by short funicali to its centre.

The description of the true Cuichunchulli contained in the Venezuela Gazette, and stated to have been communicated by an English botanist, is as follows;

"The Cuichunchulli of Riobamba is a small humble plant, which generally grows spreading on the earth in the cold and temperate regions of Chimborazo, always on dry and stony ground. Its roots insert themselves so firmly between the stones that it requires both force and ingenuity to detach them. It is much branched in the trunk, but not elsewhere. It abounds with leaves, which seldom exceed five-eighths of an inch in length. Its flowers are not longer than one-eighth of an inch, and extremely delicate. The petals are purple, with the exception of the labellum, which is of a rose colour below, and white above and within. The capsules are yellow, one-tenth of an inch in diameter, and the seeds are a dark glossy brown. It is found in the vicinity of Riobamba, in Quito."

These descriptions, together with the appearance and locality of the Cuichunchulli, agree so closely with the description, appearance, and locality of *I. microphyllum*, that I do not hesitate to agree with Dr. Lindley in considering them to be identical. The colour of the petals is expressed by Humboldt in nearly the same words. They are said to be "purple, with the ex-

ception of the labellum which is white, spotted with purple internally, and purple at the apex and back." The several parts of the flower are accurately represented in his magnified figures; but the seeds, though they continue white till they are nearly ripe, ultimately become brown.

Dr. Bancroft, who appears not to have been acquainted with *I. microphyllum* Humb., named the Cuichunchulli, *I. Marcucii*, in honor of the discoverer of its virtues, M. Jean Batiste Marcuci, "considering it," says Sir W. Hooker, "to be a species distinct from *I. parviflorum*, chiefly on account of the supposed absence of the two nectariferous scales at the outer base of the two anterior stamens. But although they are very minute they are unquestionably present, exactly as in *I. parviflorum*."

The specimen No. 4, communicated by Sir R. Porter, under the name of *Viola parviflora*, is a single branch, with alternate ovate leaves, less attenuated at the base, and nearly equal in length to the peduncles: the stipules are rather smaller than in the last. In the drawing which accompanied it, the leaves, (which are stated to be correctly represented,) are mostly opposite below and alternate above, in this respect resembling fig. 1. a. The slender branches are described as "very numerous and long," not spreading on the earth, but "issuing upwards so thickly from the short stem as to present the appearance, (at least in the dried plant,) of a bunch of the European Genista. The whole of the branches do not exceed in height sixteen or eighteen inches, and the root probably may extend downwards, and spread twelve or fourteen inches more."

This specimen I compared with the two specimens of *Viola parviflora* in the Herbarium of the Linnean Society, with which it perfectly corresponds.

Linnæus' specimen is a similar branch, with alternate leaves, nearly equal to the peduncles.

The specimen of the younger Linnæus is an entire plant, with a branched ascending stem, sixteen or eighteen inches in height. The leaves are mostly alternate, but they are opposite

towards the base; the peduncles are of the same length as the last.

St. Hilaire's plate represents a very luxuriant branched specimen, eighteen inches or more in height, with alternate leaves, and peduncles of various length. Any one of the branches closely corresponds to the specimens of Linnæus and Sir R. Porter, except that the leaves are much more attenuated at the base.

Mutis describes the plant as three-quarters of a yard in height.

The flowers are described and depicted by Sir R. Porter white; those of the two Linnean specimens are also apparently white. Smith says, "the flowers of *I. parviflorum* scarcely differ from those of *I. glutinosum*, which are whitish." Mutis does not mention their colour; but St. Hilaire states, that in the Brazilian plant they are white.

This plant is stated by Sir R. Porter to grow in the vicinity of Bogota, Popayan, and Cuença, and these I shall presently show to be stations for *I. parviflorum*, with which it is evidently identical.

The next point which I propose to consider is, whether *I. microphyllum*, Humb. is a distinct species, or only a variety of *I. parviflorum*, Vent.

Hooker evidently doubts its being specifically distinct when he says, it only appears to differ in all its leaves being opposite; and he in fact affirms their identity when he pronounces Dr. Bancroft's specimens to be *I. parviflorum*, since it is quite certain that these are *I. microphyllum*. Other differences have however been stated to exist besides the position of the leaves.

According to Humboldt, *I. parviflorum* has alternate, or occasionally somewhat opposite smooth ovate leaves; stipules scarcely longer than the petioles, and smooth peduncles equal to the leaves; while *I. mycrophyllum* has opposite leaves, elliptic-oblong, minutely hairy, and ciliated; stipules thrice the length of the petioles, and peduncles about one half longer than the leaves, hairy on one side and bracteate. The "English botanist," quoted in the Venezuela Gazette, adds the following differences:

"*I. Marcucii* is branched in the trunk only, creeping, composed of small long tubes; the serratures of the leaves are glandular; the labellum broad and heart-shaped; nectary none. *I. parviflorum* is branched and extended, the labellum oval, not broad and heart-shaped, of two lips (de dos labios), the nectary somewhat obtuse."

I have already stated on the authority of Mutis, St. Hilaire, and others, that *I. parviflorum* has an ascending stem growing to the height of one and a half or two feet, and giving off numerous branches in its whole length; whilst *I. microphyllum* it appears, from the plate of Humboldt, the Venezuela Gazette, and the specimens now before me, is a humble creeping plant, seldom if ever exceeding the height of six inches.

