

The museum report : a descriptive list of the donations for the years 1895-1902.

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MUSEUM REPORT

1895-1902



Being a List of
the Donations
to the Museum
and Herbarium

WITH DESCRIPTIVE NOTES OF THE MORE IMPORTANT CONTRIBUTIONS



THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN
17, BLOOMSBURY SQUARE,
LONDON.

1903.

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MUSEUM REPORT,

1895-1902.



Pharmaceutical Society of Great Britain.

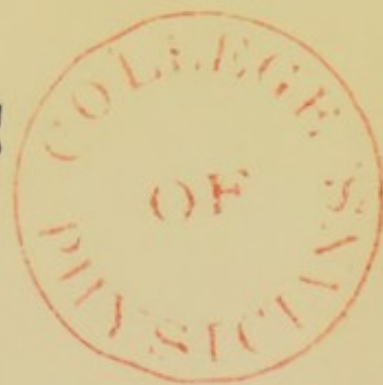
THE MUSEUM REPORT:

A DESCRIPTIVE LIST OF THE DONATIONS
FOR THE YEARS 1895-1902.

COMPILED BY

E. M. HOLMES, F.L.S.,

Curator of the Museums.



London:

PRINTED FOR THE PHARMACEUTICAL SOCIETY
OF GREAT BRITAIN.

1903.

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PREFACE.

SINCE the publication of the Museum Report in 1895, a number of donations to the Museum and Herbarium have been received, and have been duly acknowledged and recorded in the Journal of the Society. A number of drugs have been brought into notice for use in medicine, and many specimens in the Museum of unknown botanical origin have been examined by workers in this country or on the Continent. The information thus obtained in some cases has proved to be of scientific rather than of immediate practical value, and has not been deemed suitable for publication in the Journal of the Society. It has been thought desirable, therefore, to give in separate form a summary of the work done in connection with the Museum, together with brief notes on such drugs, introduced since 1895, as have been presented to the Museum, and a list of additions to the Herbarium, with notes on their uses. These have been arranged in alphabetical order for the sake of convenience, and references have been given to the various English and foreign journals in which fuller details have been published. In the absence of a general Index to the Journal of the Society, it is hoped that this arrangement may prove useful. It has not been thought necessary to give the full titles of the works quoted, since these can be found in the catalogue of the Library of the Society. For the botanical names and the authorities for the names, the *Index Kewensis* has been followed, with very few exceptions, the reasons for which have already been published.

In the terminology a little deviation from custom has been made with the view of rendering the meaning of the names more easily understood by students. Thus, the natural orders have been in all cases distinguished by the termination *acea*, some of the names formerly given by Lindley having been revived for the purpose—*e.g.*, *Asteracea* for *Compositæ*, etc., and where specific names are adjectival, but derived from proper names, the initial letters have been printed with a capital. Vernacular names have been distinguished by inverted commas.

The alphabetical arrangement has been followed with the view of rendering reference more easy than it would have been if the plants or plant products had been placed under their natural orders.

The Curator desires to take this opportunity of gratefully acknowledging the help that has been given by several of the Corresponding Members of the Society, and other gentlemen, in adding to the collec-

tions in the Museum, in furnishing information, in making histological examinations of drugs, in endeavouring to clear up the botanical sources of those of unknown origin, and in supplying Herbarium specimens of the plants used as native remedies in various countries. He would, however, direct the attention of correspondents abroad to the fact that there are still many points that need clearing up with regard to even well-known drugs, of which may be mentioned the botanical source of Natal aloes, of Siam benzoin, of the different varieties of galbanum and asafoetida, of Arabian myrrh, and of many of the drugs in use in China and in Africa. It may be here pointed out, that, for purposes of identification, flower and fruit are necessary as well as leaves attached to a portion of stem, as it is impossible to name a plant from detached leaves alone; further, that Herbarium specimens should be brushed over with a 4 per cent. solution of corrosive sublimate in methylated spirit, to prevent their destruction by insects; and, lastly, that drugs should be thoroughly dried before packing.

Poisonous plants and those used for skin diseases by natives are more especially worthy of notice, since they are more likely to possess medicinal value than many of the ordinary native remedies, which are simply purgatives, emetics, bitter tonics, or diaphoretics, possessing no advantage over those already in use in civilised countries.

The Honorary and Corresponding Members to whom the Museum is especially indebted for help are:—

Mr. R. T. BAKER, F.L.S., Curator of the Technological Museum, Sydney. For Herbarium specimens of Australian eucalypti.

