JULY, 1829. VOL. I.—PART

TRANSACTIONS

OF THE

Medico-Botanical So

OF

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THE Council of the Medico-Botanical Society of London take this opportunity of informing the Members of the Society and the public, that in selecting, from the communications read at the general meetings, papers for publication, it is guided by the importance of the subjects treated on, but that it does not guarantee the certainty of the facts, or the propriety of the reasonings contained in the papers so published, which must still rest on the credit or judgment of their respective authors.

[illegible] Council of the [illegible] Geological Society of London take this opportunity of informing the Members of the Society and the public, that in selecting from the communications read at the general meetings papers for publication, [illegible] the importance [illegible] guarantee the certainty of the facts, or the propriety of the reasonings contained in the papers so published, which must still rest on the credit or judgment of their respective authors.

TRANSACTIONS

OF THE

MEDICO-BOTANICAL SOCIETY

OF

LONDON.

I. General Proceedings of the Society, from October 12, 1827, to January 16, 1829.

October the 12th, 1827. The Director delivered his annual Oration, which was ordered to be printed, together with a letter to him from Sir Anthony Carlisle.

November the 9th. A letter was read from Edward Huggins, Jun. Esq. of Nevis, dated the 25th June, 1827, respecting the seed of Argemone *Mexicana*, known there by name of the *Thistle seed*. The author states, " that the oil from this seed has for ages past been used by the native nurses in particular cases. The oil has been extracted in the usual way, by boiling the seed after being ground, as is the case with castor oil. Since the castor oil has become so common, it has often occurred to me, that this oil may be used with equal safety and greater efficacy; and I have fully satisfied my mind, that if not equal to that remedy, it is a very valuable addition to the Pharmacopeia. I have consequently sent a sufficiency to allow a fair trial, by obtaining the oil cold drawn, as from this process, in preference to the oil being obtained by boiling, it may be divested of its impurities, and above all, a nauseous taste, sometimes attendant upon its being improperly manufactured."

December the 14th. The Director exhibited some milk of the Cow tree (Palo di Vaca, Galactotendron *utile*, Humb. and Bonpl.), and also an Umbel of Brunsvigia *toxicaria*,

upon which Dr. Sigmond, the Professor of Toxicology, delivered some observations.

The Professor of Botany cited a case which had come under his own immediate observation, which tended to shew that, in some cases, a cold infusion of *Sarsaparilla* was preferable to a decoction.

The following Resolution, adopted on the 31st of October, by the Council of the Royal Asiatic Society, was read:

"Resolved, that the collection of dried plants and the MSS. relating to the Materia Medica of Ceylon, that were presented to the Society by Sir Alexander Johnston, be transferred to the Medico-Botanical Society, accompanied by the assurance, that this Council feels fully impressed with the importance of the objects to which the Medico-Botanical Society directs its attention; and that they confidently trust, that the Medico-Botanical Society will favour them with any communications they may receive, that are connected with Oriental subjects."

January the 11th, 1828. The Bye-Laws, as revised by a Special Committee, were read, approved, and ordered to be printed.

An extract was read from a letter of Messrs. Boussingault and Mariano, published in the *Annales de Chimie and Physique*, which stated, that the constituent parts of the milk of the Cow tree appeared from chemical analysis to be, 1° wax; 2° fibrine; 3° a small proportion of sugar; 4° a magnesian salt, which is not an acetate; and 5° water. They further observe, that the presence of fibrine explains its nutritive qualities, and that the tree might be cultivated in the Valley of Araqua with advantage for the wax, which is very superior.

ANNIVERSARY MEETING, *January the 16th*. The Secretary's Report for the preceding year shewed an increase of 17 Honorary Fellows, 1 Honorary Member, 65 Fellows, and 19 Corresponding Members.

The Librarian's Report shewed an increase of 117 Volumes of printed Books, 56 Pamphlets, 14 MSS., and 597 coloured Drawings of Plants.

The Conservator's Report shewed an increase of 216 Specimens of Plants, &c.

February the 8th. Letters were read:

From the Chevalier Soulange Bodin, requesting that the Society would enter into correspondence with the Horticultural Society of Paris.

From Mr. Boursault, respecting the cultivation of the LAURUS *Cinnamomum*. "It was always deemed absolutely necessary," says he, "to allow 20 or 25 degrees (Reaum.) of heat to this plant, though I possessed a fine specimen, in a house the temperature of which never exceeded 12°, and which produced perfect seeds every year. I perceived, about three years ago, that some of these seeds, which had been carried with the earth into the garden, and must have passed the winter there, had germinated. Astonished by this discovery, I cultivated them with care in a green-house. I placed several in a conservatory in which all my Chinese plants are kept, with others from the Cape of Good Hope, and I had the satisfaction of seeing these Cinnamon trees growing with more vigour here than those which I had left in the hot-houses. From an experience of three years, I am inclined to believe that the Cinnamon tree might be introduced into the southern parts of Europe."

From F. C. M'Gregor, Esq. His Majesty's Consul-General at the Canaries, stating that he would have much pleasure in collecting specimens and information relative to Medical Botany in Teneriffe, and the neighbouring islands.

The following observations, made by Dr. Michael Short, on the effects of the expressed oil of the seed of ARGEMONE *Mexicana*, were read:

"Having tried this medicine, I have great pleasure in bearing testimony to the accuracy of our Nevis Correspondent, (Mr. Huggins.) The first case in which I employed it, was that of a maniac, (a class of patients which are with difficulty acted upon.) I ordered one drachm, formed into emulsion with the yolk of eggs; it produced five free evacuations. The second case was

that of a strong seafaring man. I ordered forty drops, which proving inert, I increased the dose to a full drachm, which opened the bowels very gently. The third and fourth cases were very similar to the last, one drachm acting two or three times. The fifth case was that of a youth, about sixteen years of age, with lax fibre, and habitually constipated. I gave one drachm in mucilage, which acted freely five times in the course of twelve hours. I generally observed it began to operate between five and six hours subsequent to its administration, and its effects ceased after the fifteenth or sixteenth hour. Its operation is very similar to that of *Ol. Ricini*, producing no griping. In one case nausea was excited, but I am in doubt, whether in the existing state of the stomach any medicine would not have produced similar effects."

A specimen of the fruit of LODOÏCEA *Sechellarum*, or double Cocoa Nut, was exhibited by William Huttmann, Esq.

March the 14*th.* Specimens of an Extract of Cinchona, of a resinous Extract of Cubebs, and of the Essential Oil of Copaïba, prepared by Mr. Battley, and of an Extract of Senna, prepared by Mr. Bass, were exhibited.

A letter was read from W. H. Read, Esq. His Majesty's Consul-General at the Azores, dated 28th January, 1828, expressing his ardent desire to promote the views of the Institution, and to contribute, by all the means in his power, to its success. He transmitted with this letter a list of the medicinal plants found in the Azores.

May the 9*th.* A paper, by J. Leslie, Esq. was read, relating to the plants employed as poisons by the Bushmen of the Cape of Good Hope.

June the 13*th.* The following letters were read:

Berkeley-street, June 9, 1828.

Sir,—I beg you will communicate to the Council of the Medico-Botanical Society, and to the Society at large, that, agreeably to the desire of the Council, I waited on Mr. Peel, Principal Secretary for the Home Department, who readily agreed

to lay before His Majesty the humble request of the Society, that He would become its Patron.

I have very great pleasure in informing you, that I learn by a letter from Mr. Peel of the 3d instant, that our Sovereign has been most graciously pleased to accede to the prayer of our petition, and that further, the King has been pleased, in the most gracious manner, to express his wishes " for the success of the useful exertions of the Society in a very important department of science." I beg to congratulate you, Sir, and the Society, on this mark of royal favour by our Sovereign, and have the honour to be,

Sir,
Your most obedient,
humble Servant,

(Signed,) J. M'GRIGOR,
President.

To J. P. Yosy, Esq.
Sec. Med. Bot. Soc.

Whitehall, June 3, 1828.

Sir,—I beg leave to acquaint you, that I have submitted to His Majesty the request of the Medico-Botanical Society of London, that His Majesty would be pleased to become the Patron of the Institution.

I have the satisfaction of acquainting you, that His Majesty has commanded me to notify to the Society His compliance with their request, and his best wishes for the success of their useful exertions in a very important department of science.

I am,
Sir,
Your obedient Servant,

(Signed,) ROBERT PEEL.

To Sir James M'Grigor.

An Address of Thanks to His Majesty was voted.

Thanks were voted to the President, for his active and successful exertions in obtaining the patronage of His Majesty.

The following species of the Genus LAURUS, which were sent by W. T. Aiton, Esq., Messrs. Loddiges, Mr. Forrest, Mr. A. Richardson, Mr. Fairburn, and Mr. D. Cameron, were exhibited, and a Lecture delivered thereon by the Professor of Botany and Materia Medica (Mr. Frost).

LAURUS *Cinnamomum.** L. (PERSEA *Cinnamomum*, Spreng.)
——— *Cassia.** L. (PERSEA *Cassia*, Spreng.)
——— *Culibaban.** L.
——— *Camphora.** L. (PERSEA *Camfora*, Spreng.)
——— *montana.* Ait. Herb.
——— *Chloroxylon.* W.
——— *glauca.* W.
——— *nobilis.** L. (L. *vulgaris*, Du Hamel.)
——— *var. angustifolia.*
——— —— *undulata.*
——— —— *salicifolia.*
——— —— *variegata.*
——— *Indica.* W.
——— *fætens.** W.
——— *Persea.** (PERSEA *gratissima*, Gærtn.)
——— *Borbonia.* W.
——— *Carolinensis.* Mich.
——— *lucida.*
——— *fulgens.*
——— *Benzoin.** W.
——— *Sassafras.** L.
——— *aggregata.* Bot. Mag.
——— *gracilis.*
——— *nitida.* (CINNAMOMUM *nitidum*, Hook,)
——— *camphorifera.*
——— *Madeirensis.*
——— *nivea.*
——— *Chinensis.*
——— *involucrata.*

* The species thus designated are possessed of medicinal properties.

LAURUS *sylvestris.*
——— *bullata.* Ait. Herb.
——— *splendens.* Ait. Herb.
——— *paniculata.* Ait. Herb.
——— *verticillata.*
——— *Camphoræ* affinis.

Also the following Genera, which form part of the Natural Order LAURINEÆ.

CRYPTOCARYA *obovata.*
TETRANTHERA *dealbata.*
——— *laurifolia.*
——— *monopetala.*
OCOTEA *Pichurim.** (Fruit only, known by the name of Sassafras Nuts.)
——— *Cymbarum.** (Laurel Oil Tree; dried specimens from Dr. Hancock's Herbarium.)
PIERARDIA *sapida.*

July the 11th. The following gentlemen were elected Professors for the year ensuing.

Professor of Botany, John Frost, Esq. F. L. S.
Professor of Toxicology, George G. Sigmond, M. D.
Professor of Materia Medica, John Whiting, M. D.

Complete specimens were exhibited by Dr. Hancock, of the plant producing the Angustura Bark.

October the 28th. The Director delivered his annual Oration which was ordered to be printed.

November the 11th. Specimens of the RHEUM *australe* were exhibited by Aylmer Bourke Lambert, Esq. V. P. L. S.

A paper, on the uses of CICHORIUM *Intybus* in Russia, by Sir Henry Willock, K. L. S. was read; and also a letter, on the GEUM *Canadense,* from Colonel John Ready, Lieut.-Governor of Prince Edward's Island, N. A., in which he gives the following particulars: "I have been long endeavouring to obtain for the Society, specimens or seeds of such plants as are used by the natives as medicines, and have at length succeeded in obtaining one which is herewith enclosed. It is called here the *Chocolate*

plant, or *Blood root*; so named, I presume, from its colour. This plant is, I dare say, known to the Society; should it not, I can easily procure other specimens, it being found in considerable quantities in the black spruce swamps, in which the island abounds. The medical properties of this plant are very valuable to the natives, it being a mild, and at the same time, an effective bitter, calculated to restore the tone of the stomach and bowels; it seems to be particularly applicable as a remedy in the diarrhœa of children, and has succeeded when the common astringents have failed; if its uses were properly understood, it might, from what I have observed, be found valuable in several diseases. The root is principally used by the natives, although the leaves are active in their qualities. The method used in preparing it, is by decocting the root, and drinking it as you would chocolate; and it is rather a pleasant beverage than otherwise, so much so, that the country people, without any regard to its medicinal qualities, use it as a common drink."

ANNIVERSARY MEETING, *January the* 16*th*, 1829. The Secretaries' Report for the preceding year shewed an increase of 5 Honorary Fellows, 14 Foreign Members, 56 Fellows, 158 Corresponding Members, and 12 Associates.

The Librarian's Report shewed an increase of 78 Volumes and several Pamphlets.

The Conservator's Report shewed an increase of 7795 Specimens of Plants, with other Specimens of Materia Medica, &c.

The following persons were elected to form a Council, and to be Officers for the ensuing year:

Philip Henry, Earl Stanhope, *President.*
George Henry, Lord Bishop of Bath and Wells.
Henry Brandreth, Jun. Esq. M. A. *Librarian.*
William Burnett, M. D.
John Frost, Esq. *Director.*
Humphrey Gibbs, Esq. *Secretary.*
Thomas Gibbs, Esq. *Treasurer.*
Theodore Gordon, M. D.
Philip, Earl of Hardwicke, K. G.

Robert William Hay, Esq. M. A.
Sir Benjamin Hobhouse, Bart.
Thomas Jones, Esq.
Sir Alexander Johnston.
Sir James M'Grigor, M. D. K. T. S.
Right Honourable Robert Peel, M. P. D. C. L.
Michael John Short, M. D. *Conservator.*
William John Short, Esq.
Sir John Edward Swinburne, Bart.
Joseph Fitzwilliam Vandercom, Esq.
William Yarrell, Esq.
John Peter Yosy, Esq. *Secretary.*

The Earl Stanhope delivered an Address, which was ordered to be printed for distribution amongst the Members.

The Society's Gold and Silver Medals were announced as having been awarded to Dr. John Hancock, and to Professor Octavien Targioni, of Florence.

II. On the Haimarada of Guiana, by John Hancock, M. D., Fellow of the Medico-Botanical Society. *(Read May 9th, 1828.)* Vide Pl. I.

The *Haimarada*, is called so by the Arowaks, and by the Dutch Creoles *Bitter Blairr.*

It is greatly esteemed by the natives as an antibilious emetic and febrifuge, and is indeed a most efficacious remedy in malignant fevers and dysentery, especially in cases depending on a disordered state of the liver.

It may not be improper to notice, the high terms in which the native Indians and Creoles of Essequebo express their commendations of this plant; if questioned on the subject, they exclaim, "it is our physic when we are sick with the fever, and have pain in our stomach and bowels: it throws off all the bile, and soon subdues the fever, &c."

We may thus observe, amongst these rude children of nature,

some gleams of the gastro-hepatic theory of fevers, so prevalent, at present, amongst our European brethren. This plant is, indeed, their main resort, both in continued and intermittent fevers.

Their method, in the former disease, is to boil a small handful of the fresh leaves in water, of which they take a sufficient quantity to produce full vomiting, repeating the dose for two or three following mornings, and even four or five, if the fever prove obstinate.

In intermittents, they employ it as an emetic, agreeably to the practice of Celsus:—"Cum primum aliquis inhorruit, et ex horrore incaluit, dare ei oportet potui tepidam aquam subsalsam, et vomere eum cogere; nam fere talis horror ab iis oritur, quæ biliosa in stomacho resederunt." (Lib. 3, Cap. 12.)

It must be observed withal, that they make great use of baths, fomentations, and frictions, in continued and inflammatory fevers in general; and little or nothing is wanting, except the use of the lancet, to render their practice in fevers tolerably complete. As it is, however, it appears to be not less successful than ours.

The plant in question belongs to the class Dydynamia and order Angiospermia; and to the Personatæ of the natural orders, being in natural affinities allied to HERPESTES of Gaertner, to SCROPHULARIA, GRATIOLA, DIGITALIS, VERONICA, &c.

In botanical characters, it coincides very accurately with VANDELLIA *diffusa*. It may, therefore, be sufficient if I extract from Willdenow what he has collected from the Mantissa of Lin. and from Vahl's Eclogæ—"*Calyx* sub-quadrifidus; *Corolla* ringens; *Filamenta* 2 exteriora e disco labii corrollæ; *Antheræ* connexæ; *Capsula* unilocularis, polysperma. Habatat in Insula Montserrat et St. Crucis. *Caulis* herbaceus, tetragonus, brachiatus; *Folia* ovata, sessilia, crenata, obtusiuscula; *Flores* axillares, oppositi, solitarii. Habitus VERONICÆ *serpillifoliæ*." Mant. "*Caulis* herbaceus, ramosus, tetragonus, filiformis, pubescens. *Folia* breviter petiolata, vix unguicularia, sub-rotunda, supra glabra, juniora subtus pilis rarioribus, serrata, avenia, enervia. *Pedunculi* axillares, solitarii, uniflori, alterni,

breves. *Calyx* quadrifidus." Vahlii Eclogæ Americanæ, Fasc. II, p. 47. To which we may add, with one alteration: *Radix* fibrosa; *Caules* pedales decumbentes; *Corolla* calyce parum longior, stolones radicantes, labium inferius album, trilobum, flabeliforme, superius integrum sub-rubrum; *Capsula* conica, bivalvis; *Calyx* persistens, pilosus, quinquefidus.

There can be no doubt, I think, that this plant will be recognized as identical with V. *diffusa*, although there are some trifling discrepancies observable. The calyx, for instance, in the generic description of V. *diffusa*, is said to be *sub-quadrifidus*; in this, it has constantly five unequal divisions; and of the leaves, even the youngest are not without veins. These are the only deviations I have observed in this plant from the characters of V. *diffusa*, as given in the Species Plantarum of Willdenow. It might, together with DIGITALIS, ATROPA, &c. be ranged with Linnæus's natural, or rather unnatural order Luridæ or Plantæ uspectæ.

Infusions of this plant have a faint herbaceous odour, and a flavour somewhat similar to that of the QUASSIA *amara*, but more bitter. It leaves a peculiar impression on the palate, as it were of a metallic taste. Both water and alcohol extract its virtues; proof spirit is, perhaps, the most perfect menstruum.

In respect to the chemical analysis of this vegetable, I have made no adequate or conclusive experiments to enable me to decide upon the nature of its active constituents. It resists, in a remarkable manner, the action of the other vegetable infusions, and of most of the metallic re-agents usually employed. In the absence of better information, I give the following as the results of my investigations with the aqueous infusion of Haimarada.

I find no change whatever to ensue on the admixture of infusions of Haimarada with those of other vegetables. Those tried were the following: infusions of Galls, Cinchona, Angustura Bark, Ipecacuhana, Rhubarb, Buhyari (ABUTA of Aublet,) Quassia, Arisouri wood, as also with the wood of Sibadani, a nondescript tree of Essequebo, and the bitter Cu-

cumber, MOMORDICA *operculata* of Linnæus, which are the bitterest of all known substances.

No precipitate is formed with glue, nor with solutions of nitre, muriates of soda and ammonia, or any of the neutral salts, nor with the sulphuric, muriatic, or nitric acids, nor with the subcarbonates of soda and potash; none with the sulphates of iron, zinc, copper, or with the muriates of iron and mercury; nor with the tartarate of antimony, sulphate of quinine, chlorate of potash, with iodine, nor with solutions of arsenic. Yet there are certain substances which form precipitates with the infusion of Haimarada. With nitrate of silver and nitro-muriate of gold, a scanty and slow separation takes place; with subcarbonate of potass, a floculent deposite; with acetate of lead, a copious white; and with nitrate of silver, a very abundant olive precipitate is quickly formed; with lime water, a yellow powder falls abundantly, whilst the lime forms, on the surface, a pellicle of a bright metallic lustre.

These results seem to indicate, that Haimarada contains a peculiar constituent, and appear to shew, that it is almost destitute of the proximate principles common to other plants; shewing scarcely any traces of starch, gluten, resin, gallic acid, tannin, or extractive.

Some of these precipitants of Haimarada probably throw down a bitter principle; for, by adding lime water to the infusion till it ceases to act upon it, the infusion is deprived of its bitterness, and perhaps also of its emetic property. It likewise loses its bitterness with nitrate of mercury and acetate of lead; whilst the solution of both these metallic salts lose their peculiar metallic taste. Their chemical affinities are subverted, and their precipitates are extremely bitter and nauseous.*

For medical purposes, the entire plant is employed. It should be pulled up by the root, dried, and preserved from moisture.

I have not employed the Haimarada as a remedy in half the

* It would be interesting to try the effects of this vegeto-mineral compound as an alterant in certain chronic diseases, especially in cutaneous affections, lepra, &c.

number of disorders for which its nature and properties would seem to render it applicable. I could, indeed, make up a long detail of cases according to the common mode of setting off a remedy; and agreeably to the same method, imagination might supply the desiderata. I purposely avoid those long and tedious tales of charlatanery.

I beg leave simply to state a few of the results of my experience with this remedy; at the same time wishing that no regard may be attached thereto without due examination, or until, by rigorous investigations in abler hands, the subject shall be illustrated in a manner unattainable by my humble efforts.

As an emetic, about 25 grs. of the dried herb, in powder, may be taken, or the infusion of 30 grs. made in the manner of tea with boiling water, and in this dose it acts easily and efficaciously. A dose of this kind, for several mornings successively, is a most effectual method of subduing a dysentery, especially when accompanied by a redundant secretion of bile; and 2 or 3 grs. may withal be repeated twice a day.

The same method proves most successful in bilious remittent and intermittent fevers.

When Haimarada is administered in small doses with common salt (muriate of soda), its action is directed upon the intestines and the kidneys.

Its activity is also manifested both as a diuretic and a sudorific, by combination with nitre and opium.

As a tonic, diuretic, and resolvent, it is best, as with most other potent remedies, to begin with small doses (as a grain or two twice or thrice a day), gradually to augment the dose till a decided effect be produced upon the system, and to continue its use for a sufficient time, varying the dose according to its effects, and as the judgment of the practitioner may suggest.