St. Hilaire denies the existence of bracts in the former; and Sir James Smith says, that the leaves are not at all tapering at the base. The flowers also of the former, according to Humboldt, and the Venezuela Gazette, are purple; those of the latter, according to St. Hilaire, are white. These differences, when reduced to a tabular form will stand thus:

I. parviflorum.	*I. microphyllum.*
Stem ascending one and a half to two feet, much branched.	Stem creeping; branches six inches, consisting of long tubes.
Leaves alternate, or somewhat opposite, smooth, ovate, not at all tapering at the base.	Leaves opposite, elliptic-oblong, acute at each end, with glandular serratures, and minutely hairy and ciliated.
Stipules equal to the petioles.	Stipules thrice the length of the petioles.
Peduncles smooth, as long as the leaves, not bracteate.	Peduncles hairy on one side, longer than the leaves, bracteate.
Labellum oval, not broad and heart-shaped.	Labellum broad and heart-shaped.
Nectary present.	Nectary wanting.
Flower white.	Flower purple.

With regard to the tubular character ascribed to the branches of the Quito plant, I find the specimens of Sir R. Porter and Linnæus equally tubular, so that no difference exists in this respect.

The position and form of the leaves also is very variable. Humboldt, Sir James Smith, and St. Hilaire, all observe that the lower leaves of *I. parviflorum* are sometimes opposite; and a glance at the accompanying figures will show how much they vary in *I. microphyllum*. The leaves of the latter are in general more hairy and ciliated than any that I have seen of the former; but, in this and some other respects, St. Hilaire's plant agrees with it, the leaves being hairy on both sides, ovato lanceolate, acute, and tapering into a petiole. Humboldt himself describes the leaves of *I. parviflorum* as cuneate at the base. I do not find the glandular apices of the teeth noticed anywhere, except in the Venezuela Gazette. They are certainly much less developed in *I. parviflorum*. I have sometimes found the teeth all but wanting in the other variety, and the leaves nearly entire.

The stipules do not differ much in length from the petioles.

The peduncles in the specimens of Linnæus and Sir R. Porter are not smooth, but hairy on one side, as in the specimens from Riobamba; but among the latter are a few in which they are perfectly smooth. St. Hilaire also states the peduncles of *I. parviflorum* to be hairy. With respect to the proportion they bear to the leaves, the same writer observes that "the leaves diminish in size from the base to the summit, where they are so small that they may be termed bracts." And the peduncles being nearly of the same length throughout, "the lower are shorter than the leaves, while the upper are often twice as long." There is no difference in their length in figs. 1 b, and 4.

I have been unable to discover bracts upon the peduncle in any of the specimens from Riobamba, and the omission of them in Humboldt's magnified figures throws a doubt on the correctness of his assertion.

St. Hilaire says distinctly that the inferior petal, or labellum, is broadly obcordate.

I have already quoted Hooker as determining the presence of the nectary-scales in Dr. Bancroft's specimens, and they are both described and figured by Humboldt as occurring in *I. microphyllum*.

There remain then, beside the colour of the flowers and the more glandular teeth of the leaves, two differential characters only, viz., those afforded by the size and habit, characters which are found to vary to an equal extent in many other plants, as *Juniperus communis*, *Ranunculus Flammula*, *Lotus corniculatus*, etc., when subject to similar modifying circumstances.

I therefore propose to consider these plants as varieties of one species, for which we may retain the name of *I. parviflorum*.

Of these varieties, α, *Ionidium parviflorum* of Ventenat and St. Hilaire, *Viola parviflora* of Linnæus, has an ascending stem from one to two feet high, never trailing (according to St. Hilaire), leaves generally alternate, and white flowers.

The other variety, β, *microphyllum*, *I. microphyllum* of Humboldt and Bonpland, *I. Marcusii* of Bancroft, spreads on the ground, has leaves generally opposite, with glandular teeth, and purple flowers.

These varieties appear to be dependent on locality; α growing in warm pastures, β in cold rocky situations. β was gathered by Humboldt among rocks, at Lactacunga, in Quito. And Dr. Bancroft and the Venezuela Gazette state that it is found in dry and stony ground about Riobamba, in Quito, near the foot of the great volcano Chimborazo; α, on the contrary, is described by Mutis as spreading its delicate web-like fibres, not among stones, but between lumps of earth; by Humboldt, as growing in the warmer regions of central America, about Bogota; by Sir R. Porter and the Venezuela Gazette, as abounding in Purace, in the canton of Popayan, and in the vicinity of Cuença and Enemocan; and, by St. Hilaire, in pastures in the south of the province of St. Paul, in Brazil.

Besides these two varieties of *I. parviflorum*, the Venezuela Gazette states that there is yet another plant, known by the same name, which is constantly confounded with the genuine Cuichunchulli, though absolutely different and entirely destitute of medicinal efficacy. This plant, which is found in the environs of Cuença, is considered, by Dr. Bancroft, to be a new genus: and the writer gives to it the generic name of *Bancroftia*, in honour of that distinguished botanist; and the specific name of *decipiens*, for having deceived those who went thither in pursuit of the genuine plant. It is stated to belong to the class *Didynamia*, and the following description is given of it:—

Bancroftia. *Calyx* campanulatus multistriatus quinque dentatus dentibus æqualibus mucronatis; *corollæ* bilabiatæ *labium* superius quadrifidum, inferius rotundatum concavum.