Dr. J. T. CASH, F.R.S., Regius Professor of Materia Medica and Therapeutics, Aberdeen University. For testing the physiological properties of drugs.

Dr. D. KERR CROSS, F.R.G.S., Blantyre, B. C. Africa. For native African remedies, with Herbarium specimens, and notes concerning the uses of the remedies.

Sir W. THISELTON DYER, K.C.M.G., C.I.E., F.R.S., M.A., B.Sc., Director, Royal Gardens, Kew. For specimens of drugs and plants.

Mr. W. FAWCETT, B.Sc., F.L.S., Director of Public Gardens and Plantations, Jamaica. For specimens of drugs.

Mr. W. G. FREEMAN, B.Sc., F.L.S., Barbados. For specimens of plants and drugs.

Dr. M. GRESHOFF, Ph.D., Director of the Kolonial Museum, Haarlem. For specimens of drugs and plants, and information concerning them.

Sir THOMAS HANBURY, K.C.V.O., F.L.S. For Herbarium specimens.

Mr. J. H. HART, F.L.S., Superintendent, Royal Botanical Gardens, Trinidad. For specimens and information concerning plants.

Dr. E. HECKEL, Institut Colonial, Marseilles. For specimens of drugs and plants, and information concerning them.

Dr. AUGUSTINE HENRY, M.A., L.R.C.P., F.L.S. For Chinese plants and drugs, and information concerning them.

Mr. J. H. MAIDEN, F.C.S., F.L.S., Director, Botanic Gardens, Sydney. For Herbarium specimens of eucalypti and mimosæ, and Australian barks.

Surgeon-Major D. PRAIN, M.B., F.R.S.E., Botanic Survey of India. For specimens of plants and drugs, and original information concerning them.

Dr. L. RADLKOEFER, M.D., Ph.D., Professor of Botany, University, Munich. For histological examination of various drugs.

Mr. H. N. RIDLEY, M.A., F.L.S., Director of Gardens and Forests, Singapore. For a large series of Herbarium specimens of Malay drugs, with notes on their uses.

Dr. H. H. RUSBY, Professor of Botany and Materia Medica, College of Pharmacy of the City of New York. For Herbarium specimens of American medicinal plants.

Dr. G. SCHWEINFURTH, Berlin. For specimens of drugs, from Egypt, the Soudan, and Abyssinia.

Dr. R. STOCKMAN, M.D., F.R.S.E., F.R.C.P.E., Professor of Materia Medica in the University of Glasgow. For testing the physiological properties of new drugs.

Dr. A. TSCHIRCH, Ph.D., Professor of Pharmacognosy and Practical Chemistry in the University of Berne. For specimens of rare active principles of drugs.

Sir GEO. WATT, M.B., C.I.E., F.L.S., Reporter on Economic Products to the Indian Government. For Herbarium specimens and Indian Drugs.

Mr. J. MEDLEY WOOD, A.L.S., Curator, Natal Botanic Gardens. For specimens of native Natal remedies, and his work on Natal plants.

Mr. L. WRAY, I.S.O., F.L.S., Curator of the Museum, Perak, Straits Settlements. Specimens of Malay drugs, with Herbarium specimens.





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ADDITIONS TO THE HERBARIUM.

Aberia Caffra, *Harc. and Sond.* (*Bixaceæ*.)

a. Fl. fr. Cultivated, Singapore. H. M. Morgan.

Note.—This tree is the Kei apple of S. Africa.

Acacia albida, *Del.* (*Fabaceæ*)*

a. L. ft., B. C. Africa. Dr. D. Kerr Cross.

Note.—The bark affords a gum.

A. Cavenia, *Hook. and Arn.* (*Fabaceæ*.)

a. L. fl. ft. Cultivated, La Mortola. Sir T. Hanbury.

Note.—It yields a gum like gum arabic, and has fragrant flowers.

A. decurrens, *Willd.*, var. **mollis**. (*Fabaceæ*.)

a. L. fl. ft., N. S. Wales. J. H. Maiden.

Var. **normalis**, *Benth.*, "Sydney Black Wattle."

b. L. fl. ft., N. S. Wales. J. H. Maiden.

Var. **pauciglandulosa**, *Maiden*.

c. L. fl. ft., N. S. Wales. J. H. Maiden.

A. Senegal, *W.* "Hashab."

a. L. ft. seed, U. Khordofan. Dr. G. Schweinfurth.

A. Seyal, *Del.*, var. **multijuga**, *Schurf.*

a. Fl. ft., Fashoda. Dr. G. Schweinfurth.

Note.—It furnishes the best gum arabic.

Acalypha villicaulis, *Hochst.* (*Euphorbiaceæ*.)

a. Fl., B. C. Africa. Dr. Kerr Cross.

Note.—"The herb is ground with that of *Heteromorpha arborescens*, Cham. and Schlecht., and a little water, and tied into a little 'chitt' and put in the ear for sore ears."

*In this catalogue Lindley's names for the following natural orders have been adopted for the sake of a uniform terminology, viz.:—*Brassicaceæ* for *Cruciferae*, *Fabaceæ* for *Leguminosæ*, *Apiaceæ* for *Umbelliferae*, *Asteraceæ* for *Compositæ*, *Lamiaceæ* for *Labiatae*, and *Pinaceæ* for *Coniferae*.

Acanthus ebracteatus, Vahl. (*Acanthaceae*.)

a. Fl., Singapore. H. N. Ridley.

A. ilicifolius, Linn.

a. Fl. and detached ft., Singapore. H. N. Ridley.

Note.—The seeds are ground and boiled and the decoction taken for boils.

Acer saccharinum, Wangenh. (*Sapindaceae*.) "Sugar Maple."

a. L. fl., New Jersey. Dr. H. H. Rusby.

Acokanthera Schimperi, Hook. and Benth. (*Apocynaceae*.)

a. L. fl. ft., Erythræa. Dr. G. Schweinfurth.

Note.—This plant yields the "Wabei" or "Ouabaio" arrow poison; also that used by the Wa-Nyika, Wa-Kamba, the Wa-Gyriama and other tribes. Specimen of the leaves and stem are in the D. Hanbury Collection of Materia Medica. See *Pharm. Journ.* [1], XII., p. 269; [3], XXIII., p. 965. For the active principle, ouabain, see *Pharm. Journ.* [3], XIX., p. 162, and [4], I., p. 76. For figure of the plant, see *Koehler, Med. Pflanz.*, III., 64; and for the physiological action, Fraser, in *Archiv. Internat. de Pharmacodynamie*, V., fasc. 5 and 6. The name ouabain has also been applied by Arnaud to the poisonous principle obtained from *Strophanthus gratus*, which he believes to be identical with that of *Acokanthera Schimperi*.

Aconitum Balfourii, Stapf. (*Ranunculaceae*.) "Pakto Bikh."

a. Fl. st. and rt.

Note.—This is the *Aconitum ferox*, Nepal, No. 22, "Pakto Bikh," received from Dr. G. Watt. The root has a circle of small isolated vascular bundles, and is only $\frac{1}{2}$ inch in diameter.

b. Rt.

Note.—This is the *A. ferox*, Wall., var. *atrox*, P. Bruhl, of Dr. G. Watt. Garwhal, No. 10471. The root structure is not clearly discernible, but it appears to resemble that of *A. Balfourii*.

Aconitum chasmanthum, Stapf. "Mohri."

a. Fl. st., ft. and detached roots.

Note.—This was received from Dr. G. Watt as *A. ferox*, Wall., var. *laciniatum*, Punjab, No. 10239, 2; second consignment. It appears to be also the plant described in the *Agricultural Ledger*, 1902, No. 3, p. 101, under the name of *A. hians*, Reichb. See also under *Aconitum ferox*, p. 37. The root is small and rough, with projecting broken rootlets.

Aconitum deinorhizum, Stapf. "Mohra."

a. Fl. st., detached inflorescence, and detached root.

Note.—This plant was received from Dr. G. Watt, labelled *Aconitum ferox*, Wall., var. *atrox* (sp. Wall.), Bashahr, No. 13999; second consignment. It has a large root, paler externally than that of *A. spicatum* and *A. laciniatum*, with large isolated vascular bundles of horse-shoe shape.

Aconitum Falconeri, Stapf. "Kala Bikh."

a. Fl. st., with imperfect flowers and detached root.

Note.—This was received from Dr. G. Watt under the name of Kala Bikh, No. 19, Nepal. The root is long and slender, about $\frac{1}{4}$ inch in diameter, and has a continuous ring of vascular bundles.

Aconitum laciniatum, Stapf. "Kalo Bikhoma."

a. Fl., with root and detached raceme of fruit.

Note.—This was received from Dr. G. Watt under the name of *A. ferox*, Wall., var. *laciniatum*, P. Bruhl, Darjeeling, No. 11724. The large root has a continuous, usually oblong ring of vascular bundles.

b. Detached flowering stem and fruit raceme, and root or leafless stem and detached root, "Kalo Bikhoma."

Note.—This was received from Dr. G. Watt with two labels on the same sheet, viz., *A. ferox*, Wall., var. *crassicaule*, P.B. Sikkim, No. 8480, and the other with a similar label, but No. 11724. The root, attached to a leafless stem, is much more slender than the other, and like that of *A. Falconeri*; but the structure is not easily discernible. It seems probable that two plants have been confused by the person who mounted the specimens.

Aconitum palmatum, D. Don. "Seto Bikhoma."

a. Flowering stem, fruiting stem, and root, all detached.

b. Ditto.

Note.—Specimen *a* is labelled by Dr. G. Watt, Sikkim, No. 70391 (2); and *b* is labelled Darjeeling, No. 13939.

Aconitum reclinatum, Gray.

a. Fl. and stem, with root attached.

Note.—N. Carolina, Biltmore Herb.

Aconitum spicatum, Stapf. "Bikh."

a. Plant with root and inflorescence.

b. Fruit stem and detached root.

Note.—These specimens were received from Dr. G. Watt under the name of *A. ferox*, Wall., var. *spicatum*, P. Bruhl, Darjeeling, No. 11723. The large root has a continuous nearly circular

ring of vascular bundles. The leaves have much broader segments than those of *A. laciniatum*, in which species they are as narrow as those of *A. Napellus*. In *A. spicatum*, also, the follicles are unusually short and very hairy.

c. Detached roots, inflorescence, and fruit raceme.

Note.—These were received from Dr. G. Watt under the name of *A. ferox*, Wall., var. *proprium*. Sikkim, No. 11723.

In a letter received from Dr. G. Watt, dated March 14, 1901, he remarks: "The roots that find their way to Europe under the name of Bikh and Bish are, no doubt, those of our var. *spicatum* and var. *laciniatum*, separately, or mixed together. The former of them is often stated to be broader than the latter, but otherwise they are exceedingly difficult to distinguish, except in microscopic section, when it will be found that var. *laciniatum* does not possess the inner ring of bundles that encloses the central core in var. *spicatum*."

This opinion is confirmed by my own experience, as the Nepaul aconite of commerce agrees with these roots in structure, whilst I have never met with any having the remarkable structure of var. *atrox* (*A. deinorrhizum*, Stapf), in the commercial article.

Aconitum uncinatum, L.

a. Fl. stem.

Note.—Biltmore, N. Carolina. Biltmore Herb.

Adenium Somalense. Balf. f. (Apocynaceae.)

a. Fl. l., Somaliland. Mrs. Lort Phillips.

Note.—The large tuberous root is said to be used as an arrow poison. See Thrupp and James, *The Unknown Horn of Africa*, p. 315, note; *Pharm. Journ.* [3], XXIV., p. 42.

Adenosma cæruleum, R. Br.

a. Fl. l., Perak. H. N. Ridley.

Note.—A decoction of the root is used for bowel complaints, and as an outward application in rheumatism.

Adenosma capitatum, Benth. (Scrophulariaceae.)

a. Fl. rt., Singapore. H. N. Ridley.

Note.—The root is used for rheumatism.

Adiantum pedatum, Linn. "Canadian Maidenhair." (Filices.)

a. Frond. Cultivated, Sevenoaks. E. M. Holmes.

Agrostistachys longifolia, King, var. latifolia, Hook. f. (Euphorbiaceae.)

a. L. stem, Perak. H. N. Ridley.

Note.—It exudes a gum, which was formerly used in making varnish.

Albizzia anthelmintica, A. Br. (*Fabaceae*) "Messena" or "Musena."

a. Fl. 1. ft., Gebel Defafary, White Nile. Dr. G. Schweinfurth.

Note.—It yields "messena" bark, used in Abyssinia as an anthelmintic, and recently recommended as a remedy for the internal parasite, *Anchylostoma duodenale*.

Alchornea villosa, Muell. Arg. (*Euphorbiaceae*)

a. Fl. 1., Malacca. H. N. Ridley.

Allium Macleani, Baker. (*Liliaceae*) "Badsha Salep."

a. Fl. 1. Cultivated, Sevenoaks. E. M. Holmes.

Note.—This plant yields the Royal Salep described by D. Hanbury in *Science Papers*, p. 155-157. The plant was brought home by Dr. J. E. T. Aitchison, F.R.S. See *Ann. Botany*, III., p. 149 and *Trans. Bot. Soc. Edinb.*, XVII., 434.

Allomorpha exigua, Bl. (*Melastomaceae*) "Sundadok hutan." Malacca.

a. Fl. ft. H. N. Ridley 7, 1893.

Note.—The root is used, together with Penawar Hitam (*Goniothalamus giganteus*, Hook. f.) in fevers and headache. Ridley, *Malay Plant Names*, p. 204.

Alnus viridis, D.C. (*Betulaceae*)

a. L. ft., Vermont. Prof. H. H. Rusby.

Note.—Used in dropsy and chest affections. *Pharm. Journ.* [3], XV., p. 303.

Aloe vera, Linn. (*Liliaceae*)

a. L. fl., Barbados. W. G. Freeman.

Note.—An account of the cultivation of the Aloe in Barbados is published by the donor in the *West Indian Bulletin*, vol. III. (1902), No. 2, pp. 178-180.

Alsodeia echinocarpa, Korth. (*Violaceae*) "Sibilek."

a. L. ft., Malacca. H. N. Ridley.

Note.—The seeds are used as a purgative. The fruit has a singular mossy covering. See Ridley, *Malay Plant Names*, p. 249.

Alyxia lucida, Wall. (*Apocynaceae*) "Milor."

a. L., Carimon Isles. H. N. Ridley.

Note.—The bark of several species of this genus has an odour of coumarin. See *Pharm. Journ.* [3], XXIII., p. 389, and Ridley, *Malay Plant Names*, p. 186.

Amelanchier Canadensis, *Medic.* (*Rosaceæ*.)

a. Fl., Long Island. Prof. H. H. Rusby.

Note.—Fruit edible.

Anisomeles ovata, *R.Br.* (*Lamiaceæ*.)

a. Fl., Selangor. H. N. Ridley.

Note.—Used as a stomachic, antispasmodic, and antipyretic.

Apocynum cannabinum, *Linn.* (*Apocynaceæ*.) “Canadian Hemp.”

a. Fl., Biltmore, N. Carolina. Biltmore Herb.

Note.—See *National Dispens.*, 5th ed., p. 233.

Aralidium pinnatifidum, *Miq.* (*Araliaceæ*.) “Tindal balai.”

a. Fl., Selangor. H. N. Ridley.

Note.—The leaves are used in the form of decoction for a fomentation for rheumatism and a poultice for boils.

Arbutus Andrachne, *Linn.* (*Ericaceæ*.)

a. Fl. Cultivated, La Mortola. Sir T. Hanbury.

Note.—Used in homœopathic practice.

Arthrosolen glaucescens, *Oliv.* (*Thymelæaceæ*.)

a. Fl. rt. Bl., B. C. Africa. Dr. D. Kerr Cross.

Note.—Used in native medicine.

Asarum Canadense, *Linn.* (*Aristolochiaceæ*.) “Wild Ginger.”

a. Fl., N. Carolina, Biltmore Herb.

Note.—See *Nat. Disp.*, 5th ed., p. 297.

Asarum macranthum, *Small.*

a. L. fl., N. Carolina. Biltmore Herb.

Asclepias incarnata, *Linn.*, **f. pulchra**, *Pers.* (*Asclepiadaceæ*.)

a. Fl. and ft., N. Carolina. Biltmore Herb.

Note.—For use, see *Nat. Disp.*, 5th ed., p. 298.

Asphodelus albus, *Willd.* (*Liliaceæ*.)

a. Fl., La Mortola. Sir Thos. Hanbury, K.C.V.O.

Note.—The root has been used to adulterate white hellebore.
Pharm. Journ. [3], XXIV., p. 873.

Athrotaxis laxifolia, *Hook.* (*Pinaceæ*.)

a. L. Cultivated, Falmouth. Miss Fox.

Balsamodendron Abyssanicum, *Engl.* (*Burseraceae*). "Saat."

a. L. fl. ft., Erythræa. Dr. G. Schweinfurth.

Note.—Neither leaves, fruit, nor twigs have any bitterness or flavour of myrrh.

b. Var. **simplicifolia**, *Schw.*

Young shoots with larger leaves. "Chaddesch" Arab.
L. fl., Ussil, Yemen. Dr. G. Schweinfurth.

Balsamodendron Africanum, *Arn.*

a. L. fl., Erythræa. Dr. G. Schweinfurth.

Note.—The fruit has a flavour like cedar, not like myrrh.

b. L. fl., Accrur.

Balsamodendron Erythræum. "Kafal."

a. L. fl. and ft. detached, Macaur Island, Erythræa. Dr. Schweinfurth.

Note.—It yields the Kafal wood of the Cairo Bazaars.

Balsamodendron Myrrha, *Nees*. "Didthin."

a. St. l. ft. and bark with myrrh attached to it, Somaliland.
Mrs. Lort Phillips.

Balsamodