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ON
THE ORGANIC MATERIA MEDICA
OF
THE BRITISH PHARMACOPŒIA.

TWO LECTURES

DELIVERED BEFORE THE PHARMACEUTICAL SOCIETY OF GREAT
BRITAIN, ON FEBRUARY 24TH AND MARCH 23RD, 1864.

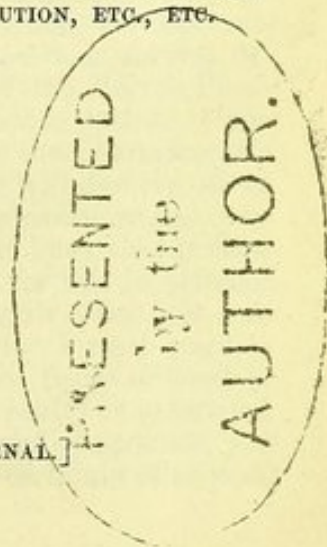
BY

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[Reprinted from the PHARMACEUTICAL JOURNAL.]



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OR

THE ORGANIC MATERIALS

THE BRITISH PHARMACOPOEIA

TWO VOLUMES

EDITED BY THE PHARMACEUTICAL SOCIETY OF GREAT
BRITAIN AND IRELAND

BY

ROBERT H. NIXON, Esq., F.R.S.

AND
J. H. NIXON, Esq., F.R.S.

PHARMACY

PHARMACY



Printed by J. H. NIXON, Esq., F.R.S.

ON THE ORGANIC MATERIA MEDICA OF THE BRITISH PHARMACOPŒIA.

LECTURE I.

The recent publication of a Pharmacopœia which an Act of Parliament declares shall alone be used in the British Islands, cannot but be a source of gratification to all classes in the kingdom, and an event in which Medical Practitioners and Pharmacutists especially must feel the greatest interest. There is no subject, therefore, that is so well adapted at the present time for bringing before the Members, Associates, and Pupils of the Pharmaceutical Society, in a course of lectures, as a general account of the history, construction, nature of the changes, and description of the new remedies of the first British Pharmacopœia. When we consider the great difficulties that the framers of this national work have had to encounter, I feel sure you will all agree with me, that whatever errors it may contain and whatever its shortcomings may be, we should make all reasonable allowance for them, and approach its consideration and critical examination in a philosophic and kindly spirit, and with an anxious desire of finding out its merits rather than its defects. At the same time, it is imperatively necessary that a work of so much importance, one of constant reference and study, and one upon the right interpretation of which will frequently depend the issues of life or death, should be thoroughly and critically examined,—not only for the purpose of preventing any present inconvenience and danger, but also as a guide to the framers of subsequent editions. If we can ever hope to see an approach to a perfect pharmacopœia, it is incumbent upon us, and all branches of the medical profession, to do all we can in our several positions to assist in the consummation of so desirable an end. With an earnest desire to have explained and made easy to you the interpretation of a national work, and with the hope of doing something at least to its future improvement and development, the Council of this Society have requested their Professors, in their several departments, to deliver a series of lectures upon those parts of the British Pharmacopœia which have an especial bearing upon their respective duties. Upon my colleague, Dr. Redwood, to whose province the details of the Pharmacopœia especially belong, the more important portion of the labour will devolve, as he will have to bring before you the part which treats of the preparations and compounds. My duty will be to describe the *Materia Medica*, at least, that portion which refers to Organic Bodies; and although I do not claim for this department so prominent a position as that coming under Dr. Redwood's notice, yet I do claim for it your most careful and earnest consideration, for I need scarcely remind you, that unless you are able to recognise the various drugs ordered to be used in the British Pharmacopœia, and to judge of their purity or otherwise, however perfect your knowledge may be of the preparations and compounds, you will not be in a position to apply such knowledge with any certainty of success.

A thorough acquaintance with the articles of the *materia medica* should be, therefore, your first chief consideration; and it is with the hope of being instrumental in assisting you in its study that I shall in this and a succeeding lecture review, as far as time will allow me, the more important changes which the organic *materia medica* of the present Pharmacopœia has undergone when compared with the last published editions of the Pharmacopœias of the United Kingdom, and also explain briefly the essential characteristics of those substances which may appear to me to require them, more especially those which are for the first time to be found in a British Pharmacopœia, or which are new to the limits formerly comprised by the London Pharmacopœia.

In the preface of the British Pharmacopœia we read that, "the *materia medica* contains, in its simplest pharmaceutic form, every definite medicinal substance, whether obtainable in ordinary trade or prepared by the chemical processes in the second part, which the committee of the Council found, on careful inquiry, to be so far approved in practice as to be entitled to a place in a National Pharmacopœia. Under each article are given:—1. A Latin Pharmaceutic name, by which it may be prescribed; and an English name, for use in describing the processes in the second part; 2. Its definition, together with its chemical symbol if it be a substance of definite composition, its botanical name if it be a plant, or its botanical source if procured from a plant; and also, in most cases, a reference to a correct figure of the plant, and a statement of the quarter whence the article is obtained; 3. The characters by which it may be distinguished from all other articles of the *materia medica*; 4. The tests by which it may be ascertained to be of due strength, and free from known impurities or adulterations; and 5. The preparations of which it is an active ingredient."

It is remarkable that no allusion is here made to the mode pursued in treating of the articles of the *materia medica* which are derived from the animal kingdom. It is just possible that this omission may have been an intentional one, from the small number of animal substances which are ordered to be used in the Pharmacopœia. We think, however, it is desirable for you to know, that animals and animal products are treated of in an analogous manner to plants and vegetable products.

The above extract from the preface will show that the *materia medica* of the British Pharmacopœia forms a very important portion of that volume. Altogether it is comprised in *one hundred and fifty-seven* pages, or in but *seventy-seven* pages less than the part treating of the preparations and compounds. This is, at least, three times the space which has hitherto been devoted to the *materia medica* in any British Pharmacopœia. The object of this more detailed account has evidently been to provide an epitome of the subject, which should comprise everything that was most essential to be known, as well as to form a foundation for future studies. The increased importance given to the *materia medica* in the present Pharmacopœia we regard as a great improvement and material advance over the plan pursued in preceding Pharmacopœias, and one which we feel sure will be duly appreciated.

Although thus cordially welcoming this improvement in the *materia medica*, there is, we think, one great omission which will mar its usefulness, that is, the complete absence of any reference to the doses of the crude drugs and their different preparations. Some account of the doses of the various substances was more especially called for in a work which introduces to our notice many new, and, in some cases, but comparatively little known and powerful drugs, and in which numerous old and familiar preparations have been altered materially in strength. We trust to see this omission rectified in a future issue, so that the Pharmacopœia may contain in itself all that prescribers and dispensers are absolutely required to know. We should also like to see more care taken in

succeeding editions in enumerating the different preparations of each article of the materia medica, for in the present Pharmacopœia there are many important ones omitted. It should be especially noticed, however, that those preparations *only* were intended to be enumerated, in which each article of the materia medica enters as an *active* ingredient.

There is one result which I cannot forbear alluding to, and which will, I fear, to some extent be brought about by this enlargement of the materia medica, and that is, its use by students as a *multum in parvo*, a kind of "*cram*." I sincerely hope that such may not be the case, for if so, it will be a great evil; for important and useful as the short notices of the materia medica are, they can only serve as a foundation for further studies, or, as an abstract of what is essential for future use. He would, indeed, possess but a superficial knowledge who would refuse to proceed further than the Pharmacopœia taught him of materia medica, and, to such a student, a large amount of most important and interesting matter would be entirely unknown.

In the February number of the Pharmaceutical Journal, in an article entitled, "Explanatory and Critical Notes on the British Pharmacopœia," I have given several tables, for the purpose of showing the great changes which the organic materia medica of the British Pharmacopœia presents when compared with that of the last editions of the London, Edinburgh, and Dublin Pharmacopœias. From these tables it appears that no less than *eighty-two* organic substances formerly included in the British Pharmacopœias, and *fifty-two* plants and animals, have been altogether excluded from the present British Pharmacopœia. Of these excluded substances, *sixty-six* were formerly officinal in the Edinburgh Pharmacopœia, *forty-three* in the London, and *thirty-three* in the Dublin; hence, in this respect, the British Pharmacopœia presents fewer changes from the Dublin than from the London and Edinburgh. The great majority of organic substances excluded from the Edinburgh Pharmacopœia is doubtless due to the long period which has elapsed since a new Pharmacopœia was issued by the Edinburgh College of Physicians.

Other tables have been given in the same article, which show that but *twenty-three* new organic substances have been introduced into the materia medica and appendices of the British Pharmacopœia.

Having now given a summary of the changes in the present British Pharmacopœia as compared with the last editions of the London, Edinburgh, and Dublin Pharmacopœias, we proceed to notice the British Pharmacopœia with reference more especially to the last London Pharmacopœia. We commence by calling your attention to the following—

Table of Organic Substances which were officinal in the last London Pharmacopœia, but which are excluded from the British Pharmacopœia.

Absinthium.	Inula.
Acetum (Britannicum).	Juniperus (Fructus).
Aloe hepatica.	Lactuca sativa.
Althæa.	Laurus.
Amygdala amara.	Maranta.
Anisum.	Mentha piperita (Herba).
Avena.	Mentha viridis (Herba).
Canella.	Morphiæ Acetas.
Carota (Radix).	Mucuna.
Chimaphila.	Oleum Fœniculi.
Cornu.	Ovi Vitellus.
Cydonium.	Petroleum.
Cuminum.	Piper longum.
Granatum (Rind of Fruit).	Pix.
Helleborus.	Pulegium.

Pulegii Oleum.
 Pyrethrum.
 Rhamni Succus.
 Ruta.
 Sago.
 Sagapenum.
 Spiritus Vini Gallici.

Staphysagria.
 Terebinthina Chia.
 Terebinthina vulgaris.
 Tormentilla.
 Veratrum.
 Viola.