It has some powers as a vermifuge, and is reputed to be an antidote to the bite of venomous serpents.

Externally, it is praised as a vulnerary; and I can bear witness to its utility as a detergent and corrector of foul and spreading ulcers.

Its ultimate operation on the stomach is tonic and bracing, improving the appetite and digestive functions. From these effects, its aptitude for expelling bile, together with its bitterness and certain other analogies, I was induced to employ it in chronic disorders of the liver. The results have appeared to me so favourable, that I have thence chiefly been induced to solicit the attention of the faculty to this humble plant; hoping that, in abler hands, its virtues may be more fully developed and turned to yet greater avail in certain untoward disorders. From what can be gathered of its nature, I am inclined to believe, that it may be found peculiarly applicable as a remedy in jaundice. I have never tried it, however, in this complaint.

I would by no means be understood to say, that I depend on this remedy alone in chronic disorders of the viscera, as indurations and enlargement of the liver, spleen, &c. I would only assert, that my experience has, to my own satisfaction, most decidedly proved its value as an important aid in such cases.

I usually employ, at the same time, a light mercurial course, frequent fomentations, and repeated applications of blisters.*

I think I shall not be contradicted by the candid practitioner, when I assert, that we have in general been in the habit of placing too much reliance on the use of mercury in those complaints, without reflecting on the results. This must certainly be owing to the influence of fashion, or to some mistaken views; for I would submit the question to any man of experience and candour, whether its success has been in any degree satisfactory, and what striking advantages he may have observed, from the use of mercury alone in hepatites. Surely the experience of the fourth part of a century within the tropics, which some few of us have passed, should enable us to form an opinion of our own on these points, unbiassed by the shackles of routine, or the prevailing fashion of the day.

We know that mercury forms one of the most valuable remedies we possess, capable of effecting important purposes in

* From a few trials I have made of Sarsaparilla and nitric acid, in these cases, I can speak most favourably of them as resolvent remedies.

the treatment of disease; but we also know, that it is so egregiously abused, empirically and indiscriminately employed, and so frequently to the exclusion of more appropriate remedies, as to render it doubtful, whether, upon the whole, it has not been productive of more harm than good to society.

Why should we repose such an overweening confidence* in a single metal, where benignant nature has bestowed her choicest gifts. The vegetable tribes not only furnish the most potent poisons but also their antidotes, and are the most salutary and appropriate remedies for the various distempers to which our frail nature is daily exposed.

It behoves the members of our profession duly to consider these things. Let us hope that the subject may engage the attentive reflection of those whose opportunities and active minds shall qualify them for breaking down the trammels of authority, and the barriers to improvement, in our most obscure and problematical art of physic.

It may not be out of place to add a short description in English, which, with the figure (the first, to the best of my knowledge, ever published), will enable any person to find the plant in its various places of growth, which are the elevated lands both of Demerara and Essequebo, especially what are called the Grampian Hills, about the plantation Hibernia, &c. and also in the localities given by Linnæus and Vahl.

The *Root* is perennial, fibrous, and strikes, like most plants similarly constructed, at almost every joint. The *Stem* is repent, extending about one foot in length and two or three inches in height, branching, tetragonal with sharp edges, tapering towards its numerous extremities, and somewhat pubescent. The *Leaves* are borne on very short petioles, ovate, slightly serrated, somewhat hairy on the lower surface, particularly of the younger ones, smooth on the upper, opposite. The stem and edges of the leaves are, in the healthy plant, tinged with a

* It is probably not so much from a confidence in this remedy that it is so often prescribed, as from a listlessness and indifference to the innumerable bounties with which nature has surrounded us.

lurid red. The *Flowers* are axillary, solitary, opposite, borne on short peduncles. The *Calyx* deeply divided into five sharp segments, is persistent, and slightly hairy. The *Corolla* entire, somewhat longer than the calyx, ringent, the lower lip white and divided into three lobes, the upper of a reddish hue and entire. The *Stamens* are four in number, of which two are longer than the others; the anthers two lobed. The *Pistil* consists of a conical germ, a short and tapering style, and a double stigma. The *Capsule* is conical, oblong, two valved. The *Seeds* are numerous and very small.

The Haimarada is very closely allied to the MATOUREA *pratensis* of Aublet, (Pl. Guian, p. 642, tab. 259,) or VANDELLIA *pratensis* of Vahl, (Eclog. 11, p. 48,) which Aublet says is considered as a very good vulnerary, bruised and applied externally, or taken internally as a decoction. Vahl affirms, on the authority of Rohr, from whom he had his specimens, that the V. *pratensis* is used in the cure of Syphilis.

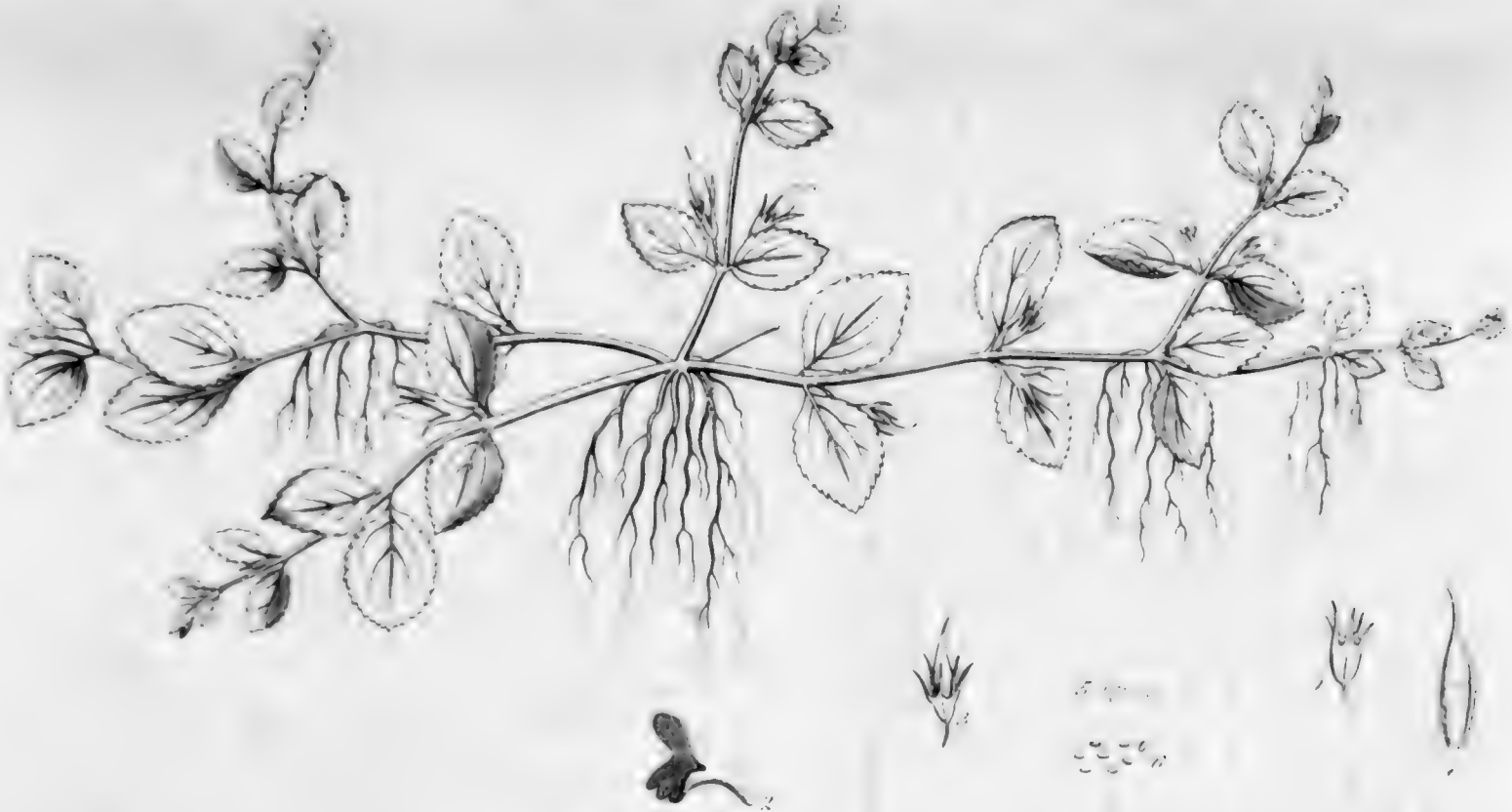
REFERENCES TO PLATE I.

1. Calyx magnified.
2. Corolla magnified.
3. Calyx and Capsule slightly magnified.
4. Capsule magnified.
5. Seeds.
6. Ditto magnified.

III. OBSERVATIONS ON THE ORAYURI OR ANGUSTURA BARK TREE, BY JOHN HANCOCK, M. D., FELLOW OF THE MEDICO-BOTANICAL SOCIETY.* *(Read July the 11th, 1828.)* Vide Pl. II.

THE powerful medicinal properties of the Angustura Bark, and its great efficacy in many cases, acknowledged by all the learned practitioners of Europe for more than thirty years, will,

* The Society's Gold Medal for 1829 was awarded to the Author for this Paper.



Lobelia dissentanea, Linn.

Trans. Med. Bot. Soc. Vol. 1. p. 16.

I trust, prove a sufficient apology for my drawing the attention of the Medico-Botanical Society to the Tree from which this drug is obtained.

Having travelled repeatedly, and resided during several months (particularly during August and September, 1816), in the missions of Carony, and sketched a map of the district, I had an opportunity of seeing many thousands of the Bark Trees, and of examining numerous specimens on the spot, deeming it, as a medical practitioner, a duty incumbent on me to improve the opportunity which then offered, of making myself thoroughly acquainted with its botanical characters, well knowing how imperfectly they had been described in the different works then extant. In the course of my observations, I remarked that it would have been impossible for any botanist, however expert, to recognise the Angustura Bark Tree with the assistance of any one of those works, into which its descriptions have all been transcribed from that of Baron Alexander de Humboldt and his scientific coadjutor, M. Aimé Bonpland; and I have no doubt that those learned gentlemen themselves will confess, should these pages ever reach them, that they have fallen into an error by trusting too much to the testimony of others. I was informed by MM. Ravigo and Jose Terreas, with whom the travellers lodged at Angustura, that they did not visit the missions of Carony, but sent an Indian, who returned with a sample (*muestra*) of the leaves, but, much to their disappointment, without flowers. It is therefore probable that their descriptions refer chiefly to specimens which they observed in the province of Cumana, where *a species* of the Genus to which the Angustura Bark Tree appertains may grow to the size mentioned.

I shall now endeavour to lay before the Society, in as concise a manner as possible, the results of my observations on the external appearance of the plant; the prominent differences between my description and that of Humboldt and Bonpland in their splendid work on the Æquinoctial plants; and, lastly, the

medicinal properties I have noticed in the Bark, together with the manner in which I have administered it.

I was never enabled to learn from what source the illustrious travellers above mentioned derived the name *Cuspare* for the Carony Bark Tree. I resided for three years and a half at St. Thomas de Angustura in Spanish Guiana, whence I made several excursions amongst the missions of Carony, and the tracts inhabited by Indian tribes between them and the mountains of Parime, but never once heard the term used; the vernacular name among the Aborigines of this part of Guiana (the tribe called Guyanos, who had long been subject to the dominion of the Catalonian Capuchin Friars) being *Orayuri;* and among the Spaniards and Creoles, it was known by the name of *Cascarilla* or *Quina de Carony.* The *Cuspa,* however, which is known as a tree of Cumana, has a bark that is bitter, and of a yellow tint; and although it is much lighter, nauseous to the taste, and altogether different from the Orayuri, it is fancied by the inhabitants of Cumana to be allied to the Carony Bark Tree; at the same time they acknowledge its virtues to be much inferior. They usually judge of plants only from some similitude in the bark, leaves, fruit, &c. without regarding the flowers. So, also, in Demerara, some have identified the Carony Bark Tree, with the *Yaroury* or Paddle Wood, than which, scarcely any two trees differ more, with the exception of a likeness in their barks, both having a yellowish colour and bitterish taste.

It is not in Carony or Guiana then, but doubtless in Cumana, that we are to seek the derivation of the term *Cuspare,* an easy transition from the *Cuspa* of the natives, which is probably of Tamanac origin. I know their great fertility of invention when in want of a name for anything met with in the forest; though I have observed that, among some of the Indian tribes, we find, notwithstanding the numerous confusions they make in many instances, a remarkable degree of intelligence and aptitude in naming trees and plants according to their natural affinities, especially amongst the Arowak tribes: *Wayure* is equivalent

to our Orchideæ; *Sirua* to the Laurineæ, and hence come *Sirubali* (OCOTEA *Cymbarum*), *Sirudani*, &c. by adding various adjective terms indicative of the different species.

As to the Cuspa Tree, with which the Orayuri may have been thus mistaken, I cannot here speak with sufficient accuracy; for having sent from Demerara in 1825, requesting complete specimens, bark and all, of the Cuspa Tree of Cumana, I received the following year, a few pieces of the bark, with the important information, or what, no doubt, was thought important, that the leaves and flowers were not used "*como remedios.*"

The Angustura Bark Tree grows in abundance on the mountains in the neighbourhood of St. Joaquin de Carony, situated between the 7th and 8th degrees of northern latitude. It is also well known in the missions of Tumeremo, Uri, Alta Gracia, and Cupapui, (as correctly mentioned by Humboldt,) which are the southern and back missions of the Orinoko, at a distance of upwards of 200 miles from the sea. It lines the road side, in many places, between the missions of St. Antoni and Villa Upatu. It delights in a rich soil, and flourishes at the height of between 600 and 1000 feet above the level of the sea.

It seldom or never exceeds the altitude of 20 feet, the usual medium being about 12 or 15 feet. The diameter of the trunk, which is tolerably erect, is from 3 to 5 inches.

Branches scattered over the whole tree without much order.

Bark, smooth and externally grey.

Leaves, placed, for the most part, alternately on the branches, composed of three folioles, supported on a common petiole of nearly the same length as the leaflets, slightly channelled on the interior surface. Leaflets oblong, in general from 6 to 10 inches in length, and 2 to 4 in breath, the centre one being longer than the lateral ones, pointed at both extremities, and connected at the base by very short leaf stalks with the common petiole. They are very smooth and glossy, of a vivid green, and yield, when recently broken from the tree, a strong odour, greatly resembling that of Tobacco, from which circumstance the term *Orayuri* seems derived, as the word *Yuri* or *Yourie*

signifies Tobacco in the Arowak dialect. Some of the leaflets are marked with small, whitish, round spots.

Flowers, numerous, borne towards the extreme part of long spikes or racemes, which are both terminal and axillary. Bracteæ, lanceolate, acute, in pairs. The flowers also have a peculiar, not the most pleasant, odour.

Calyx, monopetalous, bell-shaped, five cleft, hairy, rough, inferior, and persistent; green, about one fourth of the length of the Corolla.

Corolla, somewhat curved prior to expansion, tubular, bursting from the centre; nearly an inch long; tomentose both inside and out; composed of five unequal petals, two of them being about 1-9th longer and larger than the others, so united at the base as to appear inseparable,* and indeed never separating; these petals are reflex, oblong, obtuse, fixed in the receptacle, and, when faded, breaking off round the germ, leaving a protecting border besides the receptacle.

Nectaria, if they may be called so, five linear leaflets borne at the mouth of the tube, half the length of the petals, each bearing at its summit a very minute, round, pellucid glandule, filled with a fluid.

Stamina, two. Before the expansion of the flower they are found lying towards the inner or inflected side of the corolla, the anthers in the groove of the two longer petals, the tips of the three shorter ones being incurved over them as for protection. Filaments flat, inserted into the two longer petals at the mouth of the tube, considerably shorter than the nectaria. Anthers large, linear, erect, longer than the filaments, four channelled, two celled.

Pistillum, consists of a five-lobed depressed germ, immersed within a coriaceous receptacle; a simple, filiform style, hairy at the middle, longer than the tube, and a capitate entire stigma.

Pericarp, consists of 5 bivalve capsules, of which 2 or 3 are

* I had previously described the Corolla as monopetalous, and I still consider it to be so, although, in submission to higher authorities, I have in the text spoken of it as a pentapetolus Corolla.

commonly abortive, resembling short legumes, gibbous. When in the embryo state they are smooth, tender, and semi-pellucid, and when approaching maturity, they gradually acquire a villous rough coat.

Seeds, two to a capsule; one of them often abortive, round, black, the size of a small pea, fastened near together by minute pedicles within a chaffy envelope, which is again surrounded by a strong elastic perisperm or arillus, which is horny, bivalve, bursting with violence, and dispersing the seeds it contains to a considerable distance.

Of the *receptacle*, or that part which may be designated thus: In the early stage of the flower, when the corolla has reached the length of 3 or 4 lines, on detaching it from the calyx the 5 little ovaries may be observed standing naked upon the receptacle, which is then merely such. It, however, gradually grows up into a rim or circle around the ovaries in such a manner, indeed, as entirely to cover and envelope them in a tough leathery coat or hood. By the time the flower is ready to open, and at the falling off of the corolla, it entirely conceals them. When they commence to emerge, this receptacle dilates, thickens, and remains a supporting base to the then super-imposed capsules. When the flower is fully opened, the receptacle is obscurely 8 or 10 notched. May not these different evolutions be compared to the metamorphoses of insects, or rather to the changes which take place between the chorion and embryo in animals, during the earlier periods of gestation?

The Angustura Bark Tree flowers in vast profusion during the months of August and September, when its elegant, white blossoms add greatly to the beauty of the scenery. Its seeds ripen in October and November.

I shall now proceed to notice the differences existing between the foregoing description and those of anterior and even subsequent writers, such as:—Willdenow, who erroneously formed a new Genus, which he called BONPLANDIA, on the plant sent him by Baron Humboldt as the one in question, notwithstanding

there already existed a Genus of that name, and although the Angustura Bark Tree most obviously belonged to the Genus GALIPEA of Aublet:*—Humboldt, and subsequently Humboldt

* In the above opinion, formed in the year 1816, I am confirmed by the following extract from the *Prodromus Systematis Naturalis Regni Vegetabilis* of De Candolle, (vol. I, p. 730,) a work which I have been enabled to consult only since my recent return to England, and to which, after I had nearly completed this paper from the numerous observations I had made 12 years ago, my attention was directed by Mr. Yosy, Sec. Med. Bot. Soc., who having mentioned the subject to Mr. David Don, the learned Librarian of the Linnæan Society, was by him informed of the improved arrangement made by De Candolle.

" DICOTYLEDONES seu EXOGENÆ.

" RUTACEÆ.

" Trib. II. Cuspariæ. D. C.

" XXIV. MONNIERIA.

" XXV. TICOREA.

" XXVI. GALIPEA. *Aubl. Guian.* 2. p. 662. *St. Hil. Bull. Philom.* 1823, *p.* 131. Galipea " et Cusparia, *D. C. Mem. Mus.* 9, 142 et 148. Cusparia, *Humb.* Bonplandia, *Willd. non* " *Cav.* Angustura, *Rœm. et Schultz.* Conchocarpus, *Mik.* Obentonia, *Vel.*

" Calyx brevis quinquedentatus. Petala quinque in corollam hypocrateriformem coalita, seu valde approximata, tubo brevi pentagono, lobis patentibus acutis. Stamina 4-7 hypogyna, petalis subadhærentia, inæqualia, interdum omnia fertilia, sæpius 2 majora antherifera, 2-5 breviora sterilia. Nect. cupuliforme. Styli 5 in unicum mox coaliti et stigma 4-5 sulcum constituentes. Carpella 5 aut abortu pauciora biovulata obtusa cocculiformia sessilia, endocarpio separabili. Semina abortu solitaria. Cotyledones magnæ corrugatæ biauriculatæ. Frutices glabri; folia alterna simplicia aut plurifoliolata, foliolis oblongis acuminatis; pedunculi axillares multiflori.

* *Foliis compositis.*

" 1. G. *trifoliata.* (Aubl.)

" 2. G. *Ossana.*

" 3. G. *Lasiostemom.*

" 4. G. *Cusparia* (St. Hil. MSS.) foliis 3 foliolatis, racemis pedunculatis subterminalibus, " calyce 5 dentato, staminibus sterilibus 3. Hab. in Amer. merid. Cusparia febrifuga, *Humb.* " *tabl. geogr.* Bonplandia trifoliata, *Willd. act. acad. berol.* 1802, *p.* 24. *Humb. et Bonpl. pl. eq.* " 2, *p.* 59 *t.* 57. *Kunth nov. Gen. am.* 6, *p.* 8. Angustura Cuspare, *Rœm. and Schult syst.* 4, " *p.* 183. Cortex Angusturæ, *Offic.*

" 5. G. *heterophylla*, &c. &c."

I have to acknowledge my obligation for some of the hints above given, with regard to nomenclature, to De Candolle's paper on the Cuspariæ in the Mem. Mus. 9, p. 148, and to the learned work of Messrs. Rœmer and Schultz.

It might be here remarked that *trifoliata* seems not to be a very appropriate specific distinction, since there are no less than four species of GALIPEA already known as *three-leaved*. Besides which, the *three-leaved* SCIURIS or RAPUTIA of Aublet, of which I possess very perfect specimens, appears also to be a true species of this Genus. Aublet neglected to give a precise description of the fruit,

and Bonpland, who from the nomenclature adopted by the former in his *Tableau Géographique des Plantes*, passed over to that of Willdenow; and Messrs. Rœmer and Schultz in their *Systema Vegetabilium*, vol. IV, p. 188, who have described the Genus under the name of ANGUSTURA, thereby giving an improper example to future botanists, as the nomenclature of plants should never be derived from the countries or particular places they inhabit.

And, *first*. We are informed in the *Plantæ Æquinoctiales*, by Rœmer and Schultz, and by Dr. Thompson in his excellent London Dispensatory (a work which, from its more general circulation amongst medical men, and even amongst the public generally, ought above all others to be correct), that the tree yielding the Bark in question, is a majestic forest tree from 60 to 80 feet high. As it would appear that M. de Humboldt never saw the Bark Tree at Carony, it is more than probable that the tree which he saw growing at Santa Fé de Cumana, and New Barcelona in New Andalusia, and which he considered to be the same as the one of which he had obtained the foliage, whilst residing at Angustura, is a distinct species of the same Genus.

Secondly. Not only does a similar variation of size exist between the leaves of the GALIPEA under consideration, and those of BONPLANDIA *trifoliata*, but the proportion in the length of the petiole, when compared to that of the leaflets, is totally different, the leaves of the B. being stated to be 2 feet long, and the petiole one or nearly so.

Thirdly. The leaves of Humboldt's tree are stated to exhale, when fresh, an agreeable odour, whereas those of *Orayuri*, when fresh gathered, yield an odour resembling that of Tobacco, which, however tastes, in the general acceptation of the word, may differ, can scarcely be said to be agreeable.

Fourthly. The corolla is represented in the *Pl. Æquin.* as regular; and by Mr. Kunth one petal is said to differ from the

which is similar in structure to that of Orayuri. I observe that M. De Candolle has, with some hesitation, still given it a distinct Genus.

rest; whereas the corolla is irregular, there being two longer and three shorter petals.

Fifthly. The appendages which I had considered as nectaria, by others taken for abortive stamina, are invariably five in number, though stated by some as three (Rœmer), and by others as four (Kunth).

Sixthly. The stamina are said by Kunth to be monadelphous, whereas they are distinctly (separately) inserted in the two longer petals of the corolla. Their number is also greatly at variance with the truth, the *Plantæ Æquinoctiales* and most other works terming it a Pentandrous Plant. But it may be said that those linear leaflets, which I have considered as nectaria, have been reckoned amongst the stamina as being nearly concentric with them. This, we see, has been done, but it does not clear the difficulty, for these bodies are, in *Orayuri*, invariably *five* in number, and, having no anthers, ought not to be confounded with the stamina, whilst the proper filaments with large anthers pass at the same time totally unnoticed; but even supposing the numbers to correspond, these linear leaflets could never with propriety be regarded as stamina, as the anther is the essential part, and without the anther there is no stamen. If these are to be taken for stamens, then the plant is heptandrous. In the description given in the *Plantæ Æquinoctiales* there is, moreover, no mention of sterile stamens.

Seventhly. The seeds are represented as being solitary, whereas, though one of them is generally abortive, there are invariably two, or, at least in the case of abortion, the rudiments of a second.

In the *Orayuri*, I can find no trace of the spur at the bottom of the anthers mentioned by Humboldt.

The pistil of BONPLANDIA is said to have 5 stigmata, instead of a simply capitate one.

There are other minor discrepancies in the flower, but the most remarkable appearance in *Orayuri*, and which is not touched upon in the description of BONPLANDIA, is the uncommonly strong and horny arillus in which the seeds are enclosed. This

appendage is so elastic that it is difficult to preserve the seeds, the capsule always bursting in the dried specimens. This species of perisperm or seed-envelope, where it obtains, so far from being disregarded, was considered by Linnæus as one of the essential characters of a Genus. Witness DICTAMNUS, DIOSMA, COFFEA, &c., but in none is it so notable as in *Orayuri*.

Though concurring, on the whole, with the lucid arrangement of MM. Auguste de St. Hilaire and De Candolle of the Genus GALIPEA, I cannot agree to the specific name bestowed by those eminent botanists on the Angustura Bark Tree, the term *Cusparia*, being, as I have before observed, founded in error. I shall, therefore, agreeably to the suggestion of my friend, Mr. J. P. Yosy, one of the Society's Secretaries, propose the name of GALIPEA *officinalis*; with the following specific description:

GALIPEA *officinalis*, foliis 3 foliolatis, racemis pedunculatis axillaribus et terminalibus, calyce 5 dentato, staminibus 2, nectariis 5 (staminibus sterilibus?)

If in the delightful and fruitful country to which this plant is indigenous, the heat is at times oppressive to the inhabitants, engendering malignant fevers, yet this salutary and providential antidote is growing at their doors, and they have acquired a tolerable knowledge of its powers, the mode of employment in that part being to drink a warm infusion in order to induce sweat and diuresis. They often, however, begin with so large a quantity as to evacuate the stomach or the bowels, for it is capable of effecting both, and indeed is often employed for that purpose as well as a febrifuge *(contra-calentura)*, while a decoction of the leaves is resorted to as a bath in fevers and pains of the limbs, arising from cold or chronic rheumatism.

In the years 1816 and 1817 there prevailed in the district of the Orinoko, and particularly at St. Thomas de Angustura, a malignant bilious intermittent fever, which proved fatal to great numbers of the inhabitants as well as to foreigners. In the lat-

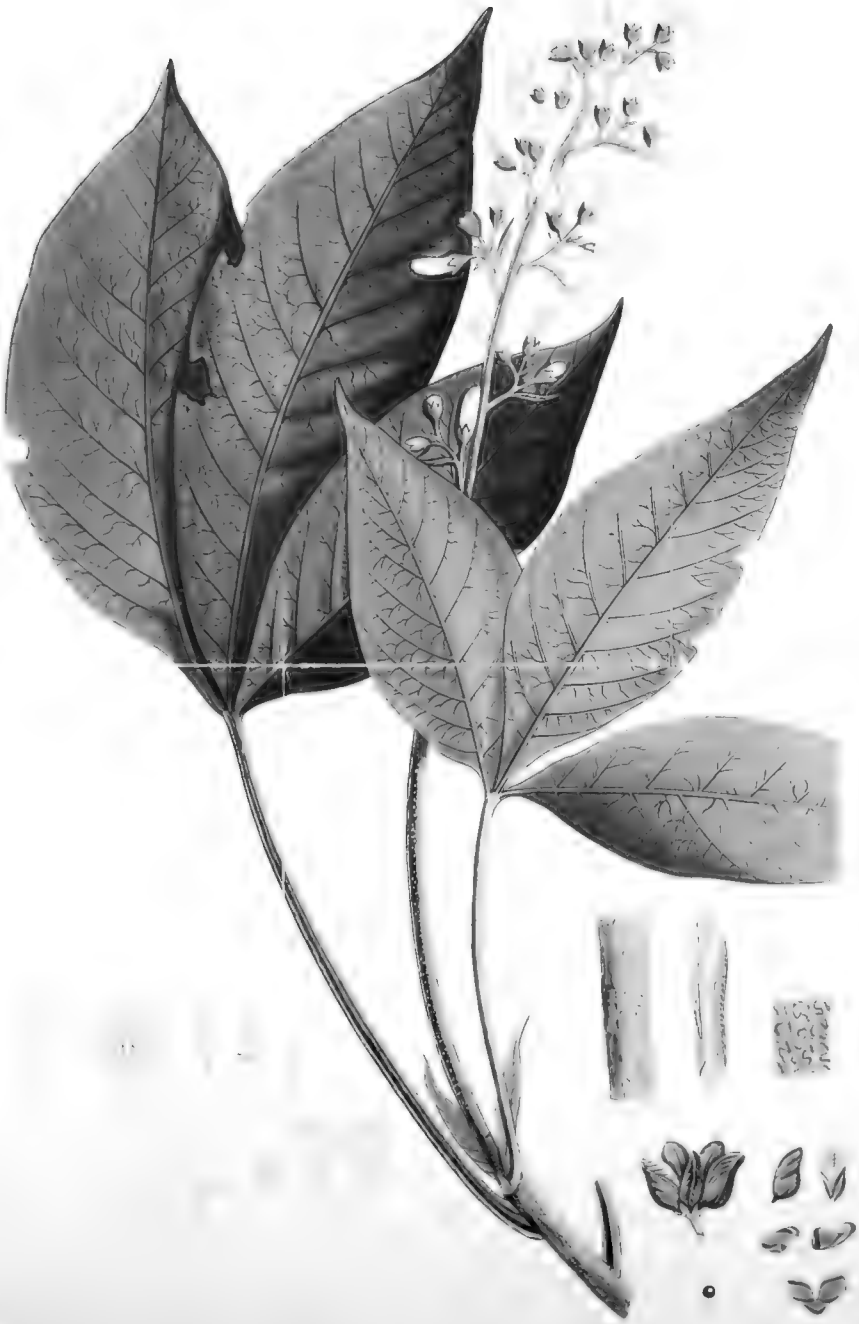
ter, it assumed the form, in many cases, of true yellow fever, with *vomito prieto.*

I had the appointment of *Medico de Sanidad* in the harbour, which is about 260 miles up the river, and had an opportunity of observing this disease in all its various shapes. I had also the care of the Military Hospital in 1817, during the absence of the garrison-surgeon, Don Pablo Gonzalez, and had seldom less than 60 or 70 patients with fever, dropsy, and dysentery. The number of hydropic patients was almost incredible. It was distressing to see them dying along the streets of Angustura from the effects of fever and want of food, the town being besieged by the patriot forces under General Bolivar.

In March, 1817, the mortality increasing, our stock of Cinchona was soon expended, and we had no other resort but to the Quina de Carony, of which there was a large supply in the town. It was prepared nearly as prescribed by those who were there termed *Curiosos,* or the native doctors.

Into a large jug, containing about six gallons, we put one pound of coarsely-powdered bark, with an equal quantity of brown sugar, filled it nearly with boiling water, and added about four ounces of wheaten bread to hasten fermentation. It was then stopped close, placed in the sun, and shaken frequently. As soon as fermentation was well begun, it was considered fit for use, and administered in the quantity of from four to six ounces to the dose, three or four times a day.

The success of this seemingly odd preparation was very remarkable. The irregular paroxysms of fever were suspended on the second or third day after commencing its use. The number of deaths of patients from fever was soon diminished to one fourth of that which before fell victims to this dreadful scourge; though prior to this time it was gradually on the increase. In the month preceding the adoption of the Cortex Angusturæ, fifty-three persons died of fever: the month following, there were but fourteen, and several of these were in a dying state when they began to use the Bark.



Trans. of the Med. Bot. Soc. Vol. I. p. 27.

I, at first, conceived that fermentation might injure the remedy, but had subsequently every reason to suppose, that the evolution of the carbonic acid rendered the remedy more energetic, and more grateful to the palate and the stomach. Besides this, the acetic acid and small portion of Alcohol generated in the fermentation would contribute to extricate more completely the active element of the Bark, thus improving the remedy by augmenting the solvent powers of the menstruum.

It was not long before I perceived the efficacy of the fermented infusion in dropsy, for many of the fever patients were hydropic, and it was found that their swellings rapidly diminished on the use of the infusion. This naturally induced me to give the same remedy as a tonic to those patients who were simply dropsical or without fever. Its power in those proved more striking and decided than any thing I ever witnessed before in medicine. No regular account of these, however, was kept, as it was administered to a great number of patients in and out of the hospital.

In the more severe cases of dysentery, the Dover's Powder was given with each draught of the infusion, in doses of from five to ten grains, three or four times a day.

We had thus no reason to regret the exchange we had from necessity made, for the Angustura Bark was found to be greatly superior to the Peruvian Bark. Though some patients were averse to it at first, they soon requested to have it, when they saw their companions in sickness recovering so fast under its use. I afterwards received a supply of Cinchona from Trinidad, but made no use of it.

I have also witnessed the best effects from this remedy since my return to Demerara, although I could at that time seldom procure it in a fresh state, owing to the long cessation of intercourse with the Orinoko.

The Capuchin Friars of Carony had been in the habit of preparing an Extract from this Bark, from the sale of which they derived great pecuniary advantages, but from the trials I

made with this it seems much inferior to the fresh bark or its recent infusion.

The natives also use the bruised Bark as a means for intoxicating fishes *(Barbasco)*, which affords a very singular coincidence with what is mentioned by Dr. Saunders, of the same use being made of the Cinchona Bark by the Peruvian Indians.

I am fully convinced, from ample experience of the virtues of this Bark, that it is one of the most valuable febrifuges we possess, being adapted to the worst and most malignant bilious fevers, while the fevers in which Cinchona is chiefly administered are simple intermittents, for the most part unattended with danger.

May I be allowed to hope that, with the assistance of the above description and the accompanying plate, the GALIPEA *officinalis* may be found on the higher lands (continuation of the Carony mountains) near the falls of the rivers Demerary and Essequebo, and that the Bark may be thence imported in a state much more fit for the London market than it is now to be had, coming as it does through a circuitous route, the length of which cannot but impair its properties.

I have thus endeavoured to lay before the Society the results of my observations, humble as they are, and hope that, though insignificant in themselves, they will lead to future investigations into the medicinal properties of this valuable remedy, which I am fully convinced are not to this time sufficiently known or appreciated.

REFERENCES TO PLATE II.

1. Corolla just bursting.
2. Corolla expanded with the Stamina and Nectaria.
3. Stamen.
4. Calyx.
5. Pistillum.
6. 7. 8. The Germ in different states of advancement.

9. The longer and shorter Petals compared.
10. The Pericarp.
11. A single seed-vessel.
12. The Arillus or Perisperm.
13. The Seed.
14. Specimens of the Bark from different branches.
15. Ditto magnified.

N. B. All these parts are represented of their natural size, excepting the main branch, which is reduced by one third.

Norfolk Street, Strand,
July 5th, 1828.

IV. General Considerations on the utility of Botany in Medicine, and on the means of discovering the medical properties of Plants or of their products; by M. Grateloup, M. D., Corresponding Member of the Royal Academy of Sciences of Bordeaux, and of the Medico-Botanical Society, &c. &c. *(Translated by Mr. J. P. Yosy, and read Dec. 9th*, 1828.*)*

All the classes into which the immense kingdom of vegetables is subdivided are tributary to Medicine. They enrich the Materia Medica with its most useful articles. Each family of plants may be considered as the copious source, from which the practitioner skilled in Botany may seek the means adapted to resist the different causes of the innumerable evils which afflict the human species; to change the different modes in which our organs are affected by them; to contribute, in one word, to the establishment of that perfect equilibrium in the faculties and functions of the constitution which secures health.

As the vegetable kingdom is the department in natural history most productive of medicinal substances, it cannot but be felt how important its study must be in medicine. But it is

particularly in Materia Medica and Therapeutics that Botany renders the greatest services. It enables the physician to make the best choice of those plants which are endowed with the most active properties; it has the invaluable advantage of supplying, instead of exotic medicines of which he is often deprived, spontaneous productions that he finds at every step.

Independent of these advantages, the botanical physician will avoid the dangerous errors to which ignorance of falsified or adulterated drugs must necessarily expose him. He will avoid the fearful blunders made by those who do not know how to distinguish the genera and species of plants, who are daily confounding poisonous with harmless plants, salutary and medicinal plants with those which are useless, or the properties of which are unknown.

It is well known how often the Hemlock (CONIUM *maculatum*) has been confused with the common Fool's Parsley (ÆTHUSA *Cynapium*), sometimes with the recumbent Chervil, sometimes with wild Chervil (CHÆROPHYLLUM *sylvestre*), and sometimes with the Water Hemlock (PHELLANDRIUM *aquaticum*), &c. &c.

Professor Gouan, of Montpellier, informs us, in his Lectures on Botany, that he had seen an extract prepared from the wild Chervil instead of the Hemlock; and Mr. Thou, a physician and learned botanist, told me, that he had seen the same error made with the SCANDIX *Anthriscus*. What a mistake! and yet there are men in the profession who will condemn a knowledge of Botany.

We can all recollect that the Hellebore of Hippocrates, was for a long time confounded with other plants of different genera. Mr. Lemonier informs us, that at Paris the stinking Hellebore (HELLEBORUS *fœtidus*) was employed in its stead. According to Vogel and Hoffmam, the Germans used ADONIS *vernalis* and ARNICA *montana*. Haller and Albert discovered that it was confounded with the root of POLYGONATUM. Loesche disclaimed against the use of the green Hellebore (HELLEBORUS *viridis*); Schulzius against that of the Aconite, the root of

which was substituted for that of the true Hellebore. And indeed this active remedy was confounded with the roots of TROLLIUS *Europæus*, ASTRANTIA *major*, ACTÆA *spicata*, &c.

This fatal error lasted for several centuries, and it is easily conceived that the employment of vegetables endowed with such different properties, must have been attended with the most fatal results; and it is probable that this error would never have been rectified, says Mr. Puyade, had it not been for the inquiries of Professor Gouan.

This celebrated botanist, directed by Lemonier and Lieutaud to solve this problem, demonstrated that the plant employed by Hippocrates in the treatment of mania was the HELLEBORUS *orientalis amplissimo folio* of Tournefort, which corresponds with the HELLEBORUS *niger* of Linnæus, the root of which is blackish, of a bitter taste, and a fœtid disagreeable smell.

Errors like these, resulting from an ignorance of Botany, are of the greatest importance. They not only essentially injure the reputation of the persons by whom they are committed, but may also have the most lamentable results in compromising the lives of patients. Let us add that this shameful and afflicting negligence often causes unjustly the absolute proscription of a precious medicine or of a plant of the greatest utility.

It is therefore of the utmost importance for the physician to be well acquainted with botanical characters, by means of which the genera and species of plants are to be distinguished. This knowledge will assist that of their physical and medical properties. But in regard to this, nothing is more useful to throw light on the researches of these properties than the study of the natural families, that is, of the science of the affinities which exist between certain parts of plants.

It is also with the assistance of this study that new remedies may be discovered, and the extent of the Materia Medica enlarged.

Rod. Jacob Camerarius, of Tübingen, was the first medical naturalist who affirmed, that plants coinciding in their exterior

forms were allied by their properties, (*Diss. de convenientia plant. in fruct. et virib.* 1699).

Isenflamm (*Method. plantar. Medic. clinicæ adminicul.*) Wilcke (*De usu syst. sexualis in med. Diss.*) in 1764; and Gmelin (*Botanic. et Chem. ad midicine applic.*) in 1755, all affirmed that the virtues of plants might be known by comparing their exterior forms, or in taking for guides the natural and proper characters of each family.

Linnæus, that celebrated botanist, greatly strengthened this opinion by the following rule, that plants of the same genus had similar properties; that those of the same order had neighbouring properties; and that those of the same class even had analogies in their properties. *Quæcunque plantæ genere conveniunt*, says he, *etiam virtute conveniunt; quæ ordine naturāli continentur, etiam virtute propriùs accedunt; quæque classe naturali congruunt, etiam viribus quodammodo congruunt*, (Diss. de virib. plant. prop. a Frid. Hasselquist in Amœn. academ. I. p. 427. Philos. Botanica, virtutes § 337).

M. de Jussieu adopted the same opinion, which he developed in an excellent essay, inserted in the Collection of the Royal Society of Medicine of Paris for the year 1786, vol. VIII, p. 188.

But no naturalist has carried the developments of this theory so far and in so luminous a style as Mr. De Candolle, in his learned dissertation, entitled, " Essay on the medical properties of plants, compared with their exterior forms and their natural classification, according to the method of M. de Jussieu," (Paris, 1804).

This illustrious botanist and distinguished physician demonstrates in this work, by proofs deducted from theory, observation, and experience, that there exists an analogy between the general properties of each family and the exterior forms of plants, although very respectable authorities, and amongst them Vogel, Plaz, and Gleditsch, had strongly opposed themselves to its possibility. (*J. G. Gledistch Diss. de Method. Bot. dubio et fallacio virtut. in plant. judice Lips.* 1742.)

At the present time this doctrine, far from being fallacious, is considered by men of the greatest merit, as positive and very advantageous. The labours of the chemist furnish daily proofs of this truth, and, indeed, what other science is more proper to investigate the medical, alimentary, and poisonous properties of plants than chemistry, as it succeeds in revealing their essentially active principles?

It must be conceded that if the chemists of past centuries had a high opinion of the analyses of medicines which they made, in order to discover their medical properties, we must be permitted to entertain great confidence in those which are furnished us by the learned chemists of the day, and amongst them by Vauquelin, Chevreuil, Pelletier, Braconnot, Boullai, Planche, Parmentier, Prout, Thompson, Berzelius, &c. Indeed these Analyses give us an exact knowledge of the principles which enter into the composition of vegetable products; they make us appreciate with precision, the respective qualities of each of these principles, whether they are found solitary, or in a state of conjunction with either fixed (as often happens) or volatile principles.

But this is not the place to expatiate on the salutary influence which chemists assume in Materia Medica. It is just, however, to observe, that if the physician ought to be versed in the study of the natural sciences, and of botany in particular, he ought not to be a stranger to chemistry. He will, undoubtedly, with such information, be enabled to observe, more judiciously, the results of the action of medicinal substances, introduced into a deranged state of the constitution, and will be more capable of fixing the medical properties of those substances.

Let us now return to the advantages arising from a knowledge of the law of analogy, between the virtues of plants and their exterior form.

Drapenaud and De Candolle affirm, that it is on this law that rest the labours of the physician, the physiologist, and the experimental chemist, who endeavours to substitute indigenous medicines for exotic ones.

M. Loiseleur Deslongchamps, reflecting on this subject, "does not think that it is necessary to procure, from another hemisphere, all the drugs which we employ. He thinks that when the properties of the vegetables of France come to be examined with care, all the necessary remedies will be found amongst them, and that they will be as good as those, which, by long abuse, are still bought in the most distant countries." (*Rech. Hist. Botan. et Medic. sur les Narcisses indigènes*, 1810, *p.* 17.)

It is also very probable, says Mr. Pujade, after M. De Candolle, that the vomitive properties of the root of violets would be unknown without the analogous knowledge of the Ipecacuanha, which is known to be procured from two different genera; the white from the VIOLA *Ipecacuanha*, which grows in Brazil; the grey from the PSYCHOTRIA *Calicocca*; and the brown from the *Psychotria emetica*, which are indigenous to Mexico.

Again, we should perhaps be unacquainted with the purgative powers of our Bindweeds (CONVOLVULUS), and of our RUMEX, without the Scammony procured from the CONVOLVULUS *Scammonia*, and without the Rhubarb, which is the root of RHEUM *palmatum*, *undulatum*, and *Rhaponticum*, plants of the same family.

It is according to the laws of analogy, that Forster, finding the LEPIDIUM *oleraceum*, in the South Sea Islands, used with great success as an antiscorbutic; and that Jussieu, Duhamel, and Lemery, have demonstrated, that the POLYGALA of Europe was employed for the same purposes, and with as much success in pleurisy as the POLYGALA *Seneka* of Virginia.

It is in consequence of this law, founded on the similarity of botanical and medicinal characters, that the Gentianeæ, on account of their bitter principle, are considered as excellent tonics, stomachics, and febrifuges; that the Cruciferæ, which contain a bitter and ammoniacal juice, are thought very good stimulants of the lymphatic system, and of course the best antiscorbutic and scrofulous vegetables; that the Liliaceæ and Colchiceæ, the bulbs of which contain a very bitter gum resinous principle,

have stimulating, energetic, and even poisonous principles; that the grains of the Gramineæ being farinaceous and containing much gluten, are eminently nutritive; that the Thymeleæ, the bark of which is very caustic, are rubefacient and blistering; that the Papaveraceæ, having a milky, disagreeable, and narcotic juice, have all that powerful somniferous property, which has, at the same time, the power of allaying pain; that the Malvaceæ, being mucilaginous, are emollient and softening; that the Euphorbiæ, containing an acrid and caustic gum resinous juice, are emetic and diuretic; that the Umbelliferæ, having in general aromatic seeds, a property owing to the presence of an essential oil, are stimulating, tonic, carminative, and antispasmodic; that the genus CINCHONA, so rich in species, having a bitter and astringent bark, has been hitherto considered as the most powerful tonic, and the most certain febrifuge; and that the Coniferæ are stimulating and diuretic, on account of the resinous aromatic juice, analogous to turpentine, which they possess.

This law of analogy certainly has exceptions, even amongst certain species of the same genus, but they are small in number, and depend oftner, as M. De Candolle observes, on our ignorance of botany, on the soil in which the plant grows, on the climate it vegetates in, on the severity of the seasons, on the influence of light, heat, cold, and the diseases to which plants are subject.

This law may be applicable in classes, the families of which offer striking differences; for example, in the Cryptogamia of Linnæus, if exceptions are found, there are also many points of similarity, which bring together many genera in one family, whether with regard to their botanical characters or medicinal properties. Thus the marine Algæ are all closely connected by their exterior resemblance, their habitation, their physical qualities, their chemical principles, and their medical properties; a great number of Fuci, Ceramias, Confervas, and Ulvas, possess the vermifuge properties in as high a degree as the FUCUS *helminthocorton*. It is worthy of observation, that the Corsican

moss, obtained in the trade, is only a mixture of many species of marine Confervæ and Ceramias. M. De Candolle found 18 different species, and the FUCUS *helminthocorton* did not constitute one third part of the parcel he examined.

The same analogy has led to a knowledge of the anthelmintic properties of the roots of the large species of Ferns, of the tonic and nutritive properties of the foliaceous Lichens, of the physica and cladonia, of the poisonous effects of the greater number of mushrooms, &c.

Medical experience has sanctioned all these discoveries of the properties of plants. It is the triumph of that great analogic principle: *Quod plantæ, quæ genere conveniebant, qua vires etiam coinciderent.* (Linn. amæn. acad. vires. plant. t. I, p. 420.)

But medical experience ought to anticipate the rights of chemical analysis and botanical analogy. The union of the insight furnished by these three powerful sources is absolutely necessary. When researches are being made on properties unknown amongst vegetables, medical experience is an essentially empiric mode. It could not proceed alone without being frequently exposed to eminent danger. Enlightened by the assistance of botany and chemistry, this mode is of the greatest importance, as it establishes the real properties of plants or of vegetable medicines.

Is it not true that a root, a bark, or a flower, endowed with a bitter juice, will be immediately considered as bearing tonic or febrifuge qualities; but if it is bitter and caustic will it not be said that it is irritating? Then, if it causes irritation, principally in the digestive organs, it may give rise to evacuations, either as a purgative or vomitive; it will be an emeto-cathartic or drastic, according to the power of its irritating and evacuating property. But this same substance may also be a strong and active poison. We have similar examples in the Euphorbia, the Elaterium, the Colocynth, the Croton. To this we should be exposed by recurring to medical experience only. But if chemical analysis is employed to operate on the substance of which I have spoken, and it is demonstrated that it possesses a

bitter principle, in union with a gummy or gum resinous principle, or with a very active substance, *sui generis*, or with neutral or specific salts, or with some alcalis or acids, or again with some oily or volatile principle, shall we not have acquired a more exact and luminous knowledge of its virtues and usefulness in therapeutics?

Add to this the knowledge you have anteriorly derived from the botanical relations which exist between the plant which has furnished the substance and those which compose the genus or the family to which it may belong, and you will have before you every thing which can enable you to ascertain its mode of action with precision. Nothing will remain but to describe its more or less active properties, which may be applied more or less usefully in different diseases, which cannot but be the result of a long series of experiments. Then medical experience will be of the greatest utility.

For a long time medical empiricism has been the sole guide to the discovery of medicines. It was often founded on the instinct of animals or patients, who directed them to such and such a remedy, which proved useful. This empiricism must always be preceded by the application of the senses of seeing, tasting, or smelling, in order to appreciate the physical qualities of the taste, smell, or colour, proper to each substance. This analysis, on the part of our senses, particularly taste and smell, are certainly very essential, and the first to be employed. Frederick Hoffmann, Hebenstreit, and Wedel, have given, on this subject, the best precepts and the most instructive lessons.

Mr. Virey justly observes, that those vegetables only, endowed with odorous and sapid principles, produce medicamentous actions; while inodorous and insipid plants have few virtues, and are, at most, emollient and softening: hot and dry countries develop more especially the odoriferous and savoury properties of plants, and hence the aromatic and volatile oils acquire a delightful perfume in the ardent climates of the Torrid Zone. (*Virey, Remarks on the medical prop. of Vegetables, Journ. de Pharm. April* 1820.)

Hippocrates, Theophrastus, Dioscorides, Galen, Aëtius, were the first amongst the ancients who endeavoured to recognise medical properties by their taste. And amongst the moderns, Kœnig, Johnston, Femel, Cartheuser, Walter, and Linnæus, have published excellent Dissertations on this subject. The last of these authors establishes that plants having the same taste are probably endowed with similar properties. It is thus that bitter vegetables (amara) are only strengthening and antiseptic; the sweet substances (dulcia) are laxative; those which are acrid (acra) are heating and irritating; the acerba are astringent; the acids are refreshing; the oily ones lubrefiant.

It is the same with the application of the olfactory nerves to discover the agreeable or fœtid properties of vegetable substances. Linnæus has also consecrated a Dissertation to this subject (*Amœn. acad, vol.* II. *p.* 365), wherein we observe that aromatic plants (aromaticæ) increase the nervous influx, and accelerate the circulation of the humours; that the fragrants stimulate and strengthen the weakened nerves; that the tetricæ, with a disagreeable and fœtid odour, calm the nervous system, and the hircinæ are aphrodisiac; while the alliaceæ provoke transpiration, and are anthelmintic, &c.

Chance has also led to several very useful discoveries. We are indebted to it amongst the Indians for the febrifuge properties of the Peruvian Bark. But these discoveries are very rare and always imperfect; those also which result from an analysis by the taste and smell are not sufficient, and might lead us into serious errors, if exclusive confidence was placed in them. Moreover, this knowledge is too closely allied with chemical analysis to be separable from it. This last, united with the trials in medicine, offers none of the inconveniences attendant upon all other means, particularly when preceded by researches founded on the analogous relations of vegetables.

In order to direct with success medical experiments, it has been thought necessary to make the first essays on domestic animals, the organization and habits of which are more closely allied to those of man. Cats and dogs have generally been pre-

ferred. It is very probable that as soon as a substance has been found to have a deleterious effect on these animals, it ought to be regarded as injurious to man. Essays made with much prudence and care on sick persons, or even men in perfect health, have subsequently proved whether it ought to be consigned amongst the poisons, or placed as a remedy amongst the other articles of the Materia Medica. We ought to cite, as remarkable instances of experiments, those of Professor Stork, on the CONIUM, ACONITUM, COLCHICUM, HYOSCIAMUS, &c.; those of Doctor Alston, on the narcotic effects of Opium; those of Withering, Horn, Fowler, Parkinson, on the DIGITALIS *purpurea*; those of Greding, Hufeland, Munch, and Mayerne, on the ATROPA *Belladonna*; those of Horn, Hoffmann, Brugnatelli, on Camphor, &c. &c.

I will here terminate these general observations. It seems to me that independently of the actual utility of botany in medicine being undoubted, we may conclude, from all that has been said, that in order to obtain a solid notion of the medical properties of plants, we must of necessity require,

First. The assistance of the law of botanical analogy, established between the families and genera of plants, in order to be able to judge, in the first instance, of their general properties.

Secondly. The assistance offered by chemical analysis, which reveals the constituent principles of plants or of their products.

And, *thirdly.* The assistance resulting from medical experience, which gives a knowledge of the mode of action of medicinal articles; and, as a necessary consequence, of their particular or specific actions.

V. Catalogus Plantarum medicinalium in Etruria sponte nascentium, Systemates Linneano distributus, auctore Octaviano Targioni, M. D., Florentino.*

Classis I. MONANDRIA.

1. Salicornia *fruticosa*. Salicornia, *Off.* Erba Kali, *Vulg.* Habitat ad littora maris. Extrahitur Soda.
2. Salicornia *herbacea*. Salicornia, *Off.* Bacicci, *Vulg.* Hab. ad littora maris et circa aquas salsas Thermarum Montis Catini.

Cl. II. DIANDRIA.

3. Ligustrum *vulgare*. Ligustro, *Off.* Ruvistico, *Vulg.* Hab. in sepibus.
4. Olea *Europæa*. Olivo, *Off.* et *Vulg.* Colitur ubique in collibus, et non raro invenitur supra muros et turres, seminibus ab avibus defertis.
5. Veronica *officinalis*. Veronica silvestre, *Off.* Thi Europeo, *Vulg.* Hab. in montibus.
6. Veronica *Beccabunga*. Beccabunga, *Off* et *Vulg.* Hab. in fossis aquæ currentis.
7. Veronica *Anagallis*. Veronica aquatica, *Off.* Crescione, *Vulg.* Hab. in fossis aquæ currentis.
8. Gratiola *officinalis*. Graziola, *Off.* Stanea Cavallo, *Vulg.* Hab. in pratis humidis et paludosis.
9. Lycopus *Europæus*. Licopo, *Off.* Erba sega, *Vulg.* Hab. circa fossas. Male a Rizotomis affertur pro Marrubio.
10. Rosmarinus *officinalis*. Ramerino, *Off.* et *Vulg.* Hab. in collibus, coliturque in hortis.

* This Catalogue accompanied the collection of officinal plants, presented to the Society by His Imperial and Royal Highness Leopold II, Grand Duke of Tuscany, December 9, 1828; and the Society's Silver Medal for 1829 was awarded to the author for the same.

11. Salvia *officinalis*. Salvia maggiore, *Off.* Salvia comune, Salvia da uccelli, *Vulg.* Colitur in hortis, et aufuga ex hortis reperitur in campis.
12. Salvia *Sclarea*. Sclarea, Gallitrico, *Off.* Erba moscadella, Trippa madama, *Vulg.* Hab. in collibus maritimis, coliturque in hortis.

Cl. III. TRIANDRIA.

13. Valeriana *officinalis*. Valeriana silvestre, *Off.* Valeriana minore, Amantilla, *Vulg.* Hab. in montosis.
14. Valeriana *Phu*. Valeriana maggiore, *Off.* et *Vulg.* Amantilla, *Vulg.* Hab. in montosis.
15. Crocus *sativus officinalis*. Zafferano, *Off.* et *Vulg.* Colitur in Agro Volaterrano, nunc in agris expansus.
16. Iris *Florentina* var. fl. albo.
17. Iris *Florentina* var. fl. purpureo. } Ireos. *Off.*

Giaggulo, *Vulg.* Hab. supra mœnia urbis Florentiæ. Colitur etiam ad margines arvorum in collibus. Florentina nil differt nisi colore floris albo vel purpureo.

18. Iris *fœtidissima*. Xiride, *Off.* Giglio de morti, Ricottaria, *Vulg.* Hab. circa fossas et in sylvis humidis.
19. Iris *Pseud-acorus*. Acoro falso, *Off.* Coltellacci, Giglio giallo, *Vulg.* Hab. in fossis et paludosis.
20. Cyperus *longus*. Cipero lungo, Cipero odorato, *Off.* Cunzia, Giunco odorato, *Vulg.* Hab. circa rivos.
21. Cyperus *olivaris* Targ. Cipero olivare, Ghianda della terra, Scialino, *Vulg.* Hab. in campis circa fluvios. Male pro Cipero rotundo orientali venditur.
22. Arundo *Donax*. Canna montana, *Off.* Canna domestica, *Vulg.* Colitur ubique ad aggeres et in arvis.
23. Triticum *repens*. Gramigna, *Off.* Gramigna, Dente canino, Caprinella, *Vulg.* Hab. ubique in arvis et herbidis.
24. Lolium *temulentum*. Loglio, Gioglio, *Off.* et *Vulg.* Hab. inter segetes.
25. Cynodon *dactylon*. Gramigna, *Off.* et *Vulg.* Capriola, *Vulg.* Hab. in graminosis.

Cl. IV. TETRANDIA.

26. Scabiosa *succisa.* Morsus Diaboli, Succisa, *Off.* Vedovella salvatica, *Vulg.* Hab. in Valle Nebulæ prop Villam Bellavista dictam, et in collibus circa Florentiam.
27. Scabiosa *arvensis.* Scabbiosa, *Off.* Gallinaccia, *Vulg.* Hab. in arvis.
28. Galium *verum.* Gallio. *Off.* Caglio, Presuola, *Vulg.* Hab. in pratis.
29. Rubia *tinctorum.* Robbia, *Off.* et *Vulg.* Hab. in sepibus et aggeribus.
30. Plantago *major.* Piantaggine, *Off.* Petacciola, *Vulg.* Hab. in pratis, et secus vias.
31. Plantago *media.* Piantaggine mezzana, *Off.* Petacciola pelosa, *Vulg.* Hab. in pratis.
32. Plantago *lanceolata.* Piantaggine, Alnoglossa, *Off.* Lanciuola, *Vulg.* Hab. in pratis and secus vias.
33. Plantago *Psylium.* Psillio, Silio, *Off.* Pulicaria, *Vulg.* Hab. in collibus cretaceis.
34. Trapa *natans.* Tribolo aquatico, *Off.* Castagna d' acqua, *Vulg.* Hab in lacubus.
35. Cornus *Mascula.* Corniolo, Crognolo, *Off.* et *Vulg.* Hab. in montosis.
36. Alchemilla *vulgaris.* Alchimilla, *Off.* Pie de Leone, Erba ventaglina, *Vulg.* Hab. in Apenninis.

Cl. V. PENTANDRIA.

37. Heliotropium *Europæum.* Verrucaria, *Off.* Dittamo salvatico, Erba de porri, *Vulg.* Hab. secus vias.
38. Lithospermum *officinale.* Milium Solis, Milium Soler, *Off.* Miglio al sole, *Vulg.* Hab. in aggeribus.
39. Anchusa *officinalis.* Buglossa, *Off.* Lingua di Bue, *Vulg.* Hab. in collibus Mugellanis.
40. Anchusa *Italica.* Buglossa, *Off.* Lingua di Bue, *Vulg.* Hab. circa vias, et in incultis. Utitur loco Anchusæ officinalis, quia vulgatior.

41. Cynoglossum *officinale.*
42. Cynoglossum *pictum.* } Cinaglossa, *Off.*

Lingua di cane, *Vulg.* Hab. in collibus secus vias.

43. Pulmonaria *officinalis.* Polmonaria, *Off.* Borrana salvatica, *Vulg.* Hab. in umbrosis collibus.

44. Symphytum *officinale.* Consolida maggiore, *Off.* Erba conferma, *Vulg.* Hab. in nemoribus montuosis.

45. Borago *officinalis.* Borrana, *Off.* Borragine, *Vulg.* Hab. aufuga ex hortis ubi colitur.

46. Primula *vulgaris.* Primula veris, *Off.* Primavere, *Vulg.* Hab. in herbidis montuosis.

47. Cyclamen *Europæum,* Lin. Ciclamino, Artanita, *Off.* Pan porcino, *Vulg.* Hab. ad sepes in umbrosis.

48. Menyanthes *trifoliata.* Trifoglio fibrino, *Off.* Trifoglione d'acqua, *Vulg.* Hab. ad margines Lacuus Blentinæ.

49. Lysimachia *vulgaris.* Lisimachia, *Off.* Mazza d' oro, *Vulg.* Hab ad ripas, et in pratis humentibus.

50. Lysimachia *Nummularia.* Centimorbia, *Off.* Erba quattrina, *Vulg.* Hab. secus fossas.

51. Anagallis *arvensis.* Anagallide, Morsus gallinæ, *Off.* Centonchio rosso, *Vulg.* Hab. inter segetes.

52. Plumbago *Europæa.* Dentellaria, *Off.* Caprinella, Crepanella, *Vulg.* Hab. in campis agri Coritani.

53. Convolvulus *Soldanella.* Soldanella, *Off.* Cavolo di mare, Soldana, *Vulg.* Hab ad littora maris.

54. Hyosciamus *albus.* Josciama bianco, *Off.* Dente cavallino, Disturbio, *Vulg.* Hab. ad meridiem domorum rusticarum in viis.

55. Hyosciamus *niger.* Josciamo nero, *Off.* Hab. in incultis Apenninis.

56. Atropa *Mandragora.* Mandragora, *Off.* Mela canina, *Vulg.* Hab. in Apenninis.

57. Atropa *Belladona.* Belladona, *Off.* et *Vulg.* Hab. in sylvis umbrosis.

58. Physalis *Alkekengi.* Alchechengi, Solatro alicacabo, *Off.* Accatengi, Palloncini, *Vulg.* Hab. ad sepes in umbrosis.

59. Datura *Stramonium.*
60. Datura *Tatula.* } Stramonio, *Off.*

Noce puzza, Noce spinosa, *Vulg.* Hab. in agro Pisano.

61. Solanum *nigrum.* Solano ortense, Ballerina, Erba puzza, *Vulg.* Hab. in recrementis hortorum.

62. Solanum *Dulcamara.* Dulcamara, Amaradolce, *Off.* Vite de Guidea, Corallini, *Vulg.* Hab. in sepibus et umbrosis.

63. Rhamnus *Frangula.* Frangola, *Off.* Putine, Spincervino minore, *Vulg.* Hab. frequens in sylvis non longe a mare.

64. Rhamnus *catharticus.* Ramno catartico, Spincervino maggiore, *Off.* Spincerbino, Spino merlo, *Vulg.* Hab. ibidem.

65. Zizyphus *vulgaris.* Giuggiolo, *Off.* et *Vulg.* Hab. culta ubique et in sepibus.. Pericarpia matura decoctum pectorale ingrediuntur.

66. Evonimus *Europæus.* Evonimo, *Off.* Fusaggine, Beretto da prete, *Vulg.* Hab. in sylvulis.

67. Hedera *Helix.* Ellera, *Off.* et *Vulg.* Lettera, *Vulg.* Muros et arbores ascendit in umbrosis.

68. Vitis *vinifera sylvestris.* Vite salvatica, *Off.* et *Vulg.* Hab. in Provincia Senensi inferiore, maximas arbores coascendens.

69. Viola *odorata.* Viala mammola, Violaria, *Off.* Mammola, *Vulg.* Hab. ad. ripas fluviorum.

70. Viola *tricolor.* Erba trinitas, Jacea, *Off.* Suocera e nuora, Minuti pensieri, *Vulg.* Hab. in campis et locis herbidis montuosis.

71. Vinca *major.* Vinca pervinca, *Off.* Fior da morto, *Vulg.* Hab. ad sepes.

72. Cynanchum *Vincetoxicum.* Vincitossico, *Off.* Erba seta salvatica, *Vulg.* Hab. in sylvis montuosis.

73. Periploca *Græca.* Periploca, Aposino serpeggiante, *Off.* Topi, *Vulg.* Hab. in sylvis maritimis Pisarum.

74. Erythræa *Centaurium.* Centaurea minore, *Off.* Caccia febbre, Biondella, *Vulg.* Hab. in pratis.

75. GENTIÀNA *Pneumonanthe.* Genziana, *Off.* et *Vulg.* Hab. in montibus.

76. CUSCUTA *Europæa.* Cuscuta, *Off.* Talpaterra, Granchierella, *Vulg.* Hab. in cultis; parasita Lini, Medicaginis, Genistæ, &c.

77. HERNIARIA *hirsuta.* Erniaria, *Off.* Renajola, *Vulg.* Hab. in arenosis.

78. SALSOLA *Kali.* Kali, Soda, *Off.* Bacicci, Capelli del Diavolo, Riscoli, *Vulg.*
79. SALSOLA *Tragus.* Erba Kali, *Off.* Trago, Roscano, *Vulg.*
80. SALSOLA *Soda.* Soda, *Off.*
81. SALSOLA *sativa.* Ischeri, *Vulg.*

Habitant ad littora maris, ex quibus Soda extrahitur.

82. ULMUS *campestris.* Olmo piramidale, *Off.* Olmo, *Vulg.* Hab. ubique in sylvis et in cultis.

83. ERYNGIUM *campestre.* Eringio, *Off.* Calcatreppola, *Vulg.* Hab. in collibus sterilibus.

84. SANICULA *Europæa.* Sanicula, Diapensia, *Off.* Erba fragolina, *Vulg.* Hab. in montuosis.

85. AMMI *Visnaga.* Bisnaga, *Off.* et *Vulg.* Hab. in agro Volaterrano.

86. AMMI *majus.* Ammi, *Off.* Rizomolo maggiore, *Vulg.* Hab. in campis.

87. CONIUM *maculatum.* Cicuta, *Off.* et *Vulg.* Hab. in aggeribus prope Pisas, et alibi ad fossas.

88. ATHAMANTA *Meum.* Meo barbuto, *Off.* et *Vulg.* Hab. in montuosis.

89. CRITHMUM *maritimum.* Critamo, *Off.* Finnocchio marino, *Vulg.* Hab. ad littora maris.

90. TORDYLIUM *officinale.* Tordilio, *Off.* Capo bianco, Ombrellini di prato, *Vulg.* Hab. in pratis.

91. LIGUSTICUM *Levisticum.* Levistico, *Off.* Sedano di Montagna, *Vulg.* Hab. in collibus.

92. ANGELICA *sylvestris.* Angelica salvatica, *Off.* et *Vulg.* Hab. in sylvis.

93. Sium *nodiflorum*. Erba cannella, *Off.* Crescione, *Vulg.* Hab. in fossis.
94. Sison *Amomum*. Amomo, *Off.* Sisone, *Vulg.* Hab. circa Florentiam.
95. Sison *Ammi*. Ammi, *Off.* Finocchiella, *Vulg.* Hab. ibidem.
96. Oenanthe *pimpinelloïdes*. Filipendula aquatica, *Off.* Prezzemolo d' acqua, *Vulg.* Hab. in pratis humidis.
97. Phellandrium *aquaticum*. Fellandrio, *Off.* Finocchio aquatico, *Vulg.* Hab. in fossis agri Pisani.
98. Æthusa *Cynapium*. Cicuta aglina, *Off.* Prezzemolo salvatico, *Vulg.* Hab. ad sepes et in arvis.
99. Coriandrum *testiculatum*. Coriandolo salvatica, *Off.* et *Vulg.* Hab. inter segetes.
100. Chærophyllum *sylvestre*. Mirride salvatica, *Off.* et *Vulg.* Hab. ad sepes in umbrosis.
101. Imperatoria *Ostruthium*. Imperratoria, *Off.* et *Vulg.* Hab. in Apeninnis.
102. Pastinaca *sativa*. Pastinaca, Elafobosco, *Off.* Pastinata, Pastricciani, *Vulg.* Hab. in herbosis.
103. Smyrnium *Olusatrum*. Smirnio, *Off.* Macerone, *Vulg.* Hab. ad ripas fossarum.
104. Anethum *Fœniculum acre*. Finocchio, *Off.* et *Vulg.* Hab. ubique.
105. Ægopodium *Podagraria*. Podagraria, *Off.* Angelica salvatica, *Vulg.* Hab. in umbrosis.
106. Rhus *Coriaria*. Sommacco, *Off.* et *Vulg.* Hab. in collibus sylvosis.
107. Rhus *Cotinus*. Scotano, *Off.* et *Vulg.* Capecchio, *Vulg.* Hab. in collibus sylvosis.
108. Sambucus *nigra*. Sambuco, *Off.* et *Vulg.* Zambuco, *Vulg.* Hab. in planis humidis.
109. Sambucus *Ebulus*. Ebulo, *Off.* Ebbio, Nebbio, *Vulg.* Hab. ad ripas.
110. Tamarix *gallica*. Tamerigia, *Off.* Cipresso salato, Cipressina, *Vulg.* Hab. circa rivos prope mare.

111. Statice *Limonium.* Limonio Behen rosso, *Off.* Butula, *Vulg.* Hab. ad littora maris.

112. Linum *catharticum.* Lino cathartico, *Off.* Lino salvatico, Lino sottile, *Vulg.* Hab. in pratis.

Cl. VI. HEXANDRIA.

113. Lilium *candidum.* Giglio, *Off.* et *Vulg.* Giglio di S. Antonio, *Vulg.* Hab. non raro, et inventitur in collibus; an aufuga ex hortis?

114. Scilla *maritima.* Scilla, *Off.* et *Vulg.* Hab. ad littora maris in insula Ilva (Elba).

115. Asparagus *acutifolius.* Sparagio salvatico, *Off.* et *Vulg.* Sparagiaja, *Vulg.* Hab. in sylvis.

116. Convallaria *majalis.* Mughetto, *Off.* et *Vulg.* Hab. in montibus, colliturque in hortis.

117. Convallaria *polygonatum.* Poligonato, *Off.* Sigillo di Salomone, *Vulg.* Hab. in sylvis Vallis Umbrosæ.

118. Berberis *vulgaris.* Berberi, *Off.* Trespino, Crespino, *Vulg.* Hab. in Apenninis.

119. Loranthus *Europæus.* Visco quercino, *Off.* Pania, *Vulg.* Hab. parasita in Quercu, in sylvis.

120. Rumex *alpinus.* Rabarbaro falso, *Off.* et *Vulg.* Hab. in Apenninis.

121. Rumex *Acetosa.* Acetosa, *Off.* et *Vulg.* Hab. in sylvis montuosis, coliturque in hortis.

122. Rumex *Acetosella.* Acetosa piccola, *Off.* et *Vulg.* Solecciola, *Vulg.* Hab. in campis.

123. Colchicum *autumnale.* Colchico, *Off.* Zafferano bastardo, *Vulg.* Hab. in pratis.

Cl. VII. HEPTANDRIA.

124. Æsculus *Hipocastaneum.* Castagno d' India, *Off.* et *Vulg.* Colitur in ambulacris. (Nulla hujus classis planta medicinalis spontanea in Etruria reperitur.)

Cl. VIII. OCTANDRIA.

125. Daphne *Mezereum.* Camelea, *Off.* Olivella, *Vulg.* Hab. in sylvis Vallis Umbrosæ.

126. Daphne *Laureola.* Laureola, *Off.* Olivella, Pepe montano, *Vulg.* Hab. in sylvis Vallis Umbrosæ.

127. Polygonum *Bistorta.* Bistorta, *Off.* Serpentina, *Vulg.* Hab. in pratis.

128. Polygonum *Hydropiper.* Erba pepe, *Off.* et *Vulg.* Pepe d' acqua, *Vulg.* Hab. in fossis.

129. Polygonum *Persicaria.* Persicaria, *Off.* Cucitoli, Salcerella, *Vulg.* Hab. in fossis.

130. Polygonum *aviculare.* Poligono, *Off.* Centinodia, Centimorbia, *Vulg.* Hab. in arenosis.

131. Paris *quadrifolia.* Erba Paris, *Off.* Erba crociona, Uva di Volpe, *Vulg.* Hab. in sylvis Vallis Umbrosæ.

Cl. IX. ENNEANDRIA.

132. Laurus *nobilis.* Allora, *Off.* et *Vulg.* Hab. in collibus Pisanis, coliturque in Viridariis.

133. Rheum *Rhaponticum.* Rapontico, *Off.* et *Vulg.* Hab. in Apenninis alterioribus.

Cl. X. DECANDRIA.

134. Anagyris *fœtida.* Anagirida, *Off.* Fagioli della Madonna, Favia lupina, *Vulg.* Hab. circa Liburnum (Leghorn) et in provincia Senensi inferiore.

135. Dictamnus *albus.* Fraxinella, *Off.* Dittamo bianco, Limonella, *Vulg.* Hab. in Apenninis Mugellanis et Pistoriebus.

136. Ruta *Chalepensis* Ruta, *Off.* et *Vulg.* Hab. in montibus.

137. Arbutus *Unedo.* Corbezzolo, *Off.* et *Vulg.* Albatrello, *Vulg.* Hab. in montibus frequentior in Senensibus.

138. Arbutus *Uva Ursi.* Uva orsina, *Off.* Ova d' orso, *Vulg.* Hab. in Apennino Pistoriensi.

139. SAPONARIA *officinalis*. Saponaria, *Off.* Coridisi, Garofoli a mazzeti, *Vulg.* Hab. circa fossas.

140. DIANTHUS *Caryophyllus*. Viole, Garofanini, *Off.* et *Vulg.* Hab. in montosis.

141. CUCUBALUS *Behen*. Behen bianco, *Off.* Bubbolini, Strigoli, *Vulg.* Hab. in arvis.

142. SEDUM *acre*. Erba da calli, *Off.* et *Vulg.* Hab. inter muscos et supra muros vetustos.

143. SEDUM *Telephium*. Fabaria, *Off.* Erba S. Giovanni, *Vulg.* Hab. ad ripas sylvarum.

144. OXALIS *corniculata*. Acetosella, Trifoglio acetoso, *Off.* Alleluja, Carpigna, *Vulg.* Hab. ubique.

145. OXALIS *Acetosella*. Acetosella, Trifoglio acetoso, *Off.* Alleluja, Erba Luliola, *Vulg.* Hab. in montosis.

CL. XI. DODECANDRIA.

146. ASARUM *Europœum*. Asaro, Cariofillata salvatica, Asarabachara, *Off.* Baccara, *Vulg.* Hab. in Apennino Mugellano, et Faulliæ.

147. LYTHRUM *Salicaria*. Salicaria, *Off.* Riparella, Verga rossa dei fossi, *Vulg.* Hab. in fossis Montis Maurilli.

148. AGRIMONIA *Eupatoria*. Agrimonia, *Off.* Erba da andata, Erba Guglielmo, *Vulg.* Hab. ad ripas.

149. EUPHORBIA *Chamœsyce*. Erba da pondi, Erba pondina, *Off.* et *Vulg.* Hab. in campis.

150. EUPHORBIA *Lathyris*. Catapuzia, *Off.* Cacapuza, Esca da pesci, *Vulg.* Hab. in incultis.

151. SEMPERVIVUM *tectorum*. Semprevivo, *Off.* Sopravivolo, Erba da Calli, *Vulg.* Hab. in tectis et supra muros vetustos.

CL. XII. ICOSANDRIA.

152. MYRTUS *communis*. Mirto, Mortella, *Off.* Mortella, Mortine, *Vulg.* Hab. in collibus.

153. PUNICA *Granatum*. Melagrano, Balausti, *Off.* Melograno, Melogranato, *Vulg.* Hab. in sepibus non longe a Florentia.

154. PRUNUS *spinosa.* Prugnolo, *Off.* Susina di macchia, *Vulg.* Hab. in sepibus.

155. SORBUS *domestica.* Sorbo, *Off.* et *Vulg.* Hab. in nemoribus montanis.

156. PYRUS *communis sylvestris.* Pero salvatico, Peruggine, *Off.* et *Vulg.* Hab. in sylvulis.

157. PYRUS *Malus.* Melo salvatico, Meluggine, *Off.* et *Vulg.* Hab. in sylvulis.

158. MESPILUS *Germanica.* Mespolo. *Off.* et *Vulg.* Hab. in sylvulis.

159. SPIRÆA *Ulmaria.* Ulmaria, Olmaria, *Off.* Barba caprina, *Vulg.* Hab. in pratis Apenninis.

160. SPIRÆA *Filipendula.* Filipendula, *Off.* et *Vulg.* Hab. in pratis montosis.

161. ROSA *canina.* Roselline, *Off.* Rosa di macchia, Rosa salvatica, *Vulg.* Hab. in sepibus, locisque incultis.

162. ROSA *rubiginosa.* Roselline, *Off.* Rosa di macchia, *Vulg.* Hab. in sepibus et in incultis.

163. ROSA *sempervirens.* Roselline, *Off.* Rosa lustra, *Vulg.* Hab. in sepibus.

164. RUBUS *fruticosus.* Rogo, *Off.* et *Vulg.* Hab. in sepibus, locisque incultis.

165. RUBUS *fruticosus* var. *inermis.* Rogo, *Off.* Rogo di S. Antonio, *Vulg.* Hab. in Monte Alverniæ.

166. RUBUS *Idæus.* Rogo ideo, *Off.* Lampone, *Vulg.* Hab. in sylvis montosis.

167. FRAGARIA *vesca.* Fragola, *Off.* et *Vulg.* Hab. ubique in collibus.

168. POTENTILLA *reptans.* Potentilla, *Off.* Cinque foglio, *Vulg.* Hab. in herbosis.

169. TORMENTILLA *erecta.* Tormentilla, *Off.* et *Vulg.* Hab. in collibus.

170. GEUM *urbanum.* Cariofillata, *Off.* Garofanaia, *Vulg.* Hab. in sylvis.

Cl. XIII. POLYANDRIA.

171. Capparis *spinosa*. Cappero, *Off.* et *Vulg.* Hab. in muris et in mœniis urbis Florentiæ.

172. Chelidonium *majus*. Celidonia, *Off.* et *Vulg.* Hab. in umbrosis ad sepes.

173. Papaver *Rhœas*. Rosolaccio, *Off.* et *Vulg.* Hab. frequens in arvis.

174. Nymphæa *alba*. Nimfea, *Off.* Nannun fero, *Vulg.* Hab. in lacu Blentinæ.

175. Tilia *Europæa*. Tilio, *Off.* et *Vulg.* Hab. in Apenninis Vallis Umbrosæ.

176. Pæonia *officinalis*. Peonia, *Off.* et *Vulg.* Hab. in Montibus Mugellanis.

177. Delphinium *Consolida*. Consolida minore, *Off.* Fior capuccio salvatico, *Vulg.* Hab. inter segetes.

178. Delphinium *Staphysagria*. Stafisagria, *Off.* Strafizeca, *Vulg.* Hab. inter segetes in Provincia inferiore Senensi.

179. Aquilegia *vulgaris*. Aquilegia, *Off.* et *Vulg.* Hab. in montibus.

180. Nigella *damascena*. Melantio, *Off.* Scapigliata, *Vulg.* Hab. inter segetes.

181. Anemone *hepatica*, Lin. Epatica, *Off.* Erba trinitas, *Vulg.* Hab. in sylvis montosis.

182. Anemone *Pulsatilla*. Pulsatilla, *Off.* et *Vulg.* Hab. ad littora maris.

183. Clematis *Flammula*. Flammola, *Off.* et *Vulg.* Hab. in incultis.

184. Ranunculus *aconitifolius*. Ranunculo Apennino, *Vulg.* Hab. in montibus Apenninis. Male pro Aconito affertur a Rizotomis.

185. Helleborus *niger*. Elleboro nero, *Off.* et *Vulg.* Hab. in sylvis.

186. Helleborus *viridis*. Elleboro nero falso, *Off.* Erba nocca, *Vulg.* Hab. in collibus.

187. HELLEBORUS *fœtidus*. Elleboro fetido, *Off.* Cavolo di lupo, *Vulg.* Hab. ad sepes in umbrosis.

CL. XIV. DIDYNAMIA.

188. AJUGA *reptans*. Bugola, Consolida mezzana, *Off.* Erba mora, Morandola, *Vulg.* Hab. ad ripas.

189. AJUGA *Chamæpythis*. Ivartetica, Chamepizio, *Off.* Canapicchio, *Vulg.* Hab. inter segetes.

190. TEUCRIUM *Scordium*. Scordio, *Off.* Erba aglio, *Vulg.* Hab. circa fossas in collibus.

191. TEUCRIUM *Chamædrys*. Camedrio, *Off.* Erba querciola, *Vulg.* Hab. in collibus.

192. TEUCRIUM *Scorodonia*. Scorodonia, *Off.* et *Vulg.* Hab. in collibus.

193. SATUREJA *hortensis*. Satureja, *Off.* Santoreggia, *Vulg.* Hab. in campis et collibus.

194. LAVANDULA *Spica*. Lavendula, *Off.* Spigo, *Vulg.* Hab. in collibus apricis.

195. LAVANDULA *Stœchas*. Stecade, Sticade, *Off.* et *Vulg.* Hab. in monte pisano.

196. MENTHA *rotundifolia*. Menta salvatica, *Off.* et *Vulg.* Hab. circa fossas in collibus.

197. MENTHA *sylvestris*. Menta salvatica, *Off.* et *Vulg.* Hab. in campis.

198. MENTHA *Pulegium*. Puleggio, *Off.* Mentuccia, *Vulg.* Hab. in pratis humidis.

199. GLECHOMA *hederacea*. Edera terrestre, *Off.* Ellera terragnola, *Vulg.* Hab. ad sepes.

200. BETONICA *officinalis*. Bettonica, *Off.* Vettonica, *Vulg.* Hab. in collibus.

201. MARRUBIUM *vulgare*. Marubbio, *Off.* Marubbio, Malrobbio, *Vulg.* Hab. in siccis.

202. BALLOTA *nigra*. Marubbio fetido, *Off.* Cimiciotto, *Vulg.* Hab. in umbrosis.

203. LEONURUS *Cardiaca*. Cardiaca, *Off.* et *Vulg.* Hab. in ruderatis prope Monte Ladrone.

204. Clinopodium *vulgare*. Clinopodium, *Off.* Menta dei greppi, *Vulg.* Hab. in montibus.

205. Origanum *vulgare*. Origano, *Off.* Regamo, *Vulg.* Hab. in collibus.

206. Thymus *vulgaris*. Timo, *Off.* Pepolino, Sermollino, *Vulg.* Hab. in collibus et nemoribus.

207. Thymus *Serpyllum*. Serpillo, *Off.* Pepolino salvatico, *Vulg.* Hab. in collibus.

208. Thymus *Calamintha*. Calaminta, *Off.* Calamento montano, *Vulg.* Hab. in collibus.

209. Thymus *Nepeta*. Nepitella, *Off.* et *Vulg.* Erba da Funghi, *Vulg.* Hab. secus vias.

210. Melissa *officinalis*. Melissa, *Off.* Cedroncella, Erba cedrina, *Vulg.* Hab. ad ripas fossarum.

211. Verbena *officinalis*. Verbena, *Off.* Vermena, Erba crocetta, *Vulg.* Hab. in herbosis.

212. Vitex *Agnus castus*. Agnocasto, *Off.* Albero del Pepe, Pepe de monaci, *Vulg.* Hab. prope Portem Herculis.

213. Euphrasia *officinalis*. Eufrasia, *Off.* Eufragia, *Vulg.* Hab. in pratis. montuosis.

214. Linaria *vulgaris*. Linaria, Urinaria, *Off.* Erba linaiola, Tentennino, *Vulg.* Hab. in campis.

215. Scrophularia *nodosa*. Scrophularia maggiore, *Off.* Castagnola, Erba da emorroidi, *Vulg.* Hab. in humidis.

216. Scrophularia *aquatica*. Scrophularia, *Off.* et *Vulg.* Hab. in humidis.

217. Scrophularia *canina*. Ruta canina, *Off.* et *Vulg.* Dente di cane, *Vulg.* Hab. in sterilibus.

218. Digitalis *lutea*. Erba aralda, *Off.* et *Vulg.* Erba nalda, *Vulg.* Hab. in collibus Loco purpureæ utitur majore dosi.

219. Acanthus *mollis*. Acanto, Branca orsina, *Off.* Branca orsina, Marmoracia, *Vulg.* Hab. in collibus.

Cl. XV. TETRADYNAMIA.

220. Cochlearia *Armoracia*. Armoracia, *Off.* Barba forte, *Vulg.* Hab. secus rivos in Apennino.

221. LEPIDIUM *latifolium.* Lepidio di paolo, e di Plinio, *Off.* Erba mostardina, Peperella, *Vulg.* Hab. in umbrosis.

222. LUNARIA *annua.* Lunaria maggiore, *Off.* Erba argentina, *Vulg.* Hab. in umbrosis.

223. ERISYMUM *officinale.* Erismo, *Off.* Erba crociona, Cascellora, *Vulg.* Hab. ubique secus vias.

224. SISYMBRIUM *Nasturtium.* Nasturzio aquatico, *Off.* Crescione, *Vulg.* Hab. in rionlis.

CL. XVI. MONADELPHIA.

225. GERANIUM *Robertianum.* Cicuta rossa, Erba roberta, *Off.* Erba cimicina, *Vulg.* Hab. in umbrosis.

226. GERANIUM *moschatum.* Geranio muschiato, *Off.* Spilletone muschiato, *Vulg.* Hab. in herbidis.

227. ALTHÆA *officinalis.* Altea, Malvavisco, *Off.* Bismalva, Buonvisco, Malvaccione, *Vulg.* Hab. secus fossas et in pratis humidis.

228. MALVA *rotundifolia.* Malva, *Off.* et *Vulg.* Hab. in prasis et cirea fossas.

229. MALVA *sylvestris.* Malva, *Off.* et *Vulg.* Hab. in arvis.

230. LAVATERA *arborea.* Malva arborea, *Off.* Malva d'Egitto, *Vulg.* Hab. prope Montem Argentarium in viciniis maris.

CL. XVII. DIADELPHIA.

231. FUMARIA *officinalis.* Fumaria, *Off.* Fumosterno, *Vulg.* Hab. in campis.

232. POLYGALA *vulgaris.* Poligala, *Off.* Erba bozzolina, Vecciolina, *Vulg.* Hab. in pratis Apenninis.

233. SPARTIUM *junceum.* Ginestra, *Off.* et *Vulg.* Fiori di fiorita, *Vulg.* Hab. in collibus.

234. SPARTIUM *Scoparium.* Ginestra, *Off.* Ginestra di carbonia, Ginestra da granate, *Vulg.* Hab. in collibus.

235. ONONIS *arvensis.* Anonide, *Off.* Bulimacula, *Vulg.* Hab. in arvis.

236. ANTHYLLIS *vulneraria.* Vulneraria, *Off.* et *Vulg.* Hab. in pratis montuosis.

237. COLUTEA *arborescens*. Sena falsa, *Off.* Erba vescicaria, *Vulg.* Hab. in sylvulis.

238. GLYCIRRHIZA *echinata*. Liquirizia, *Off.* Logorizia, *Vulg.* Hab. in provencia inferiore Sonensi.

239. LIQUIRITIA *officinalis*. Liquirizia, *Off.* Logorizia, Dolce radice, *Vulg.* Hab. in collibus senensibus.

240. GALEGA *officinalis*. Galeg, *Off.* Capraggine, *Vulg.* Hab. in campis.

241. LOTUS *hirsutus*. Loto irsuto, *Off.* Erba velia, *Vulg.* Hab. in collibus.

242. TRIGONELLA *Fœnum Græcum*. Fieno greco, *Off.* et *Vulg.* Hab. in provincia inferiore Senensi.

243. MELILOTUS *officinalis*. Meliloto, *Off.* Tribolo, *Vulg.* Hab. in arvis.

CL. XVIII. POLYADELPHIA.

244. HYPERICUM *perforatum*. Iperico, *Off.* Perico, Erba S. Giovanni, *Vulg.* Hab. in collibus.

245. HYPERICUM *Androsæmum*. Androsemo, *Off.* Ciciliana, Erba S. Giovanni, *Vulg.* Hab. in sylvulis.

CL. XIX. SYNGENESIA.

246. TRAGOPOGON *porrifolium*.
247. TRAGOPOGON *pratense*. } Tragopogono, *Off.* Barba di Becco, Salsefica, *Vulg.* Hab. in pratis.