B. decipiens. Species unica adhuc cognita virtutis medicinalis omnino destituta, et quanquam eodem nomine gaudens, Cuichunchulli vera minimè confundenda.

Habitat prope Cuençam Columbianorum.

This description does not (so far as I am aware) apply to any described species, but it is obviously insufficient to determine even to what natural order this plant belongs.

But to return to the two varieties of *I. parviflorum*, both of which have been reputed to yield the Cuichunchulli. There is much conflicting evidence on this subject. The report of the case of Puche states, that "what had been consumed by him was a portion of some sent from *Cuença* by Col. Casanova to his family residing at Maricaibo." A practitioner of medicine of Bogota procured the plant from *Purace, in the canton of Popayan*, and administered it to five individuals, on whom it operated violently, and produced some alleviation of their disease. Sir R. Porter states that the Cuichunchulli grows in the vicinity of *Bogota, Popayan*, and *Cuença*. And, finally, the Medical Board of Caracus were informed that the Cuichunchulli could not be depended on unless procured from *Cuença* or *New Grenada*. Now it appears from the Venezuela Gazette,

and from the specimen sent by Sir R. Porter, that the plant which grows in these stations is the variety α, the Teatina, which the Venezuela Gazette calls, "false Cuichunchulli," and declares to be entirely destitnte of medicinal virtue. This opinion is confirmed by M. Marcucci, who states, in Dr. Bancroft's communication, that he was informed by Señor Borrero, whose children were afflicted with elephantiasis, that he had tried, without success, the Cuichunchulli obtained from *Cuença* and from the colder district of *Cañar*, yet his children had derived the greatest benefit from some brought from *Riobamba*. Marcucci himself states that after repeated trials of the *Cuença* plant upon himself he found it to be inert.

It is true that the sample sent by Mr. Strangways, under the name of *Cuichunchulli de Cuença*, was var β *microphyllum*; but this may possibly have been the name commonly given to the Cuichunchulli, *wherever* gathered, after the publication of the case of Puche, and we are not certain that the plant or root so called by Mr. Strangways was actually collected there: and, after all, the statement of Ramon Fuenmayer, that the plant employed in the treatment of Puche *grew amongst the stones on the Paramos (bleak heights)*, makes it probable that this also was the variety β, notwithstanding it was sent from *Cuença*.

It is evident from these contradictory accounts, and from the admission of Sir R. Porter that in most of the cases in which he had seen it tried, its effects were null or almost imperceptible, that the variety α has not always produced the wonderful effects that have been attributed to the Cuichunchulli.

It is in the variety β, with purple flowers and a dwarf habit, growing in cool elevated rocky situations in Quito, that the virtues ascribed to this plant are to be sought. "This," says the Venezuela Gazette, "is, in the opinion of Dr. Bancroft, the real Cuichunchulli, in which *only* we can trust for the cure, or at least the mitigation, of leprosy."

All plants possessing active properties are more or less in-

fluenced by situation. Strongly smelling plants lose their odour in a sandy soil.* Assafœtida varies much according to station and soil not only in the shape of its leaves but in the peculiar nauseous quality of its juice, so that goats will sometimes feed upon it.† Rhubarb grown in a dry gravelly soil is much more purgative than when reared in a clayey one. It is notorious that many plants secrete, in warmer regions, juices which are unknown in their economy in colder climates, as the *Ornus Europæa* in Calabria, and the *Acacia vera* in Arabia; and it is equally true that the properties of others are impaired or dissipated by heat. The *Menthæ* have not so penetrating an essential oil in the south of Europe as in England and in the north of France; the *Cruciferæ* degenerate within the Tropics, but acquire increased energies as antiscorbutics in cold regions;‡ and Pöppig asserts that "in close and warm valleys the virtues of Cinchona are much deteriorated. The same species of Cinchona is so much affected by a subalpine situation and warm temperature, as to produce an entirely different bark. The habit of the tree too is materially changed. In the Cinchona forests of Huanuco the collectors gather the bark only from trees which grow on steep declivities or mountain tops."

There is now in this country a considerable quantity of the true Cuichunchulli besides the specimens presented to the Society. Mr. Blundell, of Liverpool, has received from Guayaquil a parcel of one hundred and forty pounds weight, collected about Riobamba. Sir R. Porter states at p. 104, that a small quantity of the root was sold at Corveas for the enormous sum of £3. 6*s*. per ounce, i. e. for nearly its weight in gold. Mr. Blundell is of opinion that it cannot be sold in this country for less than 10*s*. per pound, or about one hundredth of that price; yet he infers, from even this cost, that it is a scarce plant, and the expense of collecting the root considerable; and in fact, the Venezuela Gazette states, that it is not produced abundantly.

Tubercular Elephantiasis is so rare in this country that little

* Paris Pharm. † Woodville. ‡ Paris Pharm.

opportunity can occur here of trying the efficacy of the root in this disease. I only remember to have seen one case of genuine tubercular elephantiasis, elephantiasis of the Greeks, the disease which Bateman has admirably represented, viz., in a woman who was a patient under Dr. Vincent, in St. Bartholomew's Hospital about the year 1830. The case recently recorded in No. 592 of the Medical Gazette, and the celebrated case of Hoo Loo, the Chinese, were examples of a totally different disease,* which is constantly confounded with it—the elephantiasis of the Arabians—the glandular disease of Barbadoes.

The real value of the drug as a remedial agent in genuine tubercular elephantiasis can be far better determined in Madeira or in the West Indian islands, where this disease is not uncommon.