A list which thus includes *forty-three* organic bodies formerly contained in the London Pharmacopœia, will show that the framers of the British Pharmacopœia have been anything but sparing in their condemnation of remedial substances derived from plants and animals. By referring to the list, I think you will agree with me that, upon the whole, the exclusion of such bodies was a step in the right direction, for articles as *Carotæ Radix*, *Cornu*, *Cydonium*, *Cyminum*, *Inula*, *Laurus*, *Mucuna*, *Spiritus Vini Gallici*, *Staphysagria*, *Terebinthina Chia*, *Viola*, and others, can have no claims to be inserted in a national Pharmacopœia. Some other excluded substances, however, as *Althæa*, *Canella*, *Chimaphila*, *Helleborus*, *Lactuca*, *Maranta*, *Morphiæ Acetas*, *Pyrethrum*, *Sago*, and *Tormentilla*, have, we think, at least equal claims for insertion as *Armoracia*, *Dulcamara*, *Elemi*, *Ficus*, *Mori Succus*, *Prunum*, *Pterocarpus*, *Rhœas*, *Rosa canina*, and *Ulmus*, which are retained in the present British Pharmacopœia. The authors of the Pharmacopœia appear to have had an especial regard for flavouring and colouring agents, in which we are not prepared to say they were altogether wrong, for we all know the influence which the palate and imagination have frequently upon patients.

In other cases, we should have recommended the further use of the pruning-knife; thus, what material advantage has been gained by retaining all the following fruits, possessing as they do nearly identical properties, namely, *Anethum*, *Carui*, *Coriandrum*, and *Fœniculum*; or, in like manner, *Oleum Anethi*, *Oleum Anisi*, *Oleum Carui*, and *Oleum Coriandri*; or, all the following balsamic substances,—*Benzoinum*, *Styrax*, *Balsamum Peruvianum*, and *Balsamum Tolutanum*; or all the following astringents,—*Catechu nigrum*, *Catechu pallidum*, *Kino*, and *Krameria*? What particular virtues *Oleum Coriandri* possesses over some other oils belonging to the same Natural Order as the plant from which it is derived, we are unable to imagine; but as it is an entirely new substance in a British Pharmacopœia, we have no reason to doubt that its claims for such an especial recognition were very strong in the opinion of the Medical Committee of the Pharmacopœia.

If we now turn from the consideration of the excluded organic bodies to those which have been newly introduced, we find that, although there are but *twenty-three* entirely new to the Pharmacopœias of the United Kingdom,* yet, when compared with the last London Pharmacopœia, the number of new bodies is increased to *forty-three*, as may be seen by the following table:—

Table of New Organic Substances in the British Pharmacopœia as compared with the last London Pharmacopœia.

Acidum Aceticum Glaciale.	*Collodium.
*Aconitia.	*Conii Fructus.
*Aconitum (Flowering Tops).	Cotton.
*Arnica.	*Cusso, or Kusso.
*Beberiæ Sulphas.	*Digitalinum.
*Bela, or Bael.	Filix.
Belladonnæ Radix.	*Fel Bovinum.
Cannabis Indica.	*Fel Bovinum Purificatum.
Chirata.	Fousel or Fusel Oil, or Amylic Alcohol.
Cocculus.	Glycerinum.

* These are marked with an asterisk in the Table of New Organic Substances.

Hemidesmus.	*Podophylli Resina.
*Indigo.	*Podophyllum peltatum.
Jalapæ Resina.	*Pyroxylin.
*Kamela.	Sabadilla.
Laurocerasus.	Saccharum Lactis.
Lini Farina.	*Santonica.
Matico.	*Santoninum.
*Nectandra.	*Scammoniae Radix.
Oleum Myristicæ.	*Scammoniae Resina.
—— Cubebæ.	Spiritus Pyroxylicus Rectificatus.
*—— Coriandri.	Terebinthina Canadensis.
*Oxalic Acid.	

The number of new organic substances introduced into the British Pharmacopœia as compared with the last London Pharmacopœia, and the number excluded, may thus be seen to be precisely equal. We feel that some other organic substances in great demand in certain parts of the country might, with advantage, have been also introduced; as *Physostigma venenosum*, (the plant from which the Calabar Bean, now completely established as a most valuable remedial agent, is derived), *Actæa racemosa*, *Prunus Virginiana*, *Veratrum viride*, *Pepsine*, etc.; at all events, these have at least equal claims for insertion as Sulphate of *Beberia*, *Nectandra*, *Arnica*, *Oleum Coriandri*, and *Fel Bovinum*. We should like to see a similar plan adopted by the framers of the British Pharmacopœia as has been for a long period employed with great advantage in the United States Pharmacopœia,—that is, to have a Secondary List of the *Materia Medica*, in which should be inserted substances possessing no very evident medicinal properties, and which do not enter into any of the preparations and compounds; as also those of recent introduction which are upon their trial, but not sufficiently established to warrant their being placed in a prominent position in a national Pharmacopœia. In such a list, articles as *Actæa racemosa*, *Prunus Virginiana*, *Pepsine*, Sulphate of *Beberia*, *Cocculus*, *Cusso*, *Hemidesmus*, *Kamela*, *Chirata*, *Terebinthina Canadensis*, *Veratrum viride*, *Tormentilla*, and very many others might be placed. We feel sure that a list of this kind would be of great advantage, and we hope to see the plan acted upon in the next edition of the British Pharmacopœia.

Having now given a general sketch of the design, object, arrangement, and changes which have taken place in the organic *Materia Medica* of the British Pharmacopœia, as compared with the last published Pharmacopœias of the United Kingdom, together with some suggestions for further alteration and, as we believe, improvement, we proceed to make a few remarks upon those articles of the *Materia Medica* which appear to require them, and more especially of those that are altogether new, or which are new, at least, to an English Pharmacopœia. The first substance we notice is also that which comes first in the alphabetical arrangement of the *Materia Medica*, namely,—

ACACIA.—The test of gum arabic in powder is given as follows in the British Pharmacopœia:—"The powder does not become blue on the addition of solution of iodine." This test, which is introduced for the purpose of detecting the adulteration of powdered gum-arabic with flour or starch, would be useless as ordinarily applied, and as the solution of iodine would be commonly prepared, for then the starch granules, unless previously broken up by heat, would not be affected. The following test would be far better, and should be inserted instead:—A decoction of the powder when cold, or the mucilage made with boiling water when cold, does not become blue on the addition of a solution of iodine.

It is indeed true that *impure dextrin*, and a few commercial starches which have been previously submitted to heat, might, if certain precautions be taken, be detected by the Pharmacopœia test, but as such are scarcely likely to be

employed for adulterating gum arabic in powder, or if so used, might be more readily detected by the test we have given, that test is still seen to be the preferable one.

ACONITI RADIX.—The characters given of this root are:—"From one to three inches long, not thicker than the finger at the crown," etc. It would have been better to have said,—*usually* from one to three inches in length, and *but seldom* thicker than the *middle* finger at the crown; for the root is not unfrequently seen (as the specimens on the table show) four inches or more in length, and of greater thickness than that indicated in the Pharmacopœia. The term "finger" is also indefinite; does it mean middle, ring, index, or little finger?

One of the preparations which is ordered of aconite root, namely, the tincture, is said to be "*half* the strength of Tinctura Aconiti, *Dub.*; and *one-third* the strength of Tinctura Aconiti, *Lond.*" This is an important error, for it is only *one-fourth* the strength of the former, and *about one-third* that of the latter.

ACONITIA.—This alkaloid was formerly officinal in the London Pharmacopœia of 1836, under the name of Aconitina, but was omitted in that issued in 1851. We are glad to see it restored to the Pharmacopœia, as we know from personal experience, and otherwise, that it has been much employed, and is a most valuable external application in neuralgic and rheumatic affections, etc.

ACONITUM.—"The fresh leaves and flowering-tops; gathered, when about one-third of the flowers are expanded, from plants cultivated in Britain," are directed to be used. The employment of flowering-tops is entirely new to British Pharmacopœias, and we doubt the propriety of ordering them. The botanical characters which are given of both the leaves and flowers are not sufficiently precise, and would apply equally to those of other common species of Aconitum. As distinctive characters, therefore, they are valueless.

It should be especially noticed that the leaves and flowering-tops are directed to be gathered when about *one-third of the flowers are expanded*. We are very glad to find that the directions given in the British Pharmacopœia as to the time of gathering the leaves, etc., of Aconite, Belladonna, Conium, Hyoscyamus, and other herbaceous plants are very explicit, as in previous Pharmacopœias no precise information upon that point has been given. The opinion commonly entertained by vegetable physiologists until lately, was—that the best time for taking the herbaceous parts of plants for use in medicine, as a general rule, was just at the commencement of the flowering stage; and the reason adduced for the selection of that period was because the process of flowering, and more especially that of fruiting, required a great supply of nourishment, and hence, as a necessary consequence, a corresponding weakening of the vital activity of the plant was produced.

In a paper read before the Pharmaceutical Society "On Expressed Juices" by Mr. Squire, in August, 1841, and which was published in the first volume of the Pharmaceutical Journal,* he states, "I am persuaded that the juice is in the greatest perfection in the plant when *more than half the flowers are fully blown*." This was, I believe, the first time that public attention was especially called to the subject; and although I do not agree with the statement of Mr. Squire, that a general rule can be laid down which shall be applicable to the time of collecting all medicinal herbaceous plants, yet I do agree that the best time for collecting the herbaceous parts of plants is after the period of flowering has commenced; that period, however, must vary to some extent, in different plants. I think that the authors of the Pharmacopœia have generally mentioned the best period for collecting medicinal herbaceous plants, and this is one of the points connected with the preparation of the Pharmacopœia in which the opinions of practical pharmacutists have been found of especial value.

* Pharm. Journ., vol. i. p. 96.

In a lecture which I delivered in this Institution, "On Plants in a State of Life," more than two years since, and which was afterwards published in the *Pharmaceutical Journal*, I endeavoured to explain why the herbaceous parts of plants should be taken after the flowering stage had commenced, as follows:—"There are two series of compounds formed by the action of light and air in plants, those of one series having for their object the nutrition of the plants in which they are formed, and being directly concerned in their growth and development,—and those of the other series called secretions, playing no active part in the plant after their perfect formation, and being also commonly formed later in the life of the plant. . . . In the process of flowering, the only compounds that are taken up in any amount are those which are concerned in the growth and development of new tissues; no further growth can therefore take place, to any great extent at least, in the vegetative organs of the plant; but the secretions, by the removal of these products, become more concentrated, and the organs in which they are produced, by being left for a longer period in connection with the plant, have time to elaborate them more perfectly."*

ARMORACIA.—*Fresh Horseradish* root is directed to be employed in the only preparation in which it is ordered, namely, the *Spiritus Armoracæ Compositus*. As the root, according to our experience, varies much in its pungent odour and taste at different seasons of the year, being much weaker in the summer months than in the early spring or late autumn, it would have been advisable to have directed the Compound Spirit of Horseradish to be prepared at the latter seasons. Had the *Infusum Armoracæ compositum* of the *London Pharmacopœia* been retained, the root must have necessarily been obtained at the time in which such infusion was ordered; but it is not so with the compound spirit. The fact of horseradish root varying in strength at different seasons of the year is, of itself, a sufficient reason for not retaining the infusion in the *Pharmacopœia*.

ARNICA.—As this article is entirely new to the *Pharmacopœias* of the United Kingdom, although well known and much employed in Prussia and some other parts of Germany, in Italy, and in the States of North America, it will be necessary for me to make a few remarks on its botanical and geographical sources, its characteristics, and reputed medicinal properties. *Arnica root* is directed to be employed in the *British Pharmacopœia*; but on the Continent and in America the *flowers* are preferred, and ordered in all but one of the preparations which are there official. We are ignorant of the reason why the root is ordered in the *British Pharmacopœia*. We should have preferred the flowers, because they would be more likely to be uniform in their properties from being gathered at a definite period; while the root, from being collected at different periods, will necessarily vary considerably in its strength. The plant from which this article of the *Materia Medica* is derived is the *Arnica montana*, Linn., and belongs to the Natural Order *Compositæ*. It is a native of the mountainous districts of Europe, and of certain parts of North America and Asia.

The so-called *Arnica root* is really the rhizome, to which numerous small rootlets are attached. The rhizome is more or less twisted, rough from the scars left by the leaves which it formerly bore, somewhat cylindrical in shape, from one to three inches in length, and two or three lines in thickness. From this numerous small rootlets arise of variable length, generally two or more inches, and about the thickness of a common knitting-needle. Both the rhizome and rootlets have a brownish colour externally. The odour is peculiar, feebly aromatic, and disagreeable; and the taste somewhat peppery, bitterish, and nauseous.

The root has been found to contain *volatile oil, acrid resin, extractive, gum,*

* *Pharm. Journ.*, vol. iii. 2nd ser. p. 475.

and *woody fibre*. The extractive matter of Arnica flowers, which is doubtless similar to that of the root, is said to be identical with *cytisin*, a poisonous principle obtained from the seeds of the common laburnum-tree.* Mr. Bastick has also obtained from Arnica flowers a peculiar alkaloid, which he named *Arnicina*.† The properties of Arnica appear to depend essentially upon the acrid resin, although these are doubtless modified to some extent by the volatile oil and extractive.

Arnica is very highly valued as a remedial agent in certain parts of the Continent. It is regarded as a most useful stimulant in typhoid fevers, and in various debilitated conditions of the system; in paralysis, amaurosis, and other nervous affections, etc. The trials which have been made in this country of its remedial virtues do not in any material degree confirm the extravagant encomiums which have been passed upon it on the Continent. The dose of our official tincture is, from *two fluid drachms* to a *fluid ounce*, every three or four hours.

The tincture of Arnica flowers, and also that of the root, have been much employed as a domestic remedy in this country and elsewhere, as an external application in sprains, bruises, etc. The experiments of Dr. Garrod, however, lead to the conclusion that its efficacy is entirely due to the rectified spirit employed in its preparation, as he found that about the same remedial effects were produced upon certain bruised surfaces by the application of either simple rectified spirit or tincture of arnica. Altogether, so far as present experience leads us in this country, we have reason to believe that the virtues of Arnica, both as an external remedy and for internal administration, have been vastly overrated; and hence we do not regard this substance as by any means a valuable addition to the *Materia Medica* of the British Pharmacopœia.

BEBERIÆ SULPHAS.—NECTANDRA.—These articles are entirely new to a British Pharmacopœia. Nectandra has also been introduced into the recently-issued United States Pharmacopœia. Sulphate of Beberia is the sulphate of the alkaloid *biberine*, or *bebeerine*, obtained from Bebeeru bark, which is imported from British Guiana. The plant from which this bark is derived is the *Nectandra Rodiei* of Schomburgk, and commonly termed the Greenheart tree. It belongs to the Natural Order Lauracæ.

The bark is in large, flat, heavy pieces, from one to two feet long, from two to six inches broad, and about a quarter of an inch thick. It is nearly smooth externally, and of a greyish-brown colour. Internally its colour is dark cinnamon-brown. It has no odour; but its taste is strongly and persistently bitter, combined with great astringency.

As far back as 1834 it was recommended as a substitute for cinchona by Dr. Rodie, who discovered an alkaloid both in it and the fruit. It attracted very little attention however till 1843, when Dr. Douglas Maclagan, of Edinburgh, published a number of observations confirming Dr. Rodie's discoveries, and highly recommending it for its antiperiodic properties. Other medical practitioners subsequently testified to its antiperiodic virtues, and it was thought by some that it would form a valuable substitute for cinchona bark. The more recent experiments of M. Becquerel in France with the sulphate of beberia, as well as those of Drs. Pepper and Dailey in North America, and recently of Dr. Garrod in this country, do not confirm the favourable results first obtained, but show that although occasionally successful, it cannot be relied on as a substitute for sulphate of quinia. With such testimony before us, we do not regard the introduction of sulphate of beberia into the British Pharmacopœia as a valuable one. The dose of the sulphate of beberia is from *one to three grains* as a tonic, and from *five to twenty grains* as a febrifuge.‡

* * Medical Times and Gazette, Nov. 1856, p. 446. † Pharm. Journ., vol. x. p. 389.

‡ Pharm. Journ., vol. iii. p. 177; vol. iv. p. 281; vol. v. p. 228.

BELA, BAEL.—This is an entirely new article in a British Pharmacopœia. The plant which yields it is the *Ægle Marmelos*, DC., belonging to the Natural Order Aurantiaceæ. The officinal part is the half-ripe fruit dried, which is obtained from the East Indies, and chiefly from Malabar and Coromandel. A full account of the plant and its reputed properties was published some years since in the *Pharmaceutical Journal*.* The recently issued United States Pharmacopœia takes no notice of Bael.

The officinal half-ripe fruit is about the size of Mogadore Colocynth fruit, or a small shaddock. It has a hard woody rind, about two lines thick, and of a greyish or reddish-brown colour. The dried pulp has a brownish-orange or orange-red colour, and contains numerous seeds; it has no odour, but a mucilaginous, slightly astringent taste. The fruit is but rarely imported entire, but generally in dried, more or less twisted slices; or in fragments consisting of pieces of the rind and adherent pulp and seeds.

This half-ripe fruit is regarded in India as a most valuable and efficacious remedy in dysentery, and all affections of the bowels accompanied by relaxation, and also in cases of irritation of the mucous membrane of the stomach and bowels. It is also said to relieve diarrhœa and dysentery without producing a subsequent constipation. The active or astringent principle is a kind of tannin. We have no very well recorded cases in this country of dysentery and diarrhœa in which Bael has been proved to be efficacious; and the experience of Dr. Garrod does not tend to show that it is at all preferable to other mild astringents in such diseases; hence, considering the number of astringents besides it in the British Pharmacopœia, we can find no satisfactory reason for its introduction.

BELLADONNA.—We notice this article of the *Materia Medica* because, for the first time in a British Pharmacopœia, the fresh branches together with the leaves are ordered to be used in its officinal preparations. Similar parts are also directed to be employed of *Conium* and *Hyoscyamus*. Although the leaves of the above-mentioned herbaceous plants have been alone previously ordered in British Pharmacopœias, it has been long known by practical men that perfectly efficient and stable extracts, etc., could not be so prepared†; hence we are glad to find that the authors of the present Pharmacopœia have adopted the suggestion of Pharmacutists.

In the lecture "On Plants in a State of Life," already alluded to, which I delivered in this Institution,‡ I made some remarks for the purpose of showing that the young herbaceous parts of plants did not materially vary in their activity from the leaves; and this was, I believe, the first time that their employment was endeavoured to be justified upon physiological principles. Thus, after showing the action of the leaves in the formation of the products and secretions of plants, I proceeded as follows:—"We have shown above, that without leaves or other organs of an analogous nature, no growth to any extent can take place, or any secretions be formed in the plant. Thus the floral leaves, and the green parts of the flower, have a similar effect to the leaves; even the young herbaceous parts, from which the leaves and other organs arise, are also directly concerned in the formation of products and secretions. This assimilating power of the young green herbaceous parts is commonly lost sight of, but in reality the structure of these parts is essentially the same as the leaves, except that their tissues are somewhat more compact and differently arranged; hence in proportion to amount of matter they do not expose so large a surface to the action of air and light as the leaves, and as the process of assimilation only takes place in the cells imme-

* *Pharm. Journ.*, vol. x. p. 165.

† See Papers by Mr. Squire in *Pharm. Journ.*, vol. iii. 2nd ser. pp. 300 and 368.

‡ Lecture "On Plants in a State of Life," by Prof. Bentley, *Pharm. Journ.*, vol. iii. 2nd ser. pp. 475 and 476.

diately below the epidermis, their powers of forming products and secretions are somewhat less intense, but the difference between the parts immediately in contact with the leaves and the leaves themselves must be very slight. Indeed I am by no means certain, but that the young herbaceous parts frequently contain quite as much, or even more active secretions than the leaves themselves; thus, if the latter organs be left on the stem till they have passed their active vital conditions, the active secretions which they normally contain will have passed to a great degree into the young stalks in their passage downwards to the main stem, and hence they would be then probably more active than the leaves, as they would in such a case not only be assimilating organs, but also the receptacle for the products and secretions formed in the surrounding parts. The most convincing proof that I can adduce of the capability of young succulent parts to form products and secretions, is in the case of Cacti, Euphorbias, etc., which have frequently no true leaves or other analogous organs, but the plants are formed of a succulent stem or stems, from which the flowers arise; nevertheless, as is well known, and in the case of some of the Euphorbias especially, the secretions produced are of a very active nature. I might pursue this subject further, but enough has been said to show that, in practice, in making preparations from herbaceous plants, (to which the above remarks are intended especially to apply), we may consider the young vitally active parts in immediate contact with the leaves, as not materially differing in activity from them, and that consequently they may be advantageously as well as economically used with them."

BELLADONNÆ RADIX.—Belladonna root was not mentioned in the last London and Edinburgh Pharmacopœias, but it was formerly officinal in that of the Dublin College. We remark upon it here because we find that the dried root imported from Germany is alone directed to be employed in the British Pharmacopœia. We regard this as a mistake, for, in the first place, we have no sufficient proof of the German root being more active than that of the wild or even cultivated plant of this country; secondly, from the roots of Germany being very liable to adulterations; and thirdly, because they will be there collected without any particular reference to the time of year, and hence will vary much in activity from that circumstance. Had English roots been ordered, there would have been far better opportunities of obtaining them genuine, and, as far as possible, of uniform strength?

BENZOINUM.—This is an old article of the British Pharmacopœias. It is stated in the British Pharmacopœia to be a resinous exudation from the stem, hence one would naturally conclude that it exuded spontaneously; but such is not the case, the resin only flowing out after the bark has been wounded.

BUCCO, BUCHU.—This has also for many years been included in our Pharmacopœias, but its botanical source is now properly given as *Barosma betulina*, *Barosma crenulata*, and *Barosma serratifolia*. It should be noticed, however, that *B. crenulata* is the *B. crenata* of Kunze, and Linn. sp. *B. betulina*, B. and W., is correctly stated in the British Pharmacopœia to be the *Diosma crenata*, Lodd. Cab.

CALUMBA.—This well-known article of the materia medica is stated to be derived from *Cocculus palmatus*, De Cand. The recent investigations of Mr. Miers show that De Candolle's plant is *not* our Calumba plant, which is the *Cocculus palmatus*, Wallich; the *Menispermum Calumba*, Roxb.; and the *Jateorhiza Calumba* of Miers. This is but a recent discovery, and hence the authors of the Pharmacopœia are not answerable for this error.* Amongst the characters of Calumba, it is stated to be *about two inches in diameter*. It is commonly less than this and sometimes more, in fact, it varies in diameter generally, from about an inch to three inches.

* Miers on the Menispermaceæ, Ann. and Mag. Nat. Hist., Feb. 1864.

CAMPORA.—This well-known substance is described “as a concrete volatile oil, obtained from the wood of *Camphora officinarum* by sublimation, and resublimed in bell-shaped masses; imported from China.” The statement in the Pharmacopœia is incorrect, as crude camphor is alone imported, and is afterwards purified by resublimation in this country.

CARDAMOMUM.—The Malabar Cardamom obtained from the *Elettaria Cardamomum* is alone officinal, as in the last London Pharmacopœia. The Pharmacopœia directs for use “the seeds contained in their capsules, which are to be removed when the seeds are employed.” This is not strictly correct, as a capsule is a kind of fruit of which the seeds form a necessary part; hence, in removing the capsules, we should take away the seeds also. No doubt this expression would be understood, and the seeds used as directed, but it would have been better to have said—the seeds contained in their coverings (pericarp), which are to be removed when the seeds are employed.

CATECHU.—Two kinds of catechu are officinal, as in the last London Pharmacopœia; one is called the Black Catechu, and is an extract of the heartwood of *Acacia Catechu*; and the other is termed Pale Catechu, and is an extract of the leaves and young shoots of *Uncaria Gambir*. Both sorts are directed to be employed indifferently in the Infusum, Pulvis Compositus, and Tinctura Catechu; and the pale catechu alone in the Trochisci Catechu. Surely this is a mistake, at least as regards the Infusum and Tinctura Catechu, for such preparations would vary much, and more especially in colour, according to the kind of catechu employed, and would thus frequently lead the patient to the belief of his medicines being wrongly prepared.

CHIRATA, CHIRETTA.—This was formerly officinal in the Edinburgh and Dublin Pharmacopœias, but not in that of the London College. The entire plant (*Ophelia Chirata*, DC.) is officinal in the British Pharmacopœia. It has been long employed in India, both by the native and European practitioners, and is held in great esteem. In its operation, as well as by its botanical affinities, it is nearly allied to Gentian, and is reputed to be useful in the same diseases. As two plants of the same Natural Order are now excluded, namely *Erythraea Centaurium* and *Menyanthes trifoliata*, both of which were officinal in the last Edinburgh Pharmacopœia, and till recently also in the London and Dublin Pharmacopœias, we regard Chirata as a desirable substance to be introduced into the British Pharmacopœia. It has been also introduced into the new United States Pharmacopœia.

COCCULUS, COCCULUS INDICUS.—This is the dried fruit of the *Anamirta Cocculus* of Wight and Arnott, a plant of the Natural Order Menispermaceæ. It is a native of the Malabar coast, and of the Eastern Archipelago. The fruit, now officinal in the British Pharmacopœia, was formerly so in the late Edinburgh Pharmacopœia, and till recently in the Dublin also, but it has never been included in the Materia Medica of the London Pharmacopœia. We regard its introduction into the British Pharmacopœia as a circumstance much to be regretted, for it is a powerful poison, and is possessed of no important remedial properties so far as we can ascertain. The ointment prepared from the seed is simply used for the destruction of vermin, and as a remedy in some cutaneous diseases, but if so employed when the skin is abraded, it may, and has produced most serious consequences. Its introduction into the British Pharmacopœia is still further to be regretted, from the fact of its being employed, and, according to Pereira, extensively so, to give bitterness and intoxicating property to some malt liquors, although its use for such a purpose is forbidden in this country, and attempted to be restrained by heavy penalties. The fruit is described in the Pharmacopœia as *slightly ovate*; it would have been more distinctive to have said *somewhat kidney-shaped*.

COLCHICI SEMEN.—We notice this article of the Materia simply for the

purpose of referring to the characters given in the British Pharmacopœia. Colchicum seeds are there described as "about the size of black mustard-seed, very hard, reddish-brown." This is not the first time that colchicum seeds have been stated to be about the size of black mustard seeds, for they are thus described by one of our most eminent writers on the *Materia Medica*; but such a statement is quite incorrect, for they are always, at least twice, and frequently thrice as large, or even more. In size they more nearly approach white mustard seeds, although not generally quite so large as these; it is probable, however, that the error as to the size of colchicum seeds has thus arisen. The colour of colchicum seeds is also rather yellowish-brown than reddish-brown, and they are often quite brown, or even, in some cases, nearly black. So far as colour and size are concerned, they resemble Grains of Paradise more than black mustard seeds, and Pereira states that he has known colchicum seeds mistaken for Grains of Paradise.

CONII FRUCTUS.—The fruit of the *Conium maculatum* is an entirely new article of a British Pharmacopœia. It is directed to be employed in the preparation of a Tinctura. The ripe fruit, dried, is alone officinal. In a recent lecture delivered at the Royal College of Physicians by Dr. Garrod, he thus speaks of the employment of the parts of *Conium maculatum* in medicine:—Hemlock owes its action to conia; all parts of the plant contain conia; and as it is easily decomposed, the Committee to whom was entrusted the preparation of the British Pharmacopœia had introduced the fruit, because the alkaloid was less liable to undergo decomposition in that part of the plant. The experiments of Dr. Garrod had also led him to believe that much larger doses of the tincture of conium could be borne than was generally believed; for he had found the dose of twenty minims of the London tincture useless, and had given from a drachm to half an ounce three times a day. He had a patient taking one ounce of the tincture made from the leaves, which had been most carefully collected and dried, three times a day. He had afterwards given to the same patient five fluid drachms of the tincture made from the fruit according to the British Pharmacopœia. The tincture made from the fruit was undoubtedly stronger than that prepared from the leaves as formerly. The dose of the Tincture of Hemlock Fruit of the British Pharmacopœia is from *half a drachm* and upwards.

With this notice we conclude our lecture; and although in going through the several articles of the Organic *Materia Medica* we have thought it expedient and desirable to notice some errors and deficiencies, we wish it to be understood that, upon the whole, we regard this portion of the Pharmacopœias as well executed, and a great improvement over the corresponding portion of any previous Pharmacopœia published in the United Kingdom.

LECTURE II.

I commenced the lecture which I had the honour of delivering in this Institution in February, by describing the object and design of the present Course, and then proceeded to show the increased importance given to the *Materia Medica* in the British Pharmacopœia over the corresponding portion of any previous Pharmacopœia published in the United Kingdom, which we regarded as a great advance and improvement. We then gave a general sketch of the changes which the Organic *Materia Medica* of the British Pharmacopœia presented when compared with that of the last editions of the London, Edinburgh, and Dublin Pharmacopœias, and more especially with that of the London, and made some suggestions for its further alteration and improvement; and, lastly, we reviewed in order, those articles of the *Materia Medica* which appeared to require them, dwelling more particularly upon those that were altogether new to a Pharmacopœia hitherto published in this country, or which were at least new to the limits formerly comprised by the London Pharmacopœia. Our lecture to-day will be devoted to the examination, explanation, and description of the remaining articles of the Organic *Materia Medica* in the order in which they are placed in the British Pharmacopœia, or, at least, of those which require such a notice. We commence with—

CONIUM.—"The fresh leaves and branches of wild British plants, gathered when the fruit begins to form; and the leaves dried in the sun, or at a temperature not exceeding 120°, are directed to be employed. It should be noticed that precise directions are here given, as with the other herbaceous plants alluded to in my last lecture, regarding the time of collection and the parts to be used.* The leaves and branches are also most properly ordered to be taken from wild plants.

The leaves are simply described as *tripinnate*; it would have been more precise and distinctive to have said *tripinnate with the leaflets pinnatifid*; or *decompound*, as the lower leaves of the plant are always more divided than the character indicated of them in the British Pharmacopœia.

CUSO, KUSSO, OR KOUSSO.—This is an article which is entirely new to a Pharmacopœia published in the United Kingdom. It has been likewise introduced into the Secondary List of the *Materia Medica* of the recently issued United States Pharmacopœia. The plant which yields it is stated in the British Pharmacopœia to be the *Brayera anthelmintica*, De Cand.; but as it was first described and named by Kunth, it should be *Brayera anthelmintica*, Kunth. It belongs to the natural order Rosaceæ. The flowers only are officinal, and are directed to be obtained from Abyssinia.†

The flowers are described as "small, reddish-brown, on hairy stalks, outer

* Pharm. Journ. vol. v. 2nd ser. pp. 421, 422, 424, and 425.

† For a full account of Koussou, see Pharm. Journ. vol. x. p. 15.

limb of calyx five-parted, the segments ovate, reticulated." The segments are however *not ovate*, as thus stated, but *oblong* or *oblong-lanceolate*, as may be seen by the drawing. They have a fragrant balsamic odour; and their taste is at first but slight, although ultimately somewhat acrid and disagreeable.

The flowers have been found to contain a small quantity of a peculiar *volatile oil*, *bitter acrid resin*, two kinds of *tannin*, and a substance called *kwoseine*, and other matters of no importance. The medicinal properties appear to be essentially due to the bitter acrid resin, and doubtless, to some extent, to the volatile oil and tannin. M. Pavesi, and subsequently M. Vée, have obtained a principle from Koussou which they have termed *koussine*, and which they describe as yellow, bitter, and uncrystallizable. Is this the active principle?

Koussou has been in use as an anthelmintic in Abyssinia for more than two centuries, and it is very highly valued in that country. It was introduced into Europe about the year 1847; and when first tried in England, France, Germany, and Switzerland, great expectations were raised as to its valuable medicinal properties. More recent trials, however, do not tend to confirm the extravagant notions then formed, and hence we regard this remedy as still upon its trial, and one which was well worthy of being placed in a Secondary List of the *Materia Medica*, but scarcely in so prominent a position as it has obtained in the British Pharmacopœia.

The conflicting results which have been experienced from the employment of Koussou are, doubtless, in part due to its varying age when administered, as its properties appear to be sensibly depreciated by keeping. The only officinal preparation is the Infusum, which should be taken in the morning fasting, and the last meal of the previous evening should have been slight. The infusion should not be strained, but the whole stirred up together; and the quantity ordered in the Pharmacopœia (*four fluid ounces*), containing a quarter of an ounce of Koussou, is the ordinary dose for an adult.

DIGITALINUM.—This neutral organic substance, which is said to be the active principle of Digitalis, is another article which has now for the first time obtained a place in the *Materia Medica* and Preparations of a Pharmacopœia published in the United Kingdom. The process ordered in the Pharmacopœia for its preparation is essentially that of M. Henry, which was itself a simplification of the one originally given by M. Homolle, who first succeeded in isolating this principle, which he termed *digitaline*. The characters given in the Pharmacopœia are quite correct as applied to this substance, but, unfortunately, the authors of the Pharmacopœia appear to have overlooked the more recent memoir of MM. Homolle and Quevenne, in which much new and additional information is given respecting the chemical constituents of digitalis.* In this later memoir they have shown that the proper active principle (*digitaline*), which is intensely bitter, is commonly, as obtained by the ordinary or Pharmacopœia process, mixed with at least two other peculiar neutral principles, which they have respectively named *digitalin*, and *digitalose*. As these are tasteless, and almost, if not entirely inert, they have given a process by which the active *digitaline* may be separated from them, and obtained in a pure state. In this pure condition digitaline is not *white*, as described in the Pharmacopœia, but of a *pale yellow* colour, and in other respects its characters and reactions do not altogether accord with those there given.

It should be further noticed that the term *digitalin* is employed in the Pharmacopœia for the active principle of digitalis, while the original discoverers call this—*digitaline*, and use the former name to designate an inert principle. This is also very unfortunate, and may lead to much confusion, more particularly so as, although the authors of the Pharmacopœia have adopted essentially the process originally given for obtaining, as well as the characters of *digitaline*, by alter-

* Bouchardat's 'Archives de Physiologie,' etc., Jan. 1854.

ing the name to *digitalin*, these characters no longer apply to either substance of the discoverers.

The *digitalin* of the British Pharmacopœia is said to be applicable for any purpose to which the leaves of *digitalis* have been hitherto employed, and to possess the advantage of being more uniform in strength, and hence capable of being administered with more precision and with more certainty of a successful result than *digitalis*, or the other preparations therefrom. As it is a very poisonous principle, and from its scarcity and high price very liable to be adulterated, we fear that, so far as our present knowledge extends, it cannot be regarded as a valuable introduction to the British Pharmacopœia. The dose of *digitalin* is from the *one-sixtieth* to about the *one-twentieth of a grain*. The small doses required, and the difficulty of prescribing and adjusting them, are further great impediments to the employment of *digitalin* as a remedial agent.

DIGITALIS.—"The dried leaf; from wild indigenous plants, gathered when about two-thirds of the flowers are expanded," is ordered. Nothing is said, as in the last London Pharmacopœia, about the removal of the leaf-stalks and mid-ribs, nor is any preference given to second year's leaves over those of the first year's growth. In the present state of our knowledge of the relative medicinal activity of the different parts of the leaves, and of those of different ages, we think the directions in the Pharmacopœia sufficiently precise.

Among other characters, the leaves are described as "ovate-lanceolate, and shortly petiolate." We should have characterised them as ovate-lanceolate, oblong, or oblong-lanceolate; and petiolate, shortly petiolate, or sessile.

ELATERIUM.—This is properly described as "a sediment from the expressed juice of the fruit." In the last London Pharmacopœia this sediment was *incorrectly* termed *Extractum Elaterii*, as it is neither an extract nor an inspissated juice in the proper sense in which these terms are employed. In the Preparations and Compounds, *Elaterium* is very properly directed to be prepared from the nearly ripe fruit, and slight pressure only to be employed in expressing the juice.*

ELEMI.—We do not know any sufficient reason why this substance should have been retained in the Pharmacopœia, as it is but little employed, and varies much in its appearance and properties according to its botanical and geographical sources. At present, three kinds of *Elemi* are more especially known in commerce, namely, *Manilla*, *Brazilian*, and *Mexican*. In the Pharmacopœia, *Elemi* is described as "a concrete resinous exudation, chiefly imported from *Manilla*." It is also said that, its "botanical source is undetermined, but probably from *Canarium commune*, Linn." Its characters are then stated, but these are certainly *not* those of *Manilla Elemi*, which is the only kind mentioned, although they would apply very well to the *Brazilian Elemi*; in fact, the characters of *Elemi* in the British Pharmacopœia are identical with those given by Professor Guibourt of *Brazilian Elemi*. If the authors of the Pharmacopœia deemed it desirable to retain *elemi*, it would have been undoubtedly better to have distinctly directed one kind only to be employed; and as the *Manilla* sort is that now generally imported, this should be alone made officinal.

FEL BOVINUM PURIFICATUM.—This is an entirely new article of the Pharmacopœia, and as it is occasionally prescribed, although its medicinal properties are by no means evident, it was perhaps desirable to introduce it. It is one of the substances that should be placed in a Secondary List of the *Materia Medica*. Why *Ox Bile* was admitted and *Pepsine* rejected, we are at a loss to conceive.

FICUS.—Among the characters given of this fruit, it is said to contain "numerous small hard seeds." This is botanically incorrect, as they are not seeds at all, but one-celled, one-seeded fruits, resembling *achænia*. If the term seed-

* Prof. Bentley "On *Elaterium*," *Pharm. Journ.*, vol. i. 2nd ser. p. 323.

like bodies had been employed, we should scarcely have taken exception to the character in this particular case; but as the fruits of Fennel, Coriander, Anise, Conium, etc., are properly so designated, and not termed, as in common language, *seeds*,—it would have been more consistent, and unquestionably more correct, to have adopted a strictly botanical accuracy throughout the *Materia Medica* of the Pharmacopœia.

FILIX.—The rhizome of this common English fern (*Aspidium Filix-mas*, Swartz), improperly called *fern root*, has been used from an early period as an anthelmintic. It was formerly officinal in the Pharmacopœia of the Edinburgh College, but not in that of the London or Dublin Colleges. It has also been officinal for some time in the United States Pharmacopœia. The class of anthelmintics appears to have found special favour with the authors of the Pharmacopœia, for besides the present substance, three others,—namely, Kousso, Kamela, and Santonin, all of which are entirely new, have been introduced. We regard Fern rhizome as the most valuable of them all, and a very useful introduction to the British Pharmacopœia.

The British Pharmacopœia directs “the dried rhizome; collected in summer,” to be employed in the preparation of the Liquid Extract of Fern Root, as it is wrongly termed. The rhizome is described as “tufted, scaly, greenish-brown, etc.,” but *commercial fern root* is never found in this state, but it consists essentially of portions of the thickened bases of the petioles, to which small fragments of the rhizome with attached rootlets, are found adhering. If the Pharmacopœia directions be followed strictly, the thickened bases of the petioles or leaf-stalks, which constitute by far the greater portion, should be rejected; but in practice this would be found absurd, and, moreover, there does not appear to be any sensible difference between them and the rhizome in their medicinal properties. In another issue of the Pharmacopœia it would be advisable to order the thickened bases of the petioles together with the rhizome to be employed.

JALAP.—The officinal part is described in the British Pharmacopœia in accordance with the more general phraseology as a *tuber*, but strictly and *properly* speaking it is *not a tuber*, which is a kind of subterranean stem or branch, but a *tuberous root* or *tubercule*.

KAMELA.—This is an entirely new article of the Pharmacopœia. It has also been introduced into the Secondary List of the recently issued United States Pharmacopœia, and we regard it as one of those substances, the medicinal properties of which not being thoroughly established, is properly so placed.

The plant from which it is derived is the *Rottlera tinctoria*, Roxb., belonging to the natural order Euphorbiaceæ. The officinal part is the powder which adheres to the fruit. It is imported from India. The plant is widely distributed throughout India, and also occurs in China, North-Eastern Australia, South Arabia, and some other parts of the world. A full account of Kamela, and its origin and properties, by Mr. Daniel Hanbury, will be found in the *Pharmaceutical Journal*.*

Kamela is a granular powder of a brick-red colour, with but little smell or taste. It readily ignites when thrown into the air directly over the flame of a candle. It is totally insoluble in cold water, and but very sparingly soluble in boiling water. It is readily soluble in a solution of a caustic alkali, and to a great extent, also, in a solution of an alkaline carbonate, also in alcohol, and in ether.

It was chemically examined some years since by Professor Anderson, of Glasgow,† and more recently by Leube.‡ According to Anderson, Kamela contains

* Pharm. Journ. vol. xvii. p. 405.

† Edinburgh New Philosophical Journal, 1856, p. 296.

‡ Pharm. Journ. 2nd ser. vol. ii. p. 166.

upwards of 78 per cent. of *resinous colouring matters*, in which he includes a yellow crystalline principle with a satiny lustre, which he has described as a new substance under the name of *Rottlerine*. Leube tried in vain to obtain this principle; and in some other respects his analysis does not agree with that of Professor Anderson. Leube has also described two resins, and he regards the resin which is extracted by ether as the active constituent of Kamela.

Kamela has been long employed in India as a dye for silk, and also for a similar purpose in Arabia, under the name of *Wurrus* or *Waras*.* In India, Kamela has long had a reputation amongst the natives as a vermifuge, and when externally applied, it is said to be useful in some cutaneous diseases. It is also used internally in leprosy in Aden, and as an external application in solution, to remove freckles and pustules. It has been introduced into the British Pharmacopœia on account of its supposed anthelmintic properties, and although some medical practitioners of repute have found it serviceable, its remedial virtues cannot be said to be at all established.

The dose is from about 30 *grains* to 150 *grains*, suspended in water; or a tincture may be prepared by macerating for two days, *eight ounces* of Kamela in *twenty fluid ounces* of rectified spirit or ether, the latter to be preferred; and then filtering the solution. The dose of this tincture is from *one to three fluid drachms* in some aromatic water.

KRAMERIA.—Peruvian Rhatany root, derived from *Krameria triandra*, Ruiz and Pavon, is alone officinal as in former Pharmacopœias. As this kind of Rhatany is scarce, and even at some times scarcely to be obtained, and moreover possesses no advantages over Savanilla or New Granada Rhatany, likewise derived from a species of *Krameria*, we can see no satisfactory reason why the latter kind should not have been also made officinal in the British Pharmacopœia.

LAUROCERASUS.—Cherry-Laurel leaves were officinal in the last Edinburgh and Dublin Pharmacopœias, but not in that of the London College. The fresh leaves, from plants cultivated in Britain, are now officinal in the British Pharmacopœia. As the *Aqua Laurocerasi*, the only preparation ordered, is of uncertain strength, being stronger when fresh made or prepared from moderately young leaves; and as its properties depend upon a substance, namely, hydrocyanic acid, for which a definite formula is elsewhere given in the British Pharmacopœia, we regard the introduction of cherry-laurel leaves into the British Pharmacopœia as a mistake.

LINI FARINA.—Linseed meal is a new introduction to the Materia Medica of the British Pharmacopœia as compared with the last London and Dublin Pharmacopœias, but not so as regards the Edinburgh Pharmacopœia. Linseed Poultice was ordered in the last London Pharmacopœia to be prepared with *powdered Linseed*, and hence it contained the oil; but the linseed meal, as now ordered, is described as “the seeds ground and *deprived of their oil* by expression.” Linseed Poultice was ordered in the last Edinburgh Pharmacopœia to be prepared from linseed meal deprived of the oil, and the reason given by Dr. Christison for its being preferred over the meal containing the oil was, “because the latter, when rancid, is apt to irritate the skin.”

In this country and in the United States of America, as a general rule, linseed meal containing the oil has been much preferred for poultices; and for this reason I presume, and also under the impression that olive oil was less liable to become rancid than linseed oil, the authors of the Pharmacopœia have directed Linseed Poultice to be prepared from linseed meal deprived of its own natural oil, but with the addition of *olive oil*. In all the other poultices of the British Pharmacopœia into which linseed meal enters as a constituent, it is used without the oil. Surely this removal of a natural oil, and its replacement by a different one, is a totally unnecessary and useless attempt at refinement.

* Pharm. Journ. vol. xii. pp. 386 and 589.

MATICA, MATICO.—This article of the British Pharmacopœia was introduced originally into the last edition of the Dublin Pharmacopœia, but it was not officinal in the London or Edinburgh Pharmacopœias. It has been likewise introduced into the Primary List of the Materia Medica of the recently-issued United States Pharmacopœia. Matico is the dried leaves of *Artanthe elongata*, Miquel, Natural Order Piperaceæ, and is imported from Peru. I have so recently alluded to this substance in a paper read before this Society, entitled "On a New Kind of Matico,"* that it is unnecessary for me to dwell upon it at present; indeed, my only object in noticing it now is to call your attention to its scarcity,—in fact, a short time since, when my paper was read, it could not be obtained in the British market. Some, however, has been recently imported. This scarcity has chiefly arisen from the great demand for it in North America, in consequence of the war.

MEZEREUM.—Mezereon is now ordered to be obtained from both *Daphne Mezereum*, Linn., the former officinal species, and *Daphne Laureola*, Linn. The experiments of Mr. Squire† show that the latter is inferior in acrimony to the former; but as a portion of the mezereon of commerce is now obtained from it, we presume it was thought desirable to make it officinal. The bark of the root has also been commonly supposed in this country to be stronger than that of the stem, and has hitherto been alone officinal in British Pharmacopœias; but as that is now difficult to procure in sufficient quantity to supply the demand, the authors of the Pharmacopœia have, we think, properly directed the dried bark to be used, without designating the part of the plant from which it is to be taken.

OLEUM AMYGDALÆ.—This oil, which was directed in the last London Pharmacopœia to be expressed either from Sweet or Bitter Almonds, must be, according to the British Pharmacopœia, now expressed from Sweet Almonds alone, as Bitter Almonds are no longer officinal.

OLEUM ANISI.—Oil of Anise is now directed to be distilled from the fruit of *Pimpinella Anisum*, Linn., the Anise, in Europe; and from the fruit of *Illicium anisatum*, Linn., the Star Anise, in China. The oil from the former has hitherto been alone officinal, but that of the latter has long been imported into this country and elsewhere, and, so far as our experience goes, it is a superior oil. We are glad, therefore, to find it has been made officinal in the British Pharmacopœia. The characters of the two oils we find to vary, especially as regards their point of congelation, the latter remaining solid at a much higher temperature than the former; hence the characters given in the British Pharmacopœia will not apply indifferently to the two oils, as we should be there led to expect.

OLEUM CORIANDRI.—This, as we have already noticed in our first lecture,‡ is an entirely new substance in a Pharmacopœia published in the British Islands. It is directed to be used in the preparation of *Syrupus Sennæ*.

OLEUM CROTONIS.—Two kinds of Croton Oil have been known in this country, namely, that which was imported from India, and hence called East Indian Croton Oil, and that which was expressed in this country from the seeds imported from India, and known as English Croton Oil. The latter is now alone officinal, and the following is given as the test:—"Agitated with its own volume of alcohol, and gently heated, it forms a clear solution, from which about three-fourths of the oil separate on cooling." This is a mistake, the framers of the Pharmacopœia having given the test for East Indian Croton Oil instead of that for the English Oil; hence the test is true as regards the former, but is not correct as regards the latter, or officinal oil, which is wholly and readily soluble in alcohol, and the solution thus formed is permanent at ordinary temperatures.

* Pharm. Journ. vol. v. 2nd ser. p. 290.

† Pharm. Journ. vol. i. p. 395.

‡ Pharm. Journ. vol. v. 2nd ser. p. 419.

OLEUM CUBEBAE.—OLEUM MYRISTICÆ.—Both these volatile oils are new as compared with the last London Pharmacopœia, but not as regards the Edinburgh and Dublin Pharmacopœias. Both oils are ordered to be distilled in England.

OPIUM.—We have only one remark to make regarding this very important article of the Materia Medica, and that refers to the characters given of it in the British Pharmacopœia. Thus, among other characters, opium is said to be “enveloped in a poppy leaf, and generally covered with rumex seeds.” It should be, *usually* enveloped in poppy leaves, and generally more or less covered by *rumex* fruits, with, rarely, a few rumex seeds intermixed; for some specimens of the kind of opium ordered in the Pharmacopœia are not enveloped in a poppy leaf, and there can be no question here, as in some other cases, whether the parts of the Rumex mentioned are fruits or seeds. Indeed, the few seeds that are found simply arise from accident, for they only occur in those specimens which have been much handled or subjected to friction, in which case the coverings of the capsules become rubbed off and the contained seeds alone left.

PIPER.—Black Pepper is stated to be derived “chiefly from the West Indies.” This is an error, for no commercial Black Pepper comes from the West Indies; but “chiefly from the *East* Indies.” This is the only kind of pepper which is now officinal; long pepper of the old London and Edinburgh Pharmacopœias being no longer retained.

PODOPHYLLUM.—PODOPHYLLI RESINA.—These are both new additions to a Pharmacopœia published in the United Kingdom, but they have been introduced into the United States Pharmacopœia ever since the year 1820, at which period the first Pharmacopœia of that country was issued. The officinal part in the British Pharmacopœia is called the root, although, in reality, it is the rhizome and rootlets. It is imported from North America.*

Podophyllum peltatum belongs to the Natural Order Ranunculaceæ. It is only found in a wild state, in the States of North America, where it is widely spread, extending from New England to Georgia. The plant may be also commonly seen in the botanic gardens of this and some other countries of Europe.

Podophyllum root or rhizome occurs in pieces of variable length, and from two to four lines thick, averaging about that of a common goose-quill. At intervals, when not too much broken up, it presents large, irregular, more or less flattened tuberosities, from the lower surface of which brownish-coloured rootlets arise, or, when these are detached, their former position is marked by whitish, more or less projecting scars. The pieces are either nearly smooth or much wrinkled longitudinally; of a reddish-blackish- or yellowish-brown colour externally, and internally, whitish or yellowish. They break with a short close fracture; have a sweetish and frequently somewhat narcotic odour; and a nauseous, slightly acrid, bitter, and feebly narcotic taste.

Podophyllum has been frequently analysed, and with somewhat conflicting results. The most important constituents, however, are *two resinous principles*, one of which, according to Lewis, is soluble in alcohol and insoluble in ether, and the other, constituting four-fifths of the whole, is soluble in both alcohol and ether. There is some difference of opinion in North America as to the relative medicinal activity of these two resins, for while Lewis found both to possess purgative properties, the experiments of Mr. Harvey Allen led him to regard the resin which was soluble in both alcohol and ether as alone possessed of any active purgative properties. In the British Pharmacopœia the resin obtained from Podophyllum by means of rectified spirit is officinal; hence, if the presence of two resinous principles be confirmed of different degrees of activity,

* For a full account of *Podophyllum peltatum* see an article by Prof. Bentley, “On New American Remedies,” Pharm. Journ. vol. iii. 2nd ser. p. 457.

our Pharmacopœia preparation will contain them both, as they are both soluble in alcohol. Podophyllum resin is described in the British Pharmacopœia to be "almost entirely soluble in pure ether," but we do not find the officinal resin so soluble as there stated. Besides these resinous principles, the alkaloid *berberine*, together with *saponin*, and another alkaloid, have been recently discovered by Mayer in Podophyllum.*

In America, podophyllum rhizome and its preparations, and more especially that of the resin under the name of *podophyllin*, have long established their reputation as active and certain cathartics. Podophyllin has also been very extensively employed for some years in this country and in other parts of the world, and is now, by almost universal testimony, regarded as a most valuable cathartic and cholagogue. In many cases it is applicable with perfect safety where mercury has been hitherto indicated and alone used. The griping effects which are frequently experienced by its use may be readily prevented by combining it with small doses of extract of henbane. The dose of podophyllum resin of the British Pharmacopœia is from *a quarter to half a grain*, or even, in some cases, *a grain*. There can be no doubt but that Podophyllum is a very valuable addition to our British Pharmacopœia; indeed, we have no hesitation in stating that it is by far the most important new remedial agent introduced into that volume.

QUINLE SULPHAS.—This very valuable remedial agent is now termed *Sulphate of Quinia* instead of *Disulphate of Quina* as in the last London Pharmacopœia. In the *Materia Medica* it is stated to be the sulphate of an alkaloid prepared from Yellow Cinchona Bark, and the bark of *Cinchona lancifolia*, Mutis; hence we should have naturally concluded that the authors of the Pharmacopœia intended it to be prepared from both these barks, but upon referring to the Preparations in another part of the volume, we find only Yellow Cinchona Bark ordered, and as under that name in the *Materia Medica*, only one kind of bark is alluded to, namely, that derived from the *Cinchona Calisaya*, Weddell, we presume that the authors of the Pharmacopœia intended it to be alone employed in the preparation of Sulphate of Quinia. There is some inconsistency here between the *Materia Medica* and the part treating of the Preparations and Compounds.

ROSA CANINA.—"The ripe fruit of indigenous plants, deprived of the hairy seeds (achenes)," is ordered in the British Pharmacopœia. We have to remark here that the term *achenes* is wrongly applied to seeds, as an achenium is a kind of fruit,—that is, a pericarp with an enclosed seed; moreover, the parts here called seeds are really fruits, and hence, if the authors of the Pharmacopœia had said the ripe fruit of indigenous plants, deprived of the hairy carpels (achenes), no exception could have been taken.

ROSA CENTIFOLIA.—ROSA GALLICA.—The fresh petals of the former, fully expanded, from plants cultivated in Britain; and the fresh and dried unexpanded petals of the latter, also, from plants cultivated in Britain, are officinal. Those of the former are properly termed Cabbage-Rose petals, and petals of the hundred-leaved Rose; and those of the latter, Red-Rose petals. We notice these roses because mistakes have often occurred from the *Rosa gallica* being called at Mitcham and elsewhere, where it is cultivated, the Damask Rose, and the petals are frequently ordered and sold under that name; but, properly speaking, the Damask Rose is the *Rosa centifolia*, or, at least, a nearly allied species or variety of that plant. To avoid any confusion, it is to be desired that the names by which the two roses are alluded to in the British Pharmacopœia should be alone employed.

SABADILLA.—Cevadilla is new as a distinct article of the *Materia Medica* to the present British Pharmacopœia as compared with the last published London

* Pharm. Journ. vol. iv. 2nd ser. p. 517.

Pharmacopœia, although it was formerly officinal in the London Pharmacopœia of 1836. It was also officinal in the last Edinburgh Pharmacopœia, but not in that of the Dublin College. The officinal part is the dried fruit; which is said to be imported from Vera Cruz and Mexico. In the former London Pharmacopœia of 1836 the seeds were alone officinal; but as the Cevadilla of commerce always consists of the mixed fruits, pericarps, and seeds, and as the separation of the latter is a tedious process, the authors of the Pharmacopœia have now made the fruit, that is the pericarp with the enclosed seeds, officinal. Cevadilla has been placed in the Pharmacopœia solely for the purpose of being employed in the preparation of Veratria. As Veratria is only found in the seeds, it would be desirable to endeavour to get them alone imported, and they could then be made officinal.

Some differences of opinion have arisen amongst botanists and pharmacologists as to the source of Cevadilla. In the last Edinburgh Pharmacopœia it was referred to *Veratrum Sabadilla*, Retzius, *Helonias officinalis*, Don, and probably other Melanthaceæ; in the recently-issued United States Pharmacopœia it has also been referred to the *Veratrum Sabadilla*, Retz.; while in our present British Pharmacopœia the *Asagraea officinalis*, Lind., is given as its source. Pereira states that he had never met with the fruit and seeds of *Veratrum Sabadilla*, Retz., in England. So far as our experience goes, also, we find Cevadilla tolerably uniform in its characters, which accord with those presented by the fruits and seeds of *Asagraea officinalis*; and hence we regard the latter plant, as stated in the British Pharmacopœia, to be the one from which it is derived.

SAMBUCUS.—Fresh Elder-flowers, obtained from indigenous plants, are alone officinal. The characters given of them in the British Pharmacopœia are:—"Flowers small, white, fragrant, crowded in large cymes." In commerce the flowers are never seen in cymes as stated in the Pharmacopœia, but separated from the stalks, and hence the cymose character would then be valueless. The other characters which are given are also entirely useless by themselves as distinctive peculiarities of Elder-flowers, as they might with equal propriety be applied to numerous other common flowers.

It was evidently the intention of the authors of the Pharmacopœia that Elder-flowers should be supplied before being separated from their stalks, and hence they ought now to be obtained in cymes as gathered from the plant, and then the characters given in the Pharmacopœia would apply. The only officinal preparation now ordered is the Aqua Sambuci, the Unguentum having been rejected.

SANTONICA.—**SANTONINUM.**—Both these articles are new as compared with the last published editions of the Pharmacopœias of London, Edinburgh, and Dublin, but Santonica was formerly officinal in the Dublin Pharmacopœia, but was discarded in that issued in 1850. Santonica has also been introduced into the Primary List of the Materia Medica, and Santonin among the Preparations of the recently-issued United States Pharmacopœia. In the British Pharmacopœia Santonica is described as the unexpanded *flower-heads* of an undetermined species of *Artemisia*, Linn.; and is stated to be imported from Russia. The test given is as follows:—"Flower-heads not round or hairy." In commerce they are commonly designated as seeds; but they are correctly stated in the British Pharmacopœia to be the unexpanded flower-heads. With these flower-heads we commonly find in commercial santonica a variable proportion of stalks intermixed.

Santonica has been known under several names, as *Wormseed*, *Semen Santonici*, *Semen contra*, *Semen cynæ*, etc. Three sorts have been described by pharmacologists, under the respective names of Levant Wormseed, Barbary Wormseed, and Indian or East Indian Wormseed. The two latter much resemble each other, except in colour, and may be readily distinguished from the former

by being covered with a whitish down. The former, or Levant Wormseed, is that most frequently met with in England, and is moreover the best kind. It is this sort only which is officinal. It is said to be the produce of Bucharía, Persia, etc.; it comes to England by way of Russia. It is this kind also which has been made officinal in the United States Pharmacopœia. Its botanical source, as stated in the British Pharmacopœia, is undetermined, but it is supposed by some writers to be principally derived from *Artemisia Contra*, Linn.

Santonica flowers have been several times analysed, and with somewhat different results. Their most important constituents are, undoubtedly, a *volatile oil* and a *crystalline neutral principle*, termed *santonin*. The latter is now commonly regarded as the active principle, and has been made officinal in the British and United States Pharmacopœias; but some of the medicinal activity of Santonica is doubtless due to the volatile oil, and hence Santonin will not altogether in every case supply the place of Santonica. Although Santonin is neutral in its action upon test-papers, it forms crystallizable and soluble salts with the alkalies.

Santonica has been long employed in Europe as an anthelmintic, and also, to some extent, for a similar purpose, in North America. The dose of Santonica is from *twenty to sixty grains*, which should be repeated morning and evening for about three days, and then followed by some active cathartic. The active principle, *Santonin*, being nearly tasteless, is commonly preferred to the flowers, which are moreover too bulky for general administration; its dose for a child is *about half a grain* twice a day, and for an adult from *two to five grains*. It is best administered dissolved in castor oil. Santonin should be given with care, as otherwise it might produce very injurious effects. The anthelmintic properties of both Santonica and Santonin have been so commonly testified to by practitioners of repute in various parts of the world that we can but regard them as useful introductions to the British Pharmacopœia.

SCAMMONIÆ RADIX.—This is an entirely new substance in a Pharmacopœia published in the United Kingdom. It is introduced solely for use in the preparation of Resina Scammonia. In the British Pharmacopœia "the dried root; *from Syria*," is ordered. It would have been more correct to have said *from Asia Minor and Syria*, for although the Scammony plant may be found in Syria, its principal habitat, as well as commercial source, is Asia Minor. At the present time there is some difficulty in obtaining a regular supply of Scammony root, and nearly, if not the whole of it in this country is, we believe, in the hands of one or two importers. This irregularity in the supply will however, we trust, be but temporary, although we anticipate that there will be, for some time at least, a difficulty in obtaining a regular supply of roots. The roots will also be found to vary much in the amount of resin they yield according to their period of collection. This fact, combined with the probable difficulty of obtaining regular supplies, are to some extent drawbacks to the introduction of Scammony root into the Pharmacopœia, although, on the whole, we regard its admission as a useful one.

SCAMMONIÆ RESINA.—This is an entirely new article, so far as its preparation from Scammony root is concerned, in a British Pharmacopœia; but the resin obtained from ordinary Scammony of commerce was officinal in the last Edinburgh Pharmacopœia. In the present British Pharmacopœia it is stated to be "a resin, obtained by means of rectified spirit from Scammony root or Scammony." Hence this direction would leave it optional with those who prepare the resin to use the root or ordinary Scammony of commerce. Among the characters given of the resin, it is also stated to be of a sweet fragrant odour if prepared from the root; and moreover, under the head of Scammony in the Materia Medica, one of the preparations mentioned is the Resina. We should naturally conclude, therefore, that either substance might be indifferently used for the purpose; but upon turning to Scammonia Resina in the Preparations

and Compounds, (which by some mistake is translated Resin of Jalap,) we find a formula for its preparation, in which no notice is taken of commercial Scammony, but *Scammony root is alone ordered* to be employed. With such conflicting directions, we are necessarily unable to say whether Scammony root, or commercial Scammony, or both are intended to be used indifferently. It is quite clear, however, from the introduction of Scammony root into the Pharmacopœia, solely for the purpose of preparing the resin, that the authors of that work evidently intended it to be one of the articles employed. It would have been perhaps better to have directed the root only to be used, as the characters of the resin obtained indifferently from it and commercial Scammony will vary much in their characters. There is one advantage, however, of retaining commercial Scammony as one of the sources of the resin, for now, in case of a deficiency of the root, we can fall back upon it.

Scammony resin prepared directly from the root was introduced to the notice of the medical profession about five years since, in consequence of the great and systematic adulteration to which commercial Scammony was subjected,* and the matter was brought before this Society by Dr. Garrod. From the experiments of Drs. Garrod, Frederick J. Farre, George Johnson, and others, it appears that this resin is quite equal as a remedy to the best virgin Scammony of commerce, and that it possesses the most important advantages of "being perfectly uniform in its physical characters, composition, and therapeutic action." We are informed also, on the best authority, that Scammony resin prepared from the root, may be sold at three-fourths the price of the best virgin Scammony. With such testimony, however much we might be inclined otherwise to doubt the equal efficiency of a direct exudation derived by incision from a living root and a product obtained in the laboratory, we cannot but regard it as a useful introduction to the British Pharmacopœia.

SCAMMONIUM.—This, the old Scammony of our Pharmacopœias, is stated to be "a gum-resin, obtained by incision from the living root in Syria." This is not altogether correct, for but very little Scammony comes to us by way of, or is obtained in, Syria; and even the little which we do thus obtain is of very inferior quality. All our best Scammony is obtained in Asia Minor, and principally in the northern and north-western parts, and hence in those most remote from Syria.

Among the preparations of Scammony, and Resin of Scammony, under these respective heads in the Materia Medica, we find that either substance may be indifferently used for the Confectio, Extractum Colocynthis Compositum, and Mistura; but under the head of Mistura in the Preparations we see that Scammony Resin is alone ordered. We must leave the authors of the Pharmacopœia to explain this inconsistency.

SENNA ALEXANDRINA.—SENNA INDICA.—It should be noticed that Alexandrian Senna and the kind called Tinnivelly are alone officinal in the British Pharmacopœia, and are directed to be used indifferently in the preparations of that drug. The old sort of East Indian Senna should be, therefore, no longer employed. Alexandrian Senna is stated to be derived from *Cassia lanceolata*, Lamarck; and *Cassia obovata*, Colladon. Tinnivelly Senna is referred to *Cassia elongata*, Lemaire.

TARAXACUM.—"The fresh roots; gathered between September and February," are ordered, and in the list of preparations directed to be made therefrom, as enumerated in the Materia Medica, we find the Decoctum, Extractum, and Succus. Upon turning to these separate preparations, we observe that somewhat different directions are then given; thus, for the Succus, dandelion root is simply ordered; for the Extractum, *fresh* dandelion root; and for the Decoctum,

* Pharm. Journ. vol. xviii. pp. 446 and 546.

dried dandelion root. We are again at a loss to understand these discrepancies between the *Materia Medica* and the *Preparations and Compounds*. In another issue of the *British Pharmacopœia* it will not only be desirable to order *dried roots* as well as *fresh* in the *Materia Medica*, but absolutely necessary if the *Decoctum* is to be retained; for otherwise this preparation can only be prepared according to the *Pharmacopœia* directions at certain seasons, which would be absurd.*

The best time for collecting Dandelion roots for use in medicine has been repeatedly alluded to in papers published in the *Pharmaceutical Journal*, and the opinion which I have frequently publicly stated, remains unchanged; namely, that the roots are most active at the end of February or beginning of March.† According to the directions given in the *British Pharmacopœia*, Dandelion roots may be collected any time between September and February. It is clearly a mistake, however, to order them to be obtained in the winter months, as frost has a manifest effect upon their activity. Next to the time I have indicated, I believe the best period to be from the middle of October to the middle or end of November.

TRAGACANTHA.—Tragacanth is said to be a gummy exudation from the stem of *Astragalus verus*, Olivier; and possibly other species. On the table is a specimen of *Astragalus gummifer*, brought from Syria by Mr. Daniel Hanbury, and now in the Museum of the Pharmaceutical Society, on which gum tragacanth may be seen concreted on the surface of the stem. The tragacanth of this plant does not, however, appear to be found in commerce; although there can be but little doubt that commercial Tragacanth is derived from more than one species of *Astragalus*; but what those species are is, at present, doubtful. Tragacanth is stated in the *British Pharmacopœia* to be a gummy exudation from the stem; but the best flaky Tragacanth is not a spontaneous exudation, as would be inferred from the *Pharmacopœia*, but the gum which flows from the stem after incision, as any one may convince himself by examining the fine specimen of flaky Tragacanth *in situ* which is upon the table.‡

ULMUS.—"The dried *inner bark*, deprived of its outer layers; from trees indigenous to, and cultivated in Britain," is ordered in the *Pharmacopœia*. We presume that the *bark* deprived of its outer layers is intended, and that the whole of the inner bark should be used.

Only one preparation of Elm Bark is mentioned in the *Materia Medica*, namely, the *Decoctum*; but no such preparation, or any other, so far as we can ascertain, is to be found among the *Preparations and Compounds*. Hence, here we have a substance placed in the *Materia Medica* solely on account of its preparation, which preparation is afterwards omitted. This is another of the many illustrations which the *British Pharmacopœia* presents of the discrepancies which exist between the *Materia Medica* and the part treating of the *Preparations and Compounds*.

We have now finished our critical and explanatory notices of the articles of the *Organic Materia Medica* of the *British Pharmacopœia*, and we trust that throughout our lectures we have kept prominently in view the remarks we made at their commencement, which were as follows:—When we consider the great difficulties that the framers of this national work have had to encounter, I feel sure that you will all agree with me, that whatever errors it may contain and whatever its shortcomings may be, we should make all reasonable allowances for them, and approach its consideration and critical examination in a philosophic and friendly

* Prof. Bentley, "On the Characters of Dandelion Root," *Pharm. Journ.* vol. xvi. p. 304.

† *Pharm. Journ.* vol. xiv. p. 260, and vol. i. 2nd ser. p. 402.

‡ *Journ. de Pharm. et de Chimie*, Feb. 1856, p. 117, and Feb. 1857, p. 149; *Pharm. Journ.* vol. xv. p. 18.

spirit, and with an anxious desire of finding out its merits rather than its defects. At the same time, it is imperatively necessary that a work of so much importance, one of constant reference and study, and one upon the right interpretation of which will frequently depend the issues of life or death, should be thoroughly and critically examined,—not only for the purpose of preventing any present inconvenience and danger, but also as a guide to the framers of subsequent editions.

In the spirit thus alluded to, and with the object of doing something to the future improvement and development of the British Pharmacopœia, we have endeavoured to discharge the duty required of us by the Council of the Pharmaceutical Society; and in taking our leave of the Organic Materia Medica, we can only repeat what we stated at the conclusion of our last lecture, that although it is certainly not a perfect work, upon the whole it has been well done, and is a great improvement upon the corresponding portion of any previous Pharmacopœia published in the United Kingdom.