248. SCORZONERA *humilis*. Scorzanera, *Off.* et *Vulg.* Hab. in argillosis agri Volaterrani.

249. LACTUCA *Scariola*. Scariola, *Off.* Lattuga salvatica, *Vulg.* Hab. ad margines arvorum.

250. LACTUCA *virosa*. Lattuga virosa, *Off.* Lattuga velenoso, Cavolaccio, *Vulg.* Hab. in collibus.

251. LEONTODON *Taraxacum*. Tarassaco, *Off.* Dente di Leone, *Vulg.* Hab. ubique.

252. CICHORIUM *Intybus*. Cicoria, *Off.* Radicchio, *Vulg.* Hab. ubique ad ripas, coliturque in hortis.

253. CARTHAMUS *Marianus.* Cardo mariano, *Off.* Cardo S. Maria, *Vulg.* Hab. ad margines fossarum et viarum.

254. ARCTIUM *Lappa.* Bardana, Lappa bardana, *Off.* Lappolone, Cappellaci, *Vulg.* Hab. in umbrosis incultis.

255. CARDUUS *vulgaris,* (Savi, Fl. Pis.) Cardo comune, *Vulg.* Hab. ad margines fossarum et viarum. In receptaculo nidulatur vermis odontalgicus *Gerbi,* seu larva curculionis Bacchi.

256. CARLINA *acaulis.* Carlina, *Off.* et *Vulg.* Hab. in Apenninis.

257. CARLINA *caulescens.* Carlina, *Off.* et *Vulg.* Carlina nera, *Vulg.* Hab. in collibus Apenninis.

257β. EUPATORIUM *cannabinum.* Eupatorio d' Avicenna, Eupatorio adultenno, *Off.* Canapa aquatica, *Vulg.* Hab. in fossis locisque humidis.

258. TANACETUM *vulgare.* Tanaceto, *Off.* et *Vulg.* Hab. in sylvulis, coliturque in hortis.

259. ARTEMISIA *Abrotanum.* Abrotano, *Off.* Abrotine, *Vulg.* Hab. in collibus.

260. ARTEMISIA *Absinthium.* Assenzio, Assenzio Romano, *Off.* et *Vulg.* Hab. in collibus.

261. ARTEMISIA *cærulescens.* Assenzio palustre, *Off.* et *Vulg.* Hab. in paludibus maritimis prope Liburnum (Leghorn).

262. ARTEMISIA *vulgaris.* Artemisia, *Off.* Canapaccia, *Vulg.* Hab. in aggeribus secus rivos.

263. CONYZA *squarrosa.* Coniza, *Off.* Baccherina, *Vulg.* Hab. in arvis et collibus. Male a Rizotomis pro Digitale purpurea venditur, quæ nunquam in Etruria invenitur, sed colitur in hortis botanicis et viridariis.

264. TUSSILAGO *Farfara.* Tossillagine, Farfaro, *Off.* et *Vulg.* Hab. in campis humentibus argillosis.

265. INULA *Helenium.* Enula campana, *Off.* Antivoleno, Erba de dolori, *Vulg.* Hab. in pascuis humidis Pisanis.

266. INULA *dysenterica.* Inula dissenterica, *Off.* Incensaria, Mentastio salvatico, *Vulg.* Hab. in pascuis humidis et circa fossas.

267. Doronicum *Pardalianches.* Doronico, *Off.* et *Vulg.* Hab. in montibus Apenninis.

268. Bellis *perennis.* Bellide, *Off.* Primofiore, Margheritine, *Vulg.* Hab. in pratis ubique.

269. Matricaria *Chamomilla.* Camomilla, *Off.* et *Vulg.* Hab. inter segetes.

270. Achillæa *Ageratum.* Eupatorio di Mesue, *Off.* Erba bacaja, Erba giulia, *Vulg.* Hab. in collibus.

271. Achillæa *Ptarmica.* Ptarmica, *Off.* Erba stamuta, *Vulg.* Hab. in montibus.

272. Achillæa *Millefolium.* Millefoglio, *Off.* Millefoglio, Erba pennina, *Vulg.* Hab. in pascuis montuosis.

273. Centaurea *Centaurium.* Centaurea maggiore, *Off.* Fiele di terra, *Vulg.* Hab. in Apenninis.

274. Calcitrapa *benedicta.* Cardo santo, Cardo benedetto, *Off.* et *Vulg.* Hab. in provincia inferiore Senensi.

275. Calendula *arvensis.* Calendula, *Off.* Fiorrancio di campi, *Vulg.* Hab. in arvis.

276. Calendula *officinalis.* Calendula, *Off.* Fiorrancio maggiore, *Vulg.* Hab. in ruderatis.

Cl. XX. GYNANDRIA.

277. Orchis *Morio.*
278. Orchis *Mascula.* } Salep nostrale, *Off.*

Zonzelle, *Vulg.* Hab. in pascuis montosis.

279. Sathyrium *hyrcinum.* Salep, Saterio, *Off.* Fiore di cuculio, *Vulg.* Hab. in sylvis.

280. Aristolochia *rotunda.* Aristolochia, *Off.* Strollogi, *Vulg.* Hab. in collibus. Pro radice Columbæ falso venditur.

281. Aristolochia *Clematitis.* Aristolochia sottile, *Off.* Erba astrologa, *Vulg.* Hab. in aggeribus.

Cl. XXI. MONÆCIA.

282. Buxus *sempervirens.* Bosso, Bossolo, *Off.* et *Vulg.* Hab. in agro Senensi, coliturque ubique.

283. ALNUS *glutinosa.* Alno, Ontano, *Off.* Ontano, *Vulg.* Hab. circa rivos et locis humidis.

284. URTICA *urens.* Ortico, *Off.* et *Vulg.* Ortica maggiore, *Vulg.* Hab. in ruderatis.

285. URTICA *dioïca.* Ortica, *Off.* et *Vulg.* Hab. ubique in umbrosis.

286. XANTHIUM *Strumarium.* Xanthio, *Off.* Lappola, a Oliva, Strappa Lana, *Vulg.* Hab. ad ripas.

287. POTERIUM *Sanguisorba.* Sanguisorba, *Off.* Salvastrella, Sorbastrella, *Vulg.* Hab. in collibus.

288. QUERCUS *Suber.* Sughero, *Off.* et *Vulg.* Hab. in sylvis meridionalibus.

289. QUERCUS *Robur.* Querce, *Off.* et *Vulg.* Hab. in sylvis.

290. QUERCUS *pedunculata.* Querce ischia, *Off.* et *Vulg.* Hab. in sylvis.

291. CORYLUS *Avellana.* Nocciuolo, *Off.* et *Vulg.* Hab. in collibus umbrosis.

292. FAGUS *sylvestris.* Faggio, *Off.* et *Vulg.* Hab. in Apenninis superioribus.

293. CASTANEA *vesca.* Castagno, *Off.* et *Vulg.* Hab. in Apenninis inferioribus.

294. JUGLANS *regia.* Noce comune, *Off.* et *Vulg.* Hab. in vallibus, coliturque in arvis.

295. ARUM *Italicum.* Aro, *Off.* Gichero, *Off.* et *Vulg.* Hab. ad sepes et in umbrosis.

296. PINUS *Pinea.* Pino, *Off.* Pino domestico, Pino da pinochi, *Vulg.* Hab. in collibus, coliturque ubique.

297. PINUS *Pinaster.* Pino salvatico, *Off.* et *Vulg.* Hab. in montuosis.

298. PINUS *Abies.* Abeto, *Off.* Abeto bianco, *Vulg.* Hab. in sylvis Apenninis.

299. PINUS *Larix.* Larice, *Off.* et *Vulg.* Hab. in Apenninis Pistoriensibus, ad confinia Ducatus Mutinensis.

300. CUPRESSUS *sempervirens.* Cipresso, *Off.* et *Vulg.* Colitur circa domos rurales unde sponte germinat in collibus.

301. Momordica *Elaterium*. Elaterio, *Off.* Cocomero asinino, *Vulg.* Hab. in incultis et recrementis hortorum.

302. Bryonia *dioïca*. Brionia, *Off.* et. *Vulg.* Vite bianca, *Vulg.* Hab. in montibus.

Cl. XXII. DIOECIA.

303. Salix *alba*. Salcio, *Off.* Salcio grande, Salcio da pertiche, *Vulg.* Hab. in planis circa rivos.

304. Viscum *album*. Visco bianco, *Off.* Vischio, Pania, *Vulg.* Hab. parasita in arboribus.

305. Pistacia *Lentiscus*. Lentisco, *Off.* Dentischio, Sondro, *Vulg.* Hab. in argillosis provinciæ inferioris.

306. Humulus *Lupulus*. Luppolo, *Off.* et *Vulg.* Hab. ubique in sepibus et in locis incultis.

307. Smilax *aspera*. Smilace, *Off.* Rogo cervione, *Vulg.* Hab. in sepibus.

307 β. Populus *nigra*. Pioppo, *Off.* Albaro, Albero, *Vulg.* Hab. circa fluvios.

308. Mercurialis *perennis*. Mercuriale, *Off.* Mercorella bastarda, *Vulg.* Hab. in sylvis.

309. Mercurialis *annua*. Mercuriale, *Off.* Mercorella, Erba strega, *Vulg.* Hab. in herbosis.

310. Juniperus *communis*. Ginepro, *Off.* Ginepro comune, *Vulg.* Hab. in sylvis et collibus.

311. Juniperus *Oxycedrus*. Ginepro rosso, *Off.* Appeggi, Ginepro Appeggi, *Vulg.* Hab. in montibus.

312. Juniperus *Sabina*. Sabina, *Off.* Savina, Cipresso di maghi, *Vulg.* Hab. in viciniis maris.

313. Taxus *baccata*. Tasso, *Off.* Libo, Nasso, *Vulg.* Hab. in provincia inferiore.

314. Ruscus *aculeatus*. Rusco, *Off.* Pugnitopo, *Vulg.* Hab. ad sepes.

Cl. XXIII. POLYGAMIA.

315. Fraxinus *Ornus*. Orno, *Off.* Orniello, *Vulg.* Hab. in sylvis.

316. PARIETARIA *officinalis.* Parietaria, *Off.* Vetriola, Erba Vetriola, *Vulg.* Hab. in muris vetustis.

317. VERATRUM *nigrum.* Elleboro bianco, *Off.* Veladro, Condisi, *Vulg.* Hab. in sylvis umbrosis.

CL. XXIV. CRYPTOGAMIA.

318. EQUISETUM *arvense.* Equiseto, *Off.* Coda di cavallo, *Vulg.* Hab. in campis humidis.

319. LYCOPODIUM *clavatum.* Licopodio, *Off.* Musco clavato, *Vulg.* Hab. in sylvis Apenninis altioribus..

320. OSMUNDA *regalis.* Osmunda, *Off.* Felce florida, *Vulg.* Hab. in nemoribus.

321. CETERACH *officinarum.* Cetracca, *Off.* Erba dorata, Erba ruggine, *Vulg.* Hab. supra muros vetustos et rupes.

322. POLYPODIUM *vulgare.* Polipodio, *Off.* Polipodio quercino, *Vulg.* Hab. ad radices Quercuum.

323. ASPIDIUM *aculeatum.* Felce, *Off.* Felce maschia minore, *Vulg.* Hab. in nemoribus.

324. ASPIDIUM *Filix mas.* Felce maschia, *Off.* et *Vulg.* Hab. in nemoribus.

325. ASPIDIUM *Filix fœmina.* Felce femmina, *Off.* et *Vulg.* Hab. in nemoribus.

326. ASPLENIUM. *Trichomanes.* Trichomane, Politrico, *Off.* Capel venere, *Vulg.* Hab. in muris ventustis et rupibus.

327. ASPLENIUM *Adianthum nigrum.* Adianta nero, *Off.* Erba radioli, Capel venore doppio, *Vulg.* Hab. in umbrosis.

328. SCOLOPENDRUM *officinale.* Scolopendrium, *Off.* Lingua cervina, *Vulg.* Hab. in umbrosis et nemoribus.

329. PTERIS *aquilina.* Felce ramosa, *Off.* Felce da ricotte, Felce imperiale, *Vulg.* Hab. in collibus.

330. ADIANTHUM *Capillus Veneris.* Capel venere, *Off.* et *Vulg.* Hab. in umbrosis humidis et puteis.

331. PARMELIA *pulmonacea.* Pulmonaria arborea, *Off.* et *Vulg.* Hab. in sylvis ad truncos arborum vetustiorum.

332. CETRARIA *Islandica.* Lichene islandico, *Off.* Hab. in Apennino Pistoriensi.

VI. Observations on Sarsaparilla and its Preparations, with incidental Remarks on certain other remedial Agents in the cure of obstinate Chronical Disorders, by John Hancock, M. D., Fellow of the Medico-Botanical Society, Vice-President of the Philosophical Society of British Guiana, Corresponding Member of the Zoological Society, &c. &c. *(Read May 26th, 1829.)*

The admirable effects, and consequent high price, of the article in question, has induced the inhabitants of those countries from whence it is imported, to gather it from all the different species of Smilax, the roots of which have any resemblance to the genuine sort, and even from some other plants of different families. Till a very recent period, the people of Essequebo mistook for Sarsa, even the pendent fibres *(not roots)* of a species of climbing Arum, with large heart-shaped leaves; and, however gross the error, I found certain medical practitioners there, indulging in the belief of its being the genuine drug, and employing it as such! We cannot be surprised, therefore, to find the European market deluged with false kinds of Sarsa, which sufficiently accounts for the little credit given it by many of the faculty, both at home and abroad.

Of the six or eight species of Smilax which I have observed growing in the woods of Guiana, I never found but one to manifest to the taste any thing of the sensible qualities of the genuine medicinal Sarsa; the rest being, for the most part, perfectly insipid in the mouth and fauces, and, as far as my experience goes, nearly inert as remedies. In reference, indeed, to medicinal powers, there are evidently two distinct divisions of this genus of plants, although we know of no botanical characteristics for thus distinguishing them into two sections. Botanical analogy seems entirely to fail us in this instance. It appears fully evident, however, that, of this numerous genus, but a very small

proportion indeed, are to be considered as possessing any very marked medicinal properties.

The species just alluded to, as possessing some active properties, grows on the declivities of the hills and mountains up the Essequebo, and doubtless in various other parts of the interior. The stem is round, armed with short curved spines; the leaves are oblong, pointed, distant, smooth, and glossy; the root is a tuber, with numerous divergent fibres, of two or three lines in thickness, and several feet in length.

Unfortunately, the traveller's attention is absorbed by a vast variety of interesting scenes, while traversing the Guiana forest, and he is prone to neglect special objects. I have no doubt, however, that the Rio Negro Sarsa will one day be found growing abundantly within the limits of British Guiana; and whoever makes this discovery, will confer an inestimable benefit on the public. Not only this, but the discovery of the true Ipecacuhana plant, and the Cinchona tree, are amongst the important discoveries which may be anticipated in Guiana, either upon the plains, or on the range of its interior mountains. Such discoveries are to be expected from the *real* botanist, who combines a knowledge of the external forms of plants, with the more important science of their intrinsic properties, their application to medicine, to the arts, and domestic economy.* I must here observe that, from my examination of samples of the genuine drug from the Rio Negro, as it arrived at Angustura, with parts of the stem adhering, it appeared that the species described by Willdenow, as the SMILAX *syphylitica, caule aculeato tereti aculeis axillaribus,* is not that which is regarded as the true and more active species, which has no axillary spines, and may therefore still be considered as a *nondescript* species. The natives, (the Mandavaces of Cassiquari,) of whom I made inquiry, denied

* The present would be a most favourable time for a botanist so inclined, to set about an enterprise of this nature, as he would find, in the enlightened Governor, Sir Benjamin D'Urban, the support of a zealous and unaffected patron of science.

that the true kind was to be found on the banks either of the Cassiquari or the Guiana, as they call the Rio Negro. I placed the more reliance on this information, as these were *Peones* who had been employed in digging the Sarsa, which, as they asserted, was chiefly obtained on the elevated lands of the Rio Imiquen, at Unturana, and Caraburi. They acknowledged too, that, when the right sort was not found in plenty, they sometimes dug one or two others, which they esteemed to be nearly equal in quality.

The Sarsa of the Rio Negro, which comes by way of Angustura, or of Para, is the best. Respecting this species, indeed, I can speak with confidence, having had very ample experience of its medicinal properties, especially in Angustura, where I lived nearly four years. It is the only remedy used for the cure of venereal affections, and many others falsely considered as such, in the Oronoko; not to mention its great power in rheumatism of long standing, and in a multiplicity of chronic complaints.

The Sarsaparilla which is usually met with in the shops, however, is, for the most part, nearly inert, either from age, or being procured from various non-medicinal species. It should be taken from recent importations in the *roll*, and not that which is kept slit up, in the shops, which is very often quite useless. Good Sarsaparilla has a peculiar nauseous acrimony when chewed; and this is almost the only criterion we have for judging of its medicinal activity.

It is quite amusing to observe the diverse opinions respecting the nature and properties of this medicinal root. In Mr. Rennie's Supplement, page 384, it is stated, that "genuine Sarsaparilla is covered by a brown or reddish bark, with a central woody portion, soft, white, and sometimes like starch. This part is useless, the virtues residing in the bitter principle of the bark; and the more it inclines to a red colour, it is the richer and more powerful. The gray and dirty-brown sorts are not good. The best sort comes from Jamaica and the Brazils, called Lisbon Sarsa; the worst from Honduras and Vera Cruz. (Pope.)" Here, it would appear, that it is only the thin pellicle of bark, a sort of epidermis, which is allowed to possess any useful pro-

perty; and the *colour* of this pellicle is the only character called in for discriminating the different kinds, or for judging of their medicinal powers!

The fact is, the real and only criterion for knowing good Sarsa, is almost universally neglected, viz. its sensible qualities in the mouth; and which affords the best and most effectual guide for enabling us to judge of the intensity and value of vegetable remedies in general. It is by the taste and odour, chiefly, that we judge of good Peruvian Bark, Rhubarb, Jalap, &c.; and even the speculators about Cinchonine would be guided more by such tests, in choosing good bark, than by their hypothetical ones of glue and tan.

The medicinal properties of Sarsaparilla, moreover, are not confined to the bark so called, but are found to reside almost equally in all parts of the root, as the cuticle, woody, and farinaceous portions. This has been fully proved in Demerara, by the results of their separate administration in actual disease. The same will easily be believed by a trial of their sensible effects on the mouth and fauces.

The medicinal powers of Sarsaparilla, I am inclined to believe, depend on a certain *acrid* or *nauseous* matter, or on a principle similar to that of Ipecacuhana, judging from its sensible qualities and clinical effects; and this acrimonious or nauseous matter, which I find to exist in the more active medicinal Sarsa, is, in some measure, covered or concealed by its demulcent or mucilaginous particles, which may also contribute something to its curative powers, added to the diluting effects of the water employed. As sudorifics, their action seems to be similar. So also, in emetic properties, when the Sarsa is taken in large doses, and not spoiled by long boiling. However this may be, I suspect that Ipecacuhana might, in many cases, be employed with equal advantage where Sarsa is indicated. This, however, I know from sufficient experience, that the powers of Sarsaparilla are, like those of Ipecacuhana, quite destroyed by long boiling. It is true, indeed, that the condensed vapour arising from both, is perfectly insipid; but it is, with regard to Ipecacuhana, well

known that, "though the water distilled from it has scarcely any emetic effect,"* it becomes nearly inert by long coction; and precisely the same is true with regard to the Sarsa.

After long boiling, indeed, the peculiar *odour* which rises abundantly on the coction of *good Sarsa*, is almost extinguished. From the Sarsa prepared in this way, I found no sensible results upon any patient, nor were its peculiar nauseating, drowsy, and racking effects, produced by a large quantity, although the decoction of six or eight ounces were tried at a dose.

These experiments having been carried to a sufficient length, most of the same patients recovered under the use of the Sarsa, taken from the same parcels as before, but now prepared by simple maceration in hot water, *i. e.* affused in a boiling state, and kept near the boiling point for some hours. In all cases, the Sarsa was directed to be well bruised in large mortars, and in the mean time, all other remedies were abstained from, which might, in any way, affect the result.

Knowing, then, the destructive effects of long boiling on this drug, we cannot wonder at the doubtful and discordant reports given of it by our medical and pharmaceutical writers, after they have directed it to be *boiled down to one half*, &c., which must truly render it very nearly useless and inert.

Another preparation, still more preposterous, appears to be exceedingly in vogue at the present time; that is, to boil down the decoction of Sarsa into an extract. By this absurd practice, its virtues are still more completely destroyed. It is much to be lamented, that such vast quantities of this valuable root are thus thrown away in vapour, a *boiled*, if not a burnt offering, to the goddess of Folly. On entering some of the shops in London, where this process is carried on upon a large scale, we find the rooms teeming with the effluvium, which may be regarded as the active principle, or, at least, as an element necessarily connected with it; since we find that, in proportion as we drive off this odorous principle by heat, we despoil this remedy of its active properties.

* *Murray's Mat. Med. p. 322.*

Mr. Brande remarks, at page 404 of his very useful Manual of Pharmacy, that, "there is much difference of opinion respecting the activity of this extract, (as directed by the College), among those who admit the efficacy of other forms of Sarsaparilla. It is certainly the worst preparation of that remedy, as it is usually met with, for it is *easily decomposed by heat*, and always suffers more or less during the protracted evaporation that is required." These remarks are exceedingly just, and similar ones have been made by Murray and Thompson, yet they seem to be entirely disregarded by the practical pharmaceutists, perhaps because they consider them not to be derived from actual experiment.

As prepared by the College directions, the extract must certainly be quite inert; and it would seem, that some presentiment was entertained of its inefficacy, for, by way of compensation, as it were, it is directed to be given in the *decoction* of the root! But certain sages of our profession have assigned to this useless extract, and to that not less useless syrup of Sarsaparilla, which is prepared from the extract, their best offices, when, in prescribing the decoction, they say "*thicken* it with extract, and *sweeten* it with syrup!" We have seen those boasted extracts and syrups used in great quantity, and at great cost, but in vain; when afterwards a quart of the strong infusion has removed all the violence of the symptoms.

In speaking of the deterioration of Sarsaparilla by long boiling, I have only insisted on that which depends on the loss of its active principles by evaporation; but that which arises from the action of the air and heat, during a tedious process of boiling, must, in a great measure, subvert its affinities, form insoluble compounds, and precipitate such of the active materials as may not be dissipated in vapour. It is doubtless the latter, however, or the evolution and loss of its volatile parts, which proves the most injurious.

The boiling *in vacuo*, as it is rather improperly termed (for we can scarcely consider it a vacuum, where the space is continually occupied by the production of aqueous vapour), is said

to be a vast improvement in the preparation of decoctions, extracts, &c. It doubtless will be an advantage where much boiling is *really necessary*, principally by avoiding the access of air, smoke, and sooty matter, by which the extracts will at least appear more clear and pleasing to the eye; but it will by no means obviate the main objection just stated to the process of boiling, while it is far too operose and expensive for general use; and if, as asserted, the atmospheric pressure be taken off, it will not only facilitate the evaporation of the water, but that of the volatile elements of the drug likewise. There is, however, no occasion whatever for boiling: if the drug be duly bruised or reduced to a gross powder, the affusion of boiling water and digestion therein, just below the boiling point, will extract the active properties of this or other vegetable remedies, as completely as could be done by the longest coction, and without the loss or dissipation of their volatile parts;* and when required, it may be effected with a very small quantity of fluid, if a powerful press be employed after due maceration in hot water. The medicinal properties of dried vegetables, may thus be extracted as perfectly as could be done by expressing their juices in a fresh or green state. Those containing resinous principles, require, of course, a similar operation with alcoholic menstrua or proof spirit. This method would be the most expedient for procuring unaltered the native properties of all those remedies depending on volatile or fugaceous principles, as in the narcotic drugs, or those containing essential oils, for example, hemlock, henbane, savine, &c.

Over such preparation as I have just deprecated, that employed by the Spaniards of the Orinoko, is indisputably superior. There, it is prepared constantly without boiling, either by di-

* It is the *ebullition* or *intestine motion*, caused by the heat, which elevates and drives off the aqueous vapour and the volatile parts of the infusion along with it. When at the temperature of 212, the water is progressively converted into steam at the bottom of the vessel, its elasticity or expansive power then overcoming the weight of the superincumbent atmosphere. By raising the heat, therefore, to the boiling point, we rapidly increase the evaporation, whilst the solvent power of the water remains nearly the same as when a few degrees lower.

gestion in wine, or a spirituous menstruum, or by an infusion with water, allowing it to stand for eight or nine days exposed to the sun's rays, or by a fire side in the rainy season, and forming thus a strong vinous or fermented liquor. After my return from the Orinoko to Demerara, in January, 1818,* I had

* Early in this year, I published, in the Guiana Chronicle, the Spanish recipe for the Jarave, so called, or diet drink, after which the use of the Sarsa became very general in the Colonies. The following is a somewhat modified and improved form of this recipe:—Take of Rio Negro Sarsa, bruised, 2lb.; Bark of Guaiacum, powdered, 8oz.; raspings of guaiac wood, anise seeds and liquorice root, each 4oz.; mezereon, *bark* of the *root*, 2oz.; treacle, 2lb.; and a dozen bruised cloves: pour upon these ingredients about four gallons of boiling water, and shake the vessel thrice a day. When a fermentation has well begun, it is fit for use, and may be taken in the dose of a small tumblerfull twice or thrice a day.

The publication of the recipe, at least gave an impulse to the employment of Sarsa in the Colony. At first, it was prepared according to the Spanish process, and which certainly produced the most beneficial results,—surprisingly so it might be said, for many spoke of it as effecting very extraordinary and unexpected cures, even in old invalids, or those who had been for a long time entirely crippled.

Some years afterwards, many were found to complain, that they had not experienced that efficacy in the *decoction* which had been reported. It was soon perceived, on inquiry, that the persons who had been thus disappointed, were for the most part, those who had confounded the preparation with that of the old *decoction* of woods, prepared by long boiling.

The recipe, or formula, having been anonymously published in the Gazettes, which are seldom preserved in Demerara, in a short time after, no indication was left for recurring to it. Many people would send to the druggists' shops for the articles, and some not even knowing what was meant, would send for the *decoction of the woods*. They received the packages, of course, with a very small portion of the more active article, Sarsa, (it being the dearest one), put up in the old way, and with the usual pharmacopœial directions, by which it was boiled till quite exhausted of all active properties. This affords an example of the dilapsus and neglect of many of the most valuable remedies from mere carelessness and inattention.

If intended for old and obstinate complaints, as leprous affections, elephantiasis, various anomalous ulcerations, and foul disorders of the skin, there was added to the jug a solution of tartrate of antimony, with muriate of mercury and ammonia, viz. Antim. Tar. 12grs. Hydr. Oxymur. 8 or 10 grs. Mur. Ammoniæ, 1 drachm. These three articles, being previously dissolved in a little water, are to be thrown into the jug, when the infusion has well begun to ferment, not before, as they would prevent the fermentation taking place. The addition of those active ingredients not only greatly enhances the alterative power of the vegetable

opportunites of trying its action on numerous patients in every way I thought proper; and I found, by a long series of experiments, that the fermented infusion was equally as efficacious here as in the Orinoko. It appears to me very probable, that the acetous and alcoholic principles gradually evolved in the course of the fermentation, serve more effectually to extract the active properties of Sarsaparilla than can be done by any other method we are acquainted with. There seems to be a certain fixed principle in the Sarsa from Para and the Rio Negro (and probably in other kinds also), which is not so completely taken up or dissolved by boiling water, for after exhausting half a pound of this sort by two digestions, boiling, and pressure, I added to the dregs half a pint of proof spirit, and digested this with a gentle heat for a few hours in a close vessel, then affusing hot water to the amount of that taken off from the first boiling, and pressing again, I procured, by this last operation, about four pints of an infusion, which possessed the acrid properties of the Sarsa, in a much higher degree even than that obtained by the first decoction with simple water.

The activity of Sarsa as a medicine, seems to depend on a

infusion, but, at the same time, so effectually prevents its decomposition that it may be kept for a long time quite unaltered, even in a hot climate,—a circumstance of great moment where it is frequently required for a number of patients.

I once mentioned such a formula in conversation with a chemical critic, who, in the fulness of his wisdom, scouted the idea of such a compound, and pronounced most dogmatically, that between the tartarised antimony and muriate of mercury, the *whole* would be *decomposed!* I merely requested he would try it and convince himself, but heard no more from him. The truth is, no change whatever occurs from this admixture. Were the articles of the solution separately employed, there would be a trifling decomposition in the vegetable infusion; but these three articles being first united, form the most effectual conservative compound which it is possible to devise, either for vegetable or animal substances; and they so bind the different elements as to render them, for a long time, quite inseparable from exposure to light and air.

For some fastidious and delicate people, a variation was, at times, requisite, in which case the infusion was taken by itself; and, in lieu of the above solution, very minute doses of calomel, or the gray oxide of mercury, with precipitated sulphur of antimony, in pills, were substituted, as a quarter of a grain of the former with half a grain of the latter, night and morning.

kind of narcotic quality, affecting the tongue and fauces with more or less of a nauseous acrimony,—the degree or intensity of which, affords the best indication of the strength and value of the drug. Its effects on one patient, an African, were certainly those of a narcotic, agreeably to the best definition of this term. It was given him in a large dose, the infusion from 4oz. of Rio Negro Sarsa. It caused nausea and great prostration of strength, a degree of torpor which induced him to lie upon the ground with unwillingness to move or to get up. He said that it made him "sick as death, and broke all his bones." There was scarcely any alteration in the pulse, unless it were a little retarded.

Whatever restorative and aphrodisiac virtues may have been by the ancients attributed to the OPHRYS *Satyrion*, or the different Orchideæ, it appears to me, that the Sarsa is the only medicinal agent justly entitled to the character of a direct restorative. This property, at the same time, seems to be totally unconnected with, or independent of, its farina or amylaceous principle, since it is found to produce the same restorative effects, not only when prepared by an aqueous menstruum, but also in a saturated alcoholic tincture, which we know could not take up those amylaceous or simply nutritive particles.

This is one of the most remarkable effects of the genuine Sarsa, and tends clearly to exemplify its eminently salutary properties, namely, the augmentation of flesh, and melioration of the habit, so frequently observable in patients who have taken it for some time. It was noticed by many of the planters of Demerara, as well as by eminent medical practitioners, that not only did sores heal up, and swellings of the joints subside, on the use of the Sarsa,* but that the patients acquired a

* It was proved by numerous examples, that the Sarsa was the only efficient article in the preparation, and equally successful by itself, whilst the other woods, &c. usually joined with it, were productive of little or no perceptible effects on the patient or the disease. The Bark of Guaiacum, however, was an exception; but not being an article pertaining to commerce or found in the shops, it was seldom obtainable. Certain native plants were also found exceedingly useful in healing ulcers, and as general alteratives; but these are scarcely relevant here and are intended to form the subject of a separate paper.

plumpness, smoothness of the skin, and a degree of activity unknown before.

Whatever be its mode of action, its advantages will doubtless be found very great in the treatment of phthisis and scrofula, and especially in correcting a constitutional diathesis tending to those disorders.

It is esteemed by the Colonial Spaniards, as a remedy for every stage of syphilis. When they go under a course of this remedy, they drink barley water, vegetable acids, and cooling articles, to counteract the heating effects of the Sarsa, for they consider it very heating. Perhaps they should ascribe this effect more to the vinous menstruum which they employ.

Much has been said by different writers regarding the *specific* powers, so termed, of Sarsaparilla, as a remedy in lues venerea. Although well convinced of the great efficacy of the genuine Sarsa, under proper regimen, in the various stages of lues, I consider it no specific; and it is not particularly as an antivenereal remedy that I would insist on its value, but as a general corrective and sanative agent in scrofulous swellings, ulceration, and lesions of various kinds, and especially in general marasmus, cachexia, debilitated and emaciated habits, and in disorders arising from the abuse of mercury.

Those narrow views and vain discussions about the specific action of Sarsa in syphilis, have had the effect of keeping down its character, as a great and extensively useful remedy—a character which it certainly deserves. It is to the want of a proper regimen under its use, to the introduction of spurious kinds, and to faulty modes of preparing it (by long boiling especially), that we are to attribute the frequent failures which many complain of, and for which it is even totally neglected by some practitioners.

The disease, however, which in the Orinoko and Venezuela, most frequently demands the employment of this invaluable alterative, is a species of rheumatism, which commonly follows gonorrhœa, making its attack soon after the discharge has been

suddenly stopped, and the patient has been exposed to cold and moisture.

This species of rheumatism, from suppressed gonorrhœa, is so common an occurrence in Venezuela, that it usually takes the name of *galico, (i. e.* venereal); and as most rheumatic affections are there referred to this cause, we rarely hear it spoken of under any other title.

The true gonorrhœal rheumatism, however, makes its attack upon the muscles, the ligaments, and even the periosteum of the bones, soon after the discharge disappears. The joints are rendered immoveable; all the limbs, the spine, hips, and shoulders, suffer excruciating pain; after a time, these symptoms are followed by *tophi* upon the tibia, os frontis and bones of the fore arm, and the patient, if not timely relieved, becomes quite crippled and emaciated.

Whatever obloquy may arise from an avowal of our own misfortunes, the paramount objects of truth and candour compel me to say, that such as just described was *my own* case during several months of the year 1814; and that, after a full, but ineffectual trial of mercury, and the usual European remedies, I was entirely restored to health, by taking a single *botejuela* or small jug of the *Jarave del Rey.*

Having been long a convert to some of the exploded or unfashionable doctrines of the humoral pathology, it may readily be believed, that my faith was not diminished by considering the striking translations of disease, from one part to another, so apparent in the foregoing, and in numerous other cases equally convincing.

They also satisfy me, that, in certain cases at least, and these more frequent than is commonly imagined, secondary symptoms follow gonorrhœa as well as syphilis; and, when added to the observations of the army surgeons, (as to gonorrhœa producing chancre, and chancre gonorrhœa), they tend to establish the identity of these diseases.

The Spaniards, I may observe, by the term *reumatismo*, seem

to mean nothing more than a flow or prevalence of acrimonious humours in the body,—the same as appears to have been understood by the Greeks in their ῥευματιζω or rhĕumatizō,—afflicted with humours—" rheumatismes Græci fluxiones vocant." *Plin.*

There is a scrofuloid species of ulcer which more frequently infests the negroes; appearing in different parts of the body, but more especially about the lower extremities, arising with a whitish head, remaining stationary for a long time, and when opened, mostly found to contain a curdy matter. In its rise, progress, and structure, it has a close analogy with tubercles of the lungs. It is of a most intractable nature; and usually requires, as a preliminary, the application of a strong escharotic. There are varieties of this ulcer; some of which, on being opened, shew plainly the hydatid form, or half-organized structure; in different stages, *steatomatous*, *curdy*, *purulent*, &c.: they are encysted, and are doubtless animalcules. In their more perfect state, plano-convex, or shape of a coffee seed, marked with a sort of umbilicus, or black dot, on the flat side. Some of the old women in Demerara shew a surprising degree of patience in picking out these troublesome subjects, to which they give the name of tetter ring-worms.

Mercurial salivations may cause these ulcerous tumours or tubercles to heal, but they soon break out again, without the timely use of Sarsa, which is almost the only remedy we know of that will heal them with any degree of permanence; and of this we usually find a long course is required. The nitric acid and antimonials were found greatly to contribute to the sanative process; and not only in this species, but in most other inveterate ulcerations so common in the Colonies.

It was in the course of my practice in those anomalous and inveterate complaints, that I perceived the absolute necessity of attending to the doses of medicines in a degree too rarely noticed and too little insisted on by medical writers. I especially allude to the necessity of watching the results and augmenting the doses of the remedies till some sensible effects are produced on the system. When that is sufficiently apparent, the remedy,

whether it cause inconvenience to the patient or not, is of course to be discontinued for a time,—a week or two, and sometimes longer, according to the intensity of its action on the patient. When its apparent effects have subsided, we may again commence its use in a small dose, and augment it gradually as before.

By reflecting on the controul thus acquired over external ulceration, it naturally occurred to me, that the same method ought to have its influence in some cases of pulmonary lesions with severe cough and purulent expectoration, as also in ulceration of the bladder and other viscera.

It is true I had but few opportunities of repeating experiments proper for illustrating this important point, having left the Colony not long after I had formed the plan here alluded to. My experience in this, however, was such as to afford me the most confident hope of its ultimate success in phthisis and internal ulceration.

In other cases likewise of obstinate chronic and cutaneous disorders, it is not unfrequently found requisite, especially amongst the negroes, to employ various additional remedies. A preliminary light course of mercury and antimony, nitric acid, iodine, sulphureous fumigation, a grain of opium at night, and the vapour bath occasionally, are amongst the best auxiliaries. The disorders here alluded to, are for the most part of that anomalous description, which it would be impossible to characterize by any definite name as being chiefly complications of yaws, leprosy, syphilis, and scrofula, developed in various lesions or affections of the skin, joints, ligaments, and glandular parts, as cutaneous eruptions, swellings, ulcers, &c., in different parts of the body.*

* Amongst the chief exciting causes of such affections, we should mention exposures to vicissitudes of weather, in the rainy season especially, and defective nourishment. The latter cause, however, is not so frequent amongst the slaves as they are usually well fed by their masters, whose interest, humanity apart, is too deeply involved to allow this point to be neglected; and, in case of deficiency, it would be speedily corrected by the inteference of the law, which, in one of the richest soils conceivable, renders it compulsory on the planter to keep in proper

I ought to observe here, that from the few trials I made with iodine, it appeared to be a very useful auxiliary in leprosy, and in those scrofuloid ulcers here spoken of, as also in swellings of the knee joint, common in Guiana, being a species of hydarthrus, or white swelling, arising as the results of cold and rheumatism, in strumous habits especially.* In lepra, the use of

cultivation, for every five slaves an acre of land, which, admitting the statement of Baron Humboldt to be correct, would be a supply for many times that number of people. See his *History of New Spain, vol.* II. *p.* 374, where it is said, that "the produce of the banana is to that of wheat as 133 to 1, and to that of potatoes as 44 to one."

Without recurring to any exaggerated reports, and although never an advocate for slavery, I may here take occasion to remark, that the present condition of the slaves in the British *Continental* Colonies (I do not allude to the Islands), may, in point of comfort and plentiful supply of food, be said to be quite enviable compared with that of the labouring classes in this country. This is a truth which ought in fairness to be stated, but it is not intended as an apology for slavery.

And this advertence, which may seem irrelevant here, I have introduced, because, upon speaking on these subjects in London, it has been more than once suggested to me, as a query, whether the negroes were not *half starved* in the Colonies. A person of very moderate capacity like myself, after a residence of twenty-five years in the Colonies, ought to be able to form a tolerably correct opinion on the subject.

The Plantain is considered the staple and indispensable article of food in Guiana; but, independent of this, the slaves are generally allowed as much land as they choose to cultivate; consequently, those who are inclined to a little industry can procure, for their own use and for market, an abundance of yams, maize, sweet potatoes, and other nutritive vegetables. They are frequently found, however, to be very indifferent to this privilege, and, therefore, the supply of those articles, in order to ensure its being more constant and regular for their families, is, on certain estates, under the express direction of the proprietor or manager. I mention this beneficial practice, not as one universally followed, but as deserving imitation by all; for it is well known that a diversity of similar alimentary substances contribute much more strength and vigour than can be derived from any one taken singly, as, in respect to medicines and spices, their powers are greatly enhanced by combination.

* When the joint was found much enlarged, the contained fluid was let out with a common lancet. This fluid was usually of a slimy or gelatinous nature, not unfrequently similar in appearance to that of the bursæ mucosæ in a healthy state, and more rarely sanious or purulent. I never observed any ill effects from these openings, or from the ingress of air which has been so much dreaded: indeed, the neglect of it must inevitably cause a stiff joint, or render amputation neces-

iodine was suggested, by the presence of those glandular lumps or tubercles, which, in all advanced cases, might be felt under the skin, especially in the legs and thighs of lepers, and withal greatly disfiguring the face. This remedy was exhibited in small doses, cautiously augmented, in the form of tincture, in the manner advised by *Coindet*, in somewhat analogous disorders of the glandular system; and also, as a deobstruent tonic, in cachexia or anasarcous habits, depending on glandular visceral obstructions.

The advantages gained by these remedies were often very great; they seemed to impart to the system a susceptibility to the action of Sarsaparilla, and the bark of guaiacum. In one case of chronic hepatitis, the symptoms were quite removed by the use of iodine and Sarsa, or *on* their use, for it is not always easy, when a recovery takes place, to decide how much is respectively due to nature, and how much to the remedy administered. Another instance may be adduced, in which an inveterate cough attended, and which gave reason to suspect the existence of tubercles in the lungs: the patient recovered after a six weeks' course of iodine and Sarsa. In some other cases of this kind also, the result seemed to afford a hope, that the action of iodine, may equally contribute towards resolving the pulmonary tubercle, as well as those seated more superficially.

The genuine Sarsa of the Rio Negro proves also a very po-

sary. I may possibly labour under some erroneous impression, but I have long regarded that as one of the most preposterous of pathological dogmas which proscribes the timely opening of these tumours. It has probably arisen from several different tumours of the knee joint being confounded under the same name or names. Instead of discharging their contents by one of the simplest and safest operations, it is usually enjoined, that they be allowed to break of themselves: the consequence is, that the matter or fluid being pent up for a long time makes its way in different directions under the muscular expansions, forming sinuses, corroding the capsular ligament and the ends of the bones, and, at the least, leaving the patient with an incurable anchylosis It is, in general, only necessary to let out the fluid and bind the knee moderately tight with an elastic bandage. In cases where adhesion has not followed, and the collection and swelling has returned, I have injected into the sac a very dilute mixture of honey and water, and again pressed it out as soon as a little pain was excited, and which, with the internal remedies just mentioned, have effected the cure.

tent antihydropic, especially in cases of great debility, and where dropsy arises in emaciated habits. The diuretic power of the Carony Bark has been already alluded to, (see p. 26 and 27). It is, perhaps, partly owing to this power, and partly to its tonic and bracing effects, that this Bark has been found so useful in dropsies, in which it has often proved a decisive remedy; and, at other times, a powerful auxiliary, along with a gentle course of mercury and squills, with the use of Taraxacum, and a grain of opium at night, and once or twice a week a dose of the wild Elaterium, or bitter cucumber, MOMORDICA *operculata*,* in a solution of tartrate of potash. This is briefly the plan which, in general, I have found most successful in dropsies of various kinds, whether general or partial.

I must here observe, that in recent dropsies which come on suddenly from colds and obstructions, we find depletion to be of the first importance, the *sine qua non* indeed. In this species of dropsy, the blood is often observed to be sizy or quite gelatinous. The remedies just mentioned usually produce a degree of tone and excitement in the system, such indeed, at times, as to indicate bleeding. This condition, arising in adynamical dropsies, in cachectic and leuco-phlegmatic habits, is ever to be regarded as the most favourable; and, under such circumstances too, moderate depletion has been found most essentially to promote the curative process, and to contribute to a happy recovery. The diseased action seems by these measures to be subverted, the dormant energies of the vital or nervous system to be roused into action; the vessels to recover their wonted power of contracting upon the sluggish fluids, of propelling them through the veins and capillaries, and of restoring the healthy balance throughout all the corporeal functions.

The results of such cases tend to convince us, that remedial agents which we are prone to regard as the most opposite and incompatible, not unfrequently prove the only curative ones in

* This plant grows abundantly on the coast of Essequebo, especially at Cape Batave, the property of Mr. Gilgeous, and at Plantation Richmond, belonging to Mr. Bean.

many of the most untoward disorders, and those too, both acute and chronic, for similar conclusions may likewise be drawn from those methods which have been found to be the most successful in cases of yellow fever.

It is well known there are a great variety of exceedingly useful remedies amongst the indigenous vegetables in England, but these, in general, appear to be too much neglected by the members of the faculty, who, however eminent in other respects for exalted talents and profound medical skill, seem, on the whole, to evince rather too exclusive a preference to the chemical or chemico-mineral remedies at present in vogue. Amongst those native plants I should venture to propose the Taraxacum, or Dandelion, as a valuable addition to this compound infusion of Sarsaparilla (p.68). This plant, the Taraxacum, is acknowledged to be a useful remedy in certain obstructions and disorders of the liver, by some eminent English physicians; and on the continent, in Germany especially, it is employed with the most decided advantage as an alterative in cutaneous affections, and many very obstinate chronic maladies, as I have been assured by Earl Stanhope, the distinguished President of the Medico-Botanical Society, who, to the more renowned and splendid talents of a statesman as a peer of the realm, unites a love of all the sciences conducive to human happiness; attaching however a more particular interest to the advancement of Medical Botany, on which subject he has manifested the most correct views and soundest intelligence: he is moreover sensibly impressed with a conviction that, in the prevalent affection for mere descriptive botany, its more important and scientific objects have been nearly overlooked and disregarded, viz. the application of its principles to useful purposes in medicine, in the arts, and to domestic comforts and economy.

His Lordship being absent (on the Continent) I have used this reference without permission, persuaded however, that he would not refuse his name to a discussion which involves the public good, and the objects of the Medico-Botanical Society.

APPENDIX.

LIST OF HONORARY FELLOWS, FOREIGN MEMBERS, AND FELLOWS, ELECTED FROM OCTOBER THE 12th, 1827, TO JANUARY THE 16th, 1829.

October the 12*th*, 1827.

Henry, Marquess of Lansdowne, President of the Zoological Society	Honorary Fellow.
His Excellency the Viscount Itabayana, Brazilian Minister in London	Foreign Member.
His Excellency Count Mandelsloh, Würtemberg Minister in London	ditto.
George, Marquess of Donegal, K. P.....	Fellow.
William, Earl of Northesk, G. C. B.	ditto.
James Hartley, Esq.....	ditto.

November the 9*th*.

John William, Earl of Dudley, F. R. S. ..	ditto.
Richard Battley, Esq.	ditto.
William Burnett, M. D.	ditto.
Sir Anthony Carlisle, F. R. S.	ditto.
John Calvert Clarke, Esq.	ditto.
Henry Gore Clough, Esq. F. S. A.	ditto.
Francis Dighton, Esq.	ditto.
Jonathan Pereira, Esq. F. L. S.	ditto.
Captain H. S. Stephens	ditto.
John Soane, Esq. R. A. F. R. S.	ditto.

December the 14*th*.

Marquis de Palmella	Foreign Member.

Philip Henry, Earl Stanhope, F. R. S. .... Fellow.
James Annesley, Esq. ..... ditto.
L. A. de la Chaumette, Esq. F. R. S. ..... ditto.
Samuel Curtis, Esq. F. L. S. ..... ditto.
James Dunlap, M. D. ..... ditto.
William Huttmann, Esq. ..... ditto.
Sir Alexander Johnston, F. R. S. ..... ditto.
M. de Jomard, President of the Geographical Society of Paris ..... ditto.
César Moreau, Esq. F. R. S. Kt. Leg. Hon. ditto.
Michael John Short, M. D. ..... ditto.

January the 11*th*, 1828.

The Chevalier de Biedermann ..... Foreign Member.
Baron de Ralamb, Secretary to the Swedish Legation in London ..... ditto.
Joseph Sigmond, Esq. ..... Fellow.
William John Short, Esq. ..... ditto.

February the 8*th*.

His Excellency Prince Lieven, Russian Ambassador in London ..... Foreign Member.
His Excellency Baron von Bülow, Prussian Minister in London ..... ditto.
Chevalier Da Cunha ..... ditto.
Henry Cope, Jun., Esq. ..... Fellow.
Louis H. Petit, Esq. M. P. M. A. F. R. S. .. ditto.
George Leith Roupell, M. D. ..... ditto.

March the 14*th*.

His Imperial, Royal, and Apostolic Majesty Francis II., Emperor of Austria..... Honorary Fellow.
His Imperial Majesty Don Pedro, Emperor of the Brazils ..... ditto.
George Barclay, M. D. ..... Fellow.
John Whiting, M. D. ..... ditto.

April the 11*th.*

His Excellency Francis Gabriel, Count von Bray, Bavarian Minister in Vienna..... Foreign Member.
Gaspar, Count von Sternberg ..... ditto.
Charles Ehrenbrecht, Baron von Moll..... ditto.
Francis N., Earl of Mount Charles, G.C.H. Fellow.

May the 9*th.*

Edward, Viscount Exmouth, G. C. B. .... ditto.
Rev. Richard W. Jelf, M. A. ..... ditto.

June the 13*th.*

His Excellency William, Baron von Humboldt, Foreign Member.
Right Honourable Robert Peel, M. P. His Majesty's Principal Secretary of State for the Home Department ..... Fellow.
James Woodforde, M. D. ..... ditto.

July the 11*th.*

His Majesty Charles John XIV, King of Sweden and Norway ..... Honorary Fellow.
His Royal Highness Oscar, Prince Royal of Sweden and Norway ..... ditto.
Benjamin Guy Babington, M. B. F. R. S... Fellow.
John Smirnove, Esq. F. R. S. F. L. S. Secretary to the Russian Embassy in London, ditto.

October the 21*st.*

His Excellency Lieutenant-General Count Bjornstjerna, Swedish Minister in London, Foreign Member.
His Excellency Count Ludolf, Neapolitan Minister in London ..... ditto.
Baron de Thenard ..... ditto.
Martinus van Marum, M. D. ..... ditto.

October the 28*th.*

William, Lord Archbishop of Canterbury .. Fellow.

John Singleton, Lord Lyndhurst, Lord High Chancellor of England ..... Fellow.
John, Duke of Bedford, F. S. A. ..... ditto.
Philip, Earl of Hardwicke, K. G. ..... ditto.
Lieutenant-General the Right Honourable Sir George Murray, G. C. B. His Majesty's Principal Secretary of State for the Colonial Department ..... ditto.
Right Honourable Sir Gore Ouseley, Bart. G. C. H. K. S. G. K. L. S. ..... ditto.
Right Honourable W. F. V. Fitzgerald, M. P. F. R. S. President of the Board of Trade, ditto.
Right Honourable Charles Arbuthnot, M. P. Chancellor of the Duchy of Lancaster .. ditto.

November the 11*th.*

His Excellency Count D'Ofalia, Spanish Ambassador at Paris ..... Foreign Member.
Frederick E. Fischer, M. D. St. Petersburg, ditto.
Gotthelf Fischer, M. D. Moscow ..... ditto.
Thomas Drever, M. D. ..... Fellow.
Robert Gibbs, Esq. ..... ditto.

November the 25*th.*

U. J. F. Bach, Esq. ..... ditto.
Sir Frederick F. Baker, Bart. F. R. S. .... ditto.
William Beatty, M. D. F. R. S. ..... ditto.
Titus Berry, Esq. ..... ditto.
Lieut.-Colonel W. Blackburne, M. R. A. S. ditto.
J. M. Brackenbury, Esq. ..... ditto.
Benjamin B. Cabbell, Esq. F. S. A. ..... ditto.
John Capel, Esq. M. P. ..... ditto.
Sir Arthur Brooke Faulkner, M. D. ..... ditto.
Abraham Favenc, Esq. ..... ditto.
Abraham Garnett, Esq. ..... ditto.
George Gibbs, Esq. ..... ditto.

Sir Andrew Halliday, M. D. K. H. ..... Fellow.
Robert William Hay, Esq. M. A. F. R. S. ditto.
Sir George St. M'Kenzie, Bart. F. R. S. .. ditto.
Sir Oswald Moseley, Bart. ..... ditto.
George Parker, Esq. ..... ditto.
John Penn, Esq. L. L. D. ..... ditto.
Colonel John Ready ..... ditto.
Charles Welstead, Esq. ..... ditto.
Henry Winchester, Esq. ..... ditto.

December the 9th.

His Majesty Frederick William, King of Prussia ..... Honorary Fellow.
John Coles Fourdrinier, Esq. ..... Fellow.
Isaac Clarke, Esq..... ditto.
William Church, Esq. ..... ditto.

January the 5th, 1829.

His Excellency the Chevalier de Zea Bermudez, Spanish Minister in London .... Foreign Member.
Count Dönhoff, Secretary to the Prussian Legation in London ..... ditto.

LIST OF DONATIONS, RECEIVED BY THE SOCIETY FROM OCTOBER THE 12th, 1827, TO JANUARY THE 16th, 1829.

BOOKS.

From the Court of Directors of the East India Company:
Dr. Whitelaw Ainslie's Materia Indica, 2 vols. 8vo. handsomely bound.

From W. Townsend Aiton, Esq. F. L. S. *Fellow:*
His second edition of the Hortus Kewensis, 5 vols. 8vo.

From the late Dr. C. P. Thunberg, of Upsal:

Fifty-one Medico-Botanical and other Dissertations, 1 vol. 4to.

From the Royal Asiatic Society of Great Britain and Ireland:

Parts 1, 2, and 3 of the 1st vol. and Part 1 of the 2d vol. of their Transactions, 4to.

From John Whiting, M. D. *Prof. Mat. Med.:*

Culpepper's Physical Directory, 4to. 1650.

Pharmacopeïa Edinensis, 8vo. 1809.

Pharmacopeïa Matritensis, 4to. 1760.

From Sir Anthony Carlisle, F. R. S. *Fellow:*

His Hunterian Oration for 1826, 4to.

From John Frost Esq. *Director:*

His Remarks on the Mustard Tree of the Scriptures, 8vo.

His Account of the expressed Oil of CROTON *Tiglium*, with a coloured engraving, 8vo.

Nicholson's Dictionary of Chemistry, 8vo.

Parkes's Chemical Catechism, 8vo.

From the Société de Geographie of Paris:

The two first volumes of their Transactions, 4to.

Numbers 45 to 67 of their Bulletin, 8vo.

From Sir John Scott Lillie, *Fellow:*

Sir James Edward Smith's Spicilegium Botanicum, fol.

From William John Short, Esq. *Fellow:*

Salmon's New London Dispensatory, 8vo.

W. ten Rhyne's Dissertatio de Arthritide, 8vo.

Salmon's Synopsis Medicinæ, 8vo.

Seguieri Plantæ Veronenses, 2 vols, 8vo.

Sutherland's Attempts to revive Antient Medical Doctrines, 8vo.

Bohn's Dissertatio Chemico-Physica, 12mo.

From the Rev. Stephen Weston, B. D. F. R. S.:

Scheuchzer's Herbarium Diluvianum, fol.

Thunberg's Dissertatio de ERICA, edited by R. A. Salisbury, Esq. 4to.

Leonh. Fuchsii Historia Stirpium, 18mo.

Nylandt's Nederlandsche Herbarius, 12mo.

From Mr. de Païva:

Dictionaire de Botanique and de Pharmacie, 8vo.

From George Barclay, M. D. *Fellow:*

The Rev. Lansdowne Guilding's Description of the Botanic Garden of St. Vincents, 4to.

From Joseph Houlton, Esq. F. L. S. *Associate:*

His Translation of Majendie's Formulary for the Preparation and Employment of several new Medicines, 8vo.

Numbers 1 to 6 of the London Medical and Surgical Journal, 8vo.

From Robert Bree, M. D. F. R. S. *Honorary Fellow:*

His Oratio Harveiana for 1827, 4to.

From Earl Stanhope, *President:*

Remberti Dodonæi Historia Stirpium, fol.

Thornton's Family Herbal, 8vo.

Sir J. Hill's useful Family Herbal, 8vo.

Waller's Translation of Orfila's Toxicology, 2 vols. 8vo. with coloured plates.

Nees von Esenbeck's complete Collection of Officinal Plants, with 438 coloured lithographic plates, fol. 18 numbers.

From Professor Link, of Berlin, *Corresponding Member:*

1st vol. of his Encyclopœdisches Wörterbuch der medizinischen Wissenschaften, 8vo.

From Sir Alexander Johnston, *Vice-President:*

Dissertatio inauguralis de plantis medicinalibus in insula Ceylona sponte nascentibus, auct. Joh. Scott, M. D. 8vo.

From John P. Yosy, Esq. *Secretary:*

Plinii secundi Historia Mundi, fol. 1535.

From Sir John Edward Swinburne, Bart. *Vice-President:*

Jos. Pitton de Tournefort's Elémens de Botanique, 4 vols. 4to. with numerous plates.

The same author's Histoire des Plants de Paris, avec leur usage dans la Medicine, 2 vols. 12mo.

From J. C. Loudon, Esq. F. L. S.:

The 1st number of the Magazine of Natural History, 8vo.

From the Yorkshire Philosophical Society:

Their annual Report for 1827, 8vo.

From the Société de Pharmacie of Paris:

Their Journal, from January, 1828, to January, 1829, 8vo.

From the Right Honourable Sir John Sinclair, Bart. *Fellow:*

His Dissertation on the Culture and Use of the Potatoe, 8vo.

From the Royal Academy of Lyons:

Their Reports, from 1805 to 1827, 8vo.

From George G. Sigmond, M. D. *Professor of Toxicology:*

Second edition of his Medical Dissertations, and several other Medical Dissertations by Graduates at the University of Edinburgh, 8vo.

From William Zollickofer, M. D. *Corresponding Member:*

His Materia Medica of the United States, 8vo. handsomely bound.

From F. W. Hornemann, Professor of Botany at Copenhagen, *Corresponding Member:*

His Nomenclatura Floræ Danicæ, 8vo.

His Tractatus de Fuco *buccinali*, 4to.

From Mr. Chevalier, of Paris, *Corresponding Member:*

Memoir on the Improvements to be made in Lithography, 4to.

A Treatise on the Culture and Uses of Hops, 12mo.

From C. A. Agardh, M. D. Professor of Botany at Lund, *Corresponding Member:*

His Botanical Aphorisms, 8vo.

His Essay on the Classification of Plants, 8vo.

His Description of several new Genera and species of Algæ found in Austria, 8vo.

Novitiæ Suecicæ, by Prof. Elias Fries, 8vo.

From the Editors:

Numbers 1 to 14 of the Flora Medica, 8vo.

From Antonio Bertoloni, M. D. *Corresponding Member:*
Prælectiones Rei Herbariæ, 8vo.

From W. Allmann, M. D. Professor of Botany in Trinity College, Dublin, *Corresponding Member:*
His commencement of Analysis of the Genera of Plants with conspicuous stamens, 4to.

From Frederick Otto, Inspector of the Botanic Garden at Berlin, *Corresponding Member:*
Icones Plantarum selectarum Horti Regii Berolinensis, auct. H. F. Link et Fred. Otto, 10 Parts, 4to.

From Dr. Joseph Cope:
His Translation of a Treatise on Clinical Medicine, by J. R. Bischoff, M. D. 8vo.

From James Woodforde, M. D. *Fellow:*
A Translation of Dodonæi Historia Plantarum, fol.
His Catalogue of indigenous phenogamic Plants, growing in the neighbourhood of Edinburgh, 8vo.

From Mr. Chereau, of Paris, *Corresponding Member:*
Nouvelle Nomenclature pharmaceutique, 8vo.

From His Excellency Count Ludolf, *Foreign Member:*
A Catalogue of the Plants growing in the Royal Botanic Garden of Naples, 8vo. and a Catalogue of the Seeds collected for exchange, fol.

From the Royal Academy of Bordeaux:
Its Proceedings for 1827.

From the Linnæan Society of Bordeaux:
The eleven first numbers of its Bulletin.

From Sir James M'Grigor, M. D. F. R. S. K. T. S.:
Dr. Maton's edition of Pulteney's Life and Writings of Linnæus, 4to.
Alpinus de plantis exoticis, 4to.
Gmelin's Historia Fucorum, 4to.
Acta Societatis Upsaliensis, 4to.
Lavoisier's Treatise on Chemistry, 2 vols. 8vo.
Medikus's Botanical Observations, 2 vols. 8vo.

Flora Frisica, 4to.

Scopoli Fundamenta Botanica, 8vo.

From Henry Dutrochet, M. D. *Corresponding Member:*

New Experiments on Endosmose and Exosmose, 8vo. Paris, 1828.

MSS. AND DRAWINGS.

From the Royal Asiatic Society:

Four Cingalese MSS. on medicinal subjects.

A Collection of Cingalese MSS. translated by direction of Sir Alexander Johnston.

From Henry Thomas Colebrooke, Esq. F. R. S. Dir. Roy. As. Soc. *Honorary Member:*

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Several Specimens of dried Plants.

From the Royal Asiatic Society:

Two Collections of North American and Cingalese Plants.

From Thomas Hughes Ridgway, M. D.:

A Specimen of ACACIA *capensis*.

From W. T. Iliff, Esq. *Fellow:*

A small Collection of dried Plants, principally Ericæ from the Cape of Good Hope.

From George Barclay, M. D. *Fellow:*

A numerous and valuable Collection of Plants, from the Botanic Garden of St. Vincents.

From John Hancock, M. D. *Fellow:*

A Specimen of *Haimarada*.

A numerous Collection of Plants, from British Guiana and the shores of the Oronoko, with many descriptive and medical Observations, made during a residence of 25 years in those regions.

From Benjamin Guy Babington, M. B. F. R. S. *Fellow:*

A Collection of 242 dried Specimens of Plants, collected in 1811 and 1812 in the Mauritius, with a Catalogue.

From Mr. Alexander Campbell, *Associate:*

Two fine Specimens of MUSA *rosacea*, in flower and fruit.

A Specimen of ARISTOLOCHIA *labiosa*.

From His Majesty Lewis, King of Bavaria, *Honorary Fellow:*

A Collection of 596 dried Specimens of Plants indigenous to His dominions and the North of Italy, collected and arranged in 4 vols. according to the natural system of Professor Martius.

From the Court of Directors of the East India Company:

A Collection of 163 Specimens of East Indian medicinal Plants, selected from their Herbarium, and arranged by Dr. Thomas Horsfield.

From Sir James M'Grigor, M. D. F. R. S. *Fellow:*

A Collection of 250 dried Specimens of Plants, collected by him in the Island of Jersey 30 years ago.

From Mrs. Frost:

A numerous Collection of Mosses and other cryptogamic Plants, with some rare phanerogamic Plants.

From James Woodforde, M. D. *Fellow:*

A numerous Collection of indigenous Plants.

From Colonel John Ready, *Fellow:*

A Specimen of GEUM *Canadense.*

From Matthew Curling Friend, Esq. Lieut. R. N. F. R. S. *Fellow:*

A Specimen of TYPHA, and a Plant called *Vanguilla* from Demerara.

From His Imperial and Royal Highness Leopold II., Grand Duke of Tuscany, *Honorary Fellow:*

A Collection of 332 dried officinal Plants, indigenous to his dominions, collected and arranged according to the Linnæan system, and accompanied by a descriptive Catalogue, by Octavian Targioni.

From John Hardy, Jun. Esq.:

Specimens of the Leaves, Flowers, Powder, and Extract of the *Guaco,* with several other medicinal Plants, collected by Don Emigdio Maldonado, President of the Patriotic Society of Sant Jago de Cuba.

The Society has also to acknowledge the kindness of Thomas Gibbs, Esq. *Treasurer,* Willlam Anderson, Esq. and Mr. Alexander Campbell, in furnishing recent Specimens of medicinal Plants for exhibition at the Meetings.

MISCELLANEA.

From the Rev. Mr. Smirnove, Chaplain to the Russian Embassy:

A considerable quantity of the dried Plant and Seed of GENISTA *tinctoria.*

From Edward Huggins, Esq.:

Fifty-six pounds of the Seed of ARGEMONE *mexicana.*

From William Tiffin Iliff, Esq. *Fellow:*

A folio Engraving of NEPENTHES *ampullaria.*

From George Barclay, M. D. *Fellow:*

A Collection of West Indian Seeds.

From Sir James M'Grigor, M. D. F. R. S.:

A Specimen of the Fruit of ADANSONIA *digitata.*

A Collection of Roots from the Cape of Good Hope.

From Richard Morris, Esq. F. L. S. *Fellow:*

A Collection of Seeds from the Island of Ceylon.

From Robert Keate, Esq. *Fellow:*

A Specimen of the Seed of MIKANIA *Guaco.*

From Matthias Robinson, Esq. F. L. S. *Fellow:*

The Fruit and Seed of DIMOCARPUS *Litchi.*

From William Huttmann, Esq. *Fellow:*

A Bottle of the expressed Oil of Poppy Seed.

From Abraham Favenc, Esq. *Fellow:*

A Branch of GLEDITSCHIA *triacanthos.*

From Antonio Bertoloni, *Corresponding Member:*

A small Collection of Hot-house Seeds.

From Sabino Berthelot, *Corresponding Member:*

A Specimen of the Syrup of Mocan.

From Samuel Reed, Esq. *Fellow:*

A Portrait of Sir James M'Grigor.

From John Frost, Esq. *Director:*

A Portrait of Earl Stanhope.

From William Burnett, M. D. *Vice-President:*

A Specimen of the Root of CYPERUS *articulatus,* (Adowro Root,) an infusion of which is occasionally useful in checking irritability of the stomach in the Endemic Fever of the West Indies.

From John P. Yosy, Esq. *Secretary:*

A Portrait of John Frost, Esq.

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APPENDIX.

PART II. *will be published early in November.*