* Vide Good's *Study of Medicine*.

APPENDIX.

LIST OF PATRONS, VICE-PATRONS, PRESIDENT, HONORARY FELLOWS, AND COUNCIL OF THE SOCIETY.

Patroness.

HER MOST GRACIOUS MAJESTY.

Vice-Patrons.

His Majesty the King of Hanover.
His Royal Highness the Duke of Sussex.
His Royal Highness the Duke of Cambridge.

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William Henry Judd, Esq. } *Secretaries.*
Edwin Saunders, Esq. }
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Frederick J. Farre, M. D., *Conservator.*
Charles Johnson, Esq., *Professor of Botany.*
Thomas Everett, Esq., *Professor of Chemistry.*
George G. Sigmond, M. D., *Professor of Materia Medica.*
William T. Iliff, Esq., *Professor of Toxicology.*
Sir Henry Halford, Bart., M. D., President of the Royal College of Physicians in London.
Sir James M'Grigor, Bart., M. D., President of the Army Medical Board.

Sir Astley Cooper, Bart., F. R. S.
Sir Anthony Carlisle, Kt., F. R. S.
D. C. Macreight, M. D.
George H. Roe, M. D.
John Steggall, M. D.
John Savory, Esq.
Charles M. Willich, Esq.
Humphrey Gibbs, Esq.
Gordon Gill, Esq.

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His Majesty the King of Prussia.
His Majesty the King of the French.
His Majesty the King of Denmark.
His Majesty the King of Sweden.
His Majesty the King of the Netherlands.
His Majesty the King of the Belgians.
His Majesty the King of Bavaria.
His Majesty the King of Wurtemburg.
His Imperial and Royal Highness Charles, Archduke of Austria.
His Imperial and Royal Highness Joseph, Archduke of Austria.
His Imperial and Royal Highness John, Archduke of Austria.
His Imperial and Royal Highness Lewis, Archduke of Austria.
His Imperial Highness Leopold II., Grand Duke of Tuscany.
His Imperial Highness Michael, Grand Duke of Russia.
His Royal Highness George, Grand Duke of Mecklenburg.
His Royal Highness Louis, Grand Duke of Hesse Darmstadt.
His Royal Highness Ferdinand, Duke of Orleans.
His Royal Highness the Crown Prince of Denmark.
His Royal Highness Oscar, the Crown Prince of Sweden.
His Royal Highness Prince William of Prussia.
His Royal Highness Prince Charles of Prussia.
His Royal Highness Don Miguel of Portugal.
His Royal Highness Leopold, Prince of Salerno.
His Highness Leopold, Margrave of Baden.

Vincent Rocafuerte, President of the Republic of the Equators.
Prince de Polignac.
His Grace the Archbishop of Canterbury.
His Grace the Duke of Somerset, K. G.
His Grace the Duke of Bedford, K. G.
His Grace the Duke of Northumberland, K. G.
His Grace the Duke of Wellington, K. G.
Le Duc d' Aumont.
Le Duc de Caduval.
His Highness Prince Esterhazy, Austrian Ambassador in London.
His Excellency Prince Lieven, late Russian Ambassador in London.
Marquis of Lansdowne, K. G.
Marquis of Conyngham, G. C. H., K. P.
Earl of Hardwicke.
Earl of Aberdeen, K.T., F.R.S., President of the Royal Society of Antiquarians.
Count Sternberg, President of the Royal Museum of Prague.
His Excellency Count Moltke, late Danish Minister in London.
His Excellency Count Munster, Hanoverian Minister of State.
His Excellency Count Mandelsloh, Wurtemburg Minister in London.
His Excellency Baron Bülow, Prussian Minister in London.
His Excellency Duke de Laval Montmorency, late French Ambassador in London.
His Excellency Lieut.-Gen. Count Bjornstjerna, Swedish Minister in London.
His Excellency Viscount Itabayana, late Brazilian Minister in London.
His Excellency Don Jose Madrid, Columbian Minister in London.
His Excellency Count Dönhoff, Prussian Minister in Munich.
His Excellency Count d' Ofalia, late Spanish Minister in London.
His Excellency Baron de Cetto, Bavarian Minister in London.
His Excellency Chevalier Falck, late Ambassador from the King of the Netherlands.

His Excellency Don Jose Hurtado, late Columbian Minister in London.

His Excellency Major-Gen. d' Urban, K. C. B., K. C. H., late Governor of Guiana.

His Excellency Chevalier de Zea Bermudez, late Spanish Minister in London.

The Rt. Hon. Sir Robert Peel.

The Rt. Hon. Sir George Murray, G. C. B.

The Rt. Hon. C. W. Williams Wynn, F. R. S., V.-P. of the Royal Asiatic Society.

The Hon. James Barbour, late Minister from the United States.

Sir John Edward Swinburne, Bart., F. R. S., F. S. A.

Sir Oswald Mosley, Bart.

Sir John Webb, Director of the Med. Dep. of the Ordnance.

Baron de Ferussac, late Sec. to the Swedish Legation

Baron Orfila, Prof. Med. Chemistry, Royal Academy of Paris.

Baron de Humboldt, F. R. S., etc.

Baron Thenard, Member of the Royal Academy of Sciences, Paris.

Baron Francis Jacquin, Prof. Bot., Vienna.

Baron von Moll.

Baron von Stifft, M. D.

Chevalier da Cunha, of Paris.

Chevalier Cæsar Moreau, Kt. Leg. Hon., F. R. S.

Chevalier Varnitilla, of Sicily.

Desfontaines Renatus Louis, Prof. Bot. Soc. of Paris.

Colonel Wilson, Consul-General in Peru.

Henry Thomas Colebrooke, F. R. S.

William Thomas Brande, Prof. Che. Royal Institution.

M. Caventon, Professor of Chemistry, Paris.

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M. de Candolle, Prof. Bot.

M. Mirbel, M. R. A., Prof. Bot. Fac. Sci., Paris.

M. Pelletier, Professor of Chemistry, Paris.

M. Vauquelin, Prof. and Direc. School Pharm., Paris.

Dr. Fischer, Director of the Imperial Garden, St. Petersburg.
Dr. Gothelf Fischer, Director of the Imp. Garden, Moscow.
Rev. Stephen Isaacson, of Guiana.
Jussieu Adrien, Prof. Bot., Paris.
Dr. J. F. Martius, University of Erlangen.
Von Marum Martinus, Perp. Sec. to the Royal Academy of Science, Haerlem.
Signor Antonio Piccioli, Curator Bot. Garden, Florence.
M. Robiquet, Professor of Chemistry, Paris.
Signor Dominico Viviani, Prof. Bot. University of Geneva.
Chevalier Michael Tenore, Prof. Bot. and Director of the Botanic Garden at Naples.
G. J. Guthrie, Esq., F. R. S., V.-P. R. C. S.
Anthony White, Esq., M. R. C. S., F. R. S., M. B.
Nathaniel Wallich, M. D., Director Bot. Garden, Calcutta.
Dr. Lombard, Physician to the Military and Civil Hospital, Geneva.

DONATIONS

OF

PLANTS AND MATERIA MEDICA SPECIMENS,

Received since the publication of the last Transactions.

From His Majesty the King of Wurtemburg, *Hon. Fellow:*

200 species of dried Plants indigenous to Wurtemburg, arranged by Professor Schubler, of Tubingen.

From the Rt. Hon. Earl Stanhope, F. R. S., *President:*

A specimen of the *Ballota lanata.*

Specimens of the Seeds of *Areca Catechu, Jatropa Curcas,* and *Arachis hypogæa,* and their Oils.

From John Adams, M. D., of the Medical Board of Calcutta:

A pound of East Indian Opium.

From Joseph Houlton, Esq., F. L. S.:

Several collections of recent specimens of medicinal Plants.

From Alexander Campbell, Esq.:

Specimens of *Astrapæa Wallichii* and *Cactus speciosa.*

Several collections of recent specimens of Stove Plants.

From Aylmer Bourke Lambert, Esq., V. P. L. S.:

A collection of dried Plants from Guiana.

From George Williams, M. D., late Professor of Botany in the University of Oxford:

Recent specimens of Stove Plants, chiefly medicinal, from the Botanic Garden, Oxford.

From Sir James M'Grigor, M. D., F. R. S., *Vice-President:*

A specimen of Grass from Sierre Leone.

24 packets of Seeds of Plants used medicinally by the natives in the Malaba districts of Ceylon.

From W. Townshend Aiton, Esq., F. L. S., F. H. S.:

Several collections, consisting of upwards of 200 species of Stove and Green-house Plants, from the Royal Botanic Gardens, Kew.

From Captain John Morris:

A collection of Seeds from the Cape of Good Hope.

From Frederick Otto, Esq., *Corresponding Member:*

A collection of Seeds from the Royal Botanic Garden at Berlin.

From Dr. Frederick Ernest Fisher, *Foreign Member:*

A collection of Seeds from the Imperial Botanic Garden at St. Petersburgh.

From Dr. Zipzer, of Arusohl in Hungary:

200 Orycto-geognostic specimens from Hungary.

From Mr. Charles Fisher, of Obernofen, near Thun:

A collection of rare Swiss Plants.

From the Rt. Hon. Lord Viscount Strangford, G. C. B., Ambassador to the Brazils.

400 packets of Seeds of Brazilian medicinal Plants.

From Thomas Gibbs, Esq.:

Several collections of hardy medicinal and other Plants in flower.

From Sir William Burnett, M. D., *Vice-President:*

Female Spadix of *Sagus Rumphii.*

From Mr. R. Forrest:

A collection of hardy cultivated Plants.

From S. Dunstan, Esq.:

Specimens of the *Crocus sativus* from Nottingham.

From Mr. Hawthorn, of Maidenhead:

Specimens of a medicinal Plant from Hudson's Bay.

From Mr. Blythe, of Christiana.

A collection of dried Norwegian Plants.

From W. Bollaert, Esq., *Corresponding Member:*

A collection of dried Plants from Chili.

Specimens of the Medicines used by the Chiritmanos of Peru.

From the Royal Asiatic Society:

Specimens of Articles of the Javanese Materia Medica.

From Messrs. Lee, of Hammersmith:

Recent specimens of cultivated Plants.

From James Dixon, Esq.:

A collection of dried Plants from South America, 6 vols.

From Dr. William Zollickofer, *Corresponding Member:*

A collection of medicinal Plants from the neighbourhood of Baltimore.

From A. Chevallier, *Corresponding Member:*

Roots of different species of Orchis indigenous to France.

From W. W. Baldwin, Esq., Upper Canada:

Seeds of *Conium maculatum.*

From Dr. William Hamilton:

Seeds of *Argemone mexicana* and *Aristolochia sanguinea.*

From R. Battley, Esq.:

Dried Leaves and inspissated Juice of *Conium maculatum.*

Specimens of 3 different samples of Scammony.

From Professor Jacquin, of Vienna:

200 packets of Seeds.

From Dr. David Lochart:

A specimen of the Roots of a species of *Piper.*

From Dr. Dianniel, through Dr. Gordon, *Vice-President:*

170 packets of Seeds from the interior of Ceylon.

From Peter Yosy, Esq.:

A collection of dried Plants of the natural order *Gentianæ.*

From Dr. Bennett:

Dried specimens of *Nauclea Gambir* and other medicinal Plants from Singapore and the Polynesian Islands.

From — Morris, Esq.:

A curiously-grown Root of the Elm.

From Sir Henry Willock, F. L. S., *Corresponding Member:*

The Root of *Cichorium Intybus,* noticed in his communication.

From the Royal Botanic Garden of the Mauritius:

Fruit of *Myristica moschata* and *Agathophyllum aromati-*

cum; Farina of *Artocarpus incisa;* Spirits of *Averrhoa Carambola;* collection of dried Plants, Seeds, etc.

From Lieut. Ansley Friend, R. N.:

Specimens of *Sassafras officinale.*

From W. T. Iliff, Esq.:

Specimens of the Fruit and Seed and Lozenges prepared from the Fruit of *Ceratonia Siliqua.*

Drawing of the Rock on which the *Fungus melitensis* grows and a Tincture of the Plant, and specimens of *Cinnamomum verum,* Paraguay Tea, *Piper Œthiopicum,* etc.

Recent specimens of medicinal Plants.

From Sir Henry Halford, Bart.:

Hermodactylis from Constantinople.

From W. Twining, Esq.:

6 phials of Madar Powder.

From Dr. Lazell, of Port Lewis:

132 dried specimens of Plants of the Mauritius.

From J. Foote, Esq., Jun.:

Specimens of *Urail,* a sea-weed from the island of Jersey.

From Mr. Bonastre:

Specimens of some ancient Plants of Egypt.

From W. H. Judd, Esq.;

Seeds of the *Mikania Guaco.*

From Dr. Walsh:

Specimens of the *Fungus melitensis.*

From Dr. Tullock:

Dried specimens of Plants from Nova Scotia.

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A variety of Wheat which produces a larger quantity of grain than has hitherto been obtained.

From Sig. Tenore, Professor and Director of the Botanic Gardens at Naples, *Corresponding Member:*

A collection of dried Plants, with a Catalogue.

From Thomas and Humphrey Gibbs, Esqrs.:

Recent specimens of medicinal and other Plants in flower.

From M. Ledabour, Professor of Botany at Dorpat, *Corresponding Member:*

A collection of 98 different kinds of Plants.

From Dr. James Arthur, of Madras, *Corresponding Member:*

A collection of dried Plants from the Neilgherry or Bule Mountains of India.

From Dr. William Hamilton, of Plymouth:

8 bottles of the Juice of *Mikania Guaco.*

From the Caraccas:

Pods of *Cæsalpinia coriaria* or *Dividi* and Seeds of *Mikania Guaco.*

From John Toller, Esq.:

Fruit of *Myristica moschata,* beautifully preserved.

From C. Morris, Esq.:

Specimens of dried Plants collected in India and on the borders of the Red Sea, and a collection of Seeds from China.

From James Cadett, M. D.:

Various specimens of American medicinal Plants, preserved and dried after the method of Mr. Charles Whitlaw.

From G. Sigmond, M. D.:

A specimen of the Root of *Ipomæa Jalapa,* from the province of Xalapa, Mexico, and dried specimens of *Swertia Chirayta,* and other medicinal Plants.

From John Toller, Esq.:

Extract of *Piper Cubeba* and various articles of the Materia Medica.

From Richard Morris, Esq.:

Specimens of the various Grapes of India.

From Professor Geiger:

Specimens of the active principles of several medicinal Plants, including "*Brucina Atropina Mezerina Lupulina,*" etc.

From Frederick Hanham, Esq.:

100 specimens of indigenous Plants.

From Dr. Sigismond Graff:

A collection of dried Plants from Carniola.

From Professor Martius:

Specimens of the several kinds of Catechu and Cardamoms that are met with in Germany.

From Dr. Hancock:

Specimens of various Barks and Gums.

From the Hon. R. W. May:

Specimen of Gum Copal from *Rhus Copallinum.*

From Dr. Bancroft:

Specimens of Cuichunchulli.

From Colonel Juan Galindo.

Specimen of liquid Amber from Guatimala.

From Dr. Steggall:

Specimens of dried Plants.

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Specimens of *Chimaphila corymbosa* and various Extracts of Conium.

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A collection of Seeds from the Himalaya Mountains.

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Specimens of *Cuichunchulli de Cuença, Cuichunchulli colorado,* and *Jatun condenado.*

From Sir R. Ker Porter:

Drawing and specimen of *Cuichunchulli de Cuença.*

From — Ayton, Esq.:

Recent specimens of medicinal Plants.

From Charles Johnson, Esq.:

Recent specimens of medicinal Plants.

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From His Majesty the King of the Netherlands, *Hon. Fellow:*

Pharmacopœia Belgica, 8vo.

Flora Batava, 6 vols. 4to.

Flora Javæ, 4to.

From His Majesty Francis, King of the two Sicilies, *Hon. Fel.*, through his Excellency Count Ludolf, *Foreign Member:*

Gussoni's Plantæ Rariores quas in itinere per oras Ionii ac Adriatici Maris collegit Auctor, 4to.

The Transactions of the Royal Institution of Naples, for the encouragement of the Natural Sciences, 4 vols. 4to.

The 1st vol. of Gussoni's Prodromus Floræ Siculæ, 8vo.

The 1st No. of the 2nd Vol. of Ditto.

From His Imperial Highness the Archduke John of Austria, *Honorary Fellow:*

An account of the Tenth Anniversary Meeting of the Agricultural Society of Berlin:

From His Excellency and Grace the Duke of Northumberland, K. G., K. P., Lord Lieutenant of Ireland, *Fellow:*

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Professor Geiger's Handbuch der Pharmacie, 4 vols. 8vo.

Dr. Robinson's Toxicological Illustrations.

Dr. Benner on the Cortex Pruni Padi.

Stephenson and Churchill's Medical Botany, 3 vols. 8vo. with Plates.

Loudon's Encyclopædia of Plants.

Pharmacopœia Austriaca, 8vo. Vienna, 1820. 3rd edition.

Pharmacopœia Borassica, 8vo. Berlin, 1813. 3rd edition.

Pharmacopœia Bavarica, 8vo. Munich, 1822.

No. 11 of the Medico-Chirurgical Gazette of Salzburg.

Dr. Geiger's Treatise on Calendula officinalis, in Latin.

Das Auftrocknen der Pflanzen fürs Herbarium, etc. By Von F. Leudersdorff. Berlin. 1827.

The Leicester Herald for June 9, 1830.

Medical Regulations, and 89 Drawings of East Indian Plants.

Sketches towards a Hortus Botanicus Americanus, with colored Plates and familiar Descriptions of new Plants of the West Indies and North and South America. By W. J. Tilford, M. D. 4to. London, 1812.

A Translation, by Earl Stanhope, from the German, of a Paper in the Salzburg Medico-Chirurgical Gazette, entitled "Ballota lanata," an effectual remedy for dropsy and chronic arthritis.

Dr. Robinson's practical Treatise on the Diet of elderly and weakly Subjects; Directions for the Use of the round-leaf Cornel, for the Chirayita, and on the Lobelia inflata in asthma, from R. Reece, Esq.

The tenth Report of the Hunterian Society.

Nees von Essenbeck's Parts 17 and 18 of a complete Collection of officinal Plants.

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From Viscount Gardener:

Bibliothèque Classique Latine ou Collection des Auteurs Classiques Latins. 1830.

From Gaspar Count von Sternberg, *Corresponding Member*, President of the Museum of Prague:

Revisio Saxifragarum iconibus illustratæ. Folio. 1810.

Revisio Saxifragarum iconibus illustratæ. Folio.

Revisionis Saxifragarum iconibus illustratæ Supplementum secundum. Prague, 1831.

From His Excellency Vincent Rocafuerte, Governor of the District of the Equator, *Foreign Member:*

Novorum Vegetabilium descriptiones auctoribus Paulo de la Llave et Johanne Lexarga. Parts 1 and 2. 8vo. Mexico, 1824.

From His Excellency General Count Bjornstjerna, the Swedish Minister in London, *Foreign Member:*

Chevalier Michele Tenore's Flora Neapolitana, 4 vols. folio.

From the Author, Dr. Domenico Viviani, *Cor. Member:*

Several numbers of his Fungi d' Italia e principalmente le loro specie mangereccie, velenose, o sospette, descritte ed illustrate, con tavole disegnate, e colorite dal vero. 1834.

Della struttura degli organi elementarii nelle Piante e delle loro Funzioni nella vita vegetabile. 1831.

From the Author, Dottore Antonio Targioni Tozzetti:

Vols. 1 and 2 of Lommorio di Botanica Medico-Farmaceutica e di Materia Medica, per uso degli studenti di Farmacia.

Storia ed Analise Chimica delle acque Termali dette di S. Agnese nella terra di S. Maria in Bagno.

Analise Chimica delle acque Minerali di Chianciano.

Analise Chimica delle acque Sulfuree Termali, di Rupolano nella provincia superiore Senese.

Dei Bagni di Montalcebo nella provincia superiore Senese, ed Analise Chimica delle loro acque minerali.

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Neueste Entdeckungen im Gebiethe der allgemeinen Rechenkunst.

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Memoir of D. M. H. Clinton. By David Hosack, M. D., F. R. S., Cor. Mem. of this Society. 4to.

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Inaugural Dissertation on the effects of Arsenic on Plants.

Dissertation on certain Monstrosities in Tropæolum majus.

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The first Report of the Oxford Botanical and Natural History Society.

From the Editor:

Fraser's Literary Chronicle and Register of British and Foreign Literature, Sciences and the Fine Arts.

From the Society:

Mémoires de la Société de Physique et d' Histoire Naturelle de Genève.

From the Editor:

Two Nos. of the Madras Journal of Literature and Science.

From Paul Usteri, M. D., of Zurich:

Transactions during the year 1827 of the General Helvetic Society of Natural History.

From John V. Thompson, Esq., F. L. S., Deputy Inspector-General of Hospitals, *Corresponding Member:*

The first part of the first volume of his Zoological Researches. 8vo. Cork, 1830.

From John Claudius Loudon, Esq., F. L. S., F. H. S.:

The Magazine of Natural History.

Specimen of his Encyclopædia of Plants.

The first part of the Encyclopædia of Gardening.

Le sixième rapport annuel sur les travaux de la Société d' Histoire Naturelle de l' Ile Maurice.

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A long series of Numbers of the Gardeners' Gazette.

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Two Botanical Treatises, published in the Magazine Naturoidenskaber.

From Signor J. C. Beltrami, *Corresponding Member:*

Le Mexique. 2 vols. 4to.

From Mr. Denley:

Historia Plantarum: by Gabriel Coterius. 18mo. Lyons, 1567. (ed. secunda.)

From Samuel Curtis, Esq.:

Nos. 27 to 36 of a new series of the Botanical Magazine.

From Dr. Eschweiler, *Corresponding Member:*

The first, second, third, and fourth parts of the first volume of his Journal of Botany.

From Dr. Martius, *Corresponding Member:*

Conspectus Regni Vegetabilis.

From Johann Em. Wickstrom:

Conspectus litteraturæ botanicæ in Suecia ab antiquissimis temporibus usque ad finem. 1831.

From the Author, D. C. Macreight, M. D., *Fellow:*

Manual of British Botany.

From John Steggall, M. D.:

The Pupil's Instruction in Botany. London, 1829.

From Dr. Nees von Essenbeck, Jun.:

The last number of his Collection of officinal Plants, to complete his father's celebrated work.

From Nicholas Vollok, M. D., *Corresponding Member:*

History of Botany in Burgundy.

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From the Author, Dr. J. G. Bischoff:

A Conspectus of Medicinal Plants according to the natural method of De Candolle.

From Mr. W. J. Baxter, *Associate:*

The British phœnogamous Botany.

From the Author, Mr. John Wallis:

A Treatise on Dendrology, with Observations on Dry Rot, etc.

From the Author, C. A. Agardh, M. D., *Cor. Member:*

Essai sur le développement intérieur des Plantes. 18mo. Lund. 1829.

Biography of the late Dr. Thunberg. 18mo. Stockholm, 1819.

From Frederick Gotlob Hayne, M. D., Professor of Botany in the University of Berlin, *Corresponding Member:*

Treatise on the Construction of the Cellular Tissue of Plants.

The first four parts of the 11th vol. of Getreue Darstellung, etc.

From M. Thémistoch Lestidoubois, *Corresponding Member:*

The following Essays—

Du Réceptacle et de l' insertion des Organes Floréans.

Mémoire sur la Structure des Monocotylédones.

Mémoire sur les Fruits siliqueux.

Mémoire sur le Fruit des papavéraceés.

Notice sur le gum Hedychium.

Observations Phytologiques.

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Lauri Malabathri adumbratio.

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Margotti on the Reproduction of Plants: revised by the Donor.

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Abhandlung über die Arzneikräfte der Pflanzen, verglichen mit ihren Structur und ihren chimischen Bestandtheilen.

Flora Apiciana.

From the Author, Professor Viviani, *Corresponding Member:*

Della struttura degli organi elementarii nelle piante.

From Theodore Gordon, M. D.:

Dr. Brera's Nuovo desideratum di Chure vere e di specie affini.

From Mon. J. Derheim, *Corresponding Member:*

Recherches Physico-Chymiques sur la Polychromie des Feuilles à diverses époques de la végétation.

From M. Adolph Brogniart, *Corresponding Member:*

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From the Author, C. F. Mimer, M. D., *Corresponding Member:*

Monographiæ Generis Polygoni Prodromus.

From George Jaeger, M. D., *Corresponding Member:*

Aemptlicher Bericht über die Versammlung deutscher naturforschern und Aerzte in Stuttgart, 1835.

Treatise on Pinus sylvestris.

Essays on the Nature of a diseased state of the Stomach: by John William Cornerer.

From the Author, Rudolph Rohrer:

Vorarbeiten zu einer Flora des Mohrischen Gouvernements oder systematisches Verzeichniss.

From the Author, M. Charles des Moulins:

Essai sur les orobranchus qui croissent à Languais, près Bergerac, département de la Dordogne.

Notice sur des graines trouvées dans des tombeaux Romains et qui ont conservé leur faculté germinative.

From Lud. Chris. Treviranus, M. D., Phil. D. Luce, *Corresponding Member:*

Observationes recentiores de ovo vegetabili ejusque mutationibus. Pamphlet, 4to. Breslau, 1828.

From C. E. Jenkins, Esq.:

Memoirs, historical and illustrative, of the Botanic Garden at Chelsea, belonging to the Society of Apothecaries. By J. Field. 8vo. London, 1820.

From Gilbert Burnett, Esq., late Prof. Bot. M. B. S.

Lecture delivered at the Garden of the Apothecaries' Company, Chelsea.

His Lecture delivered to the Botanical Class at King's College, London.

His Essay on the practical Prevention of Dry Rot in Timber.

His Treatise on the Cocoa Nut, and the many valuable properties possessed by that splendid palm.

From Samuel Dixon, Esq.:

Description of a Collection of South American Plants made by himself, and arranged in 6 vols.

From the Author, J. C. Schleicher:

Catalogue of all the Plants indigenous to Switzerland.

From the Editor, Joseph Paxton, Esq.:

The Horticultural Register, in a series of numbers.

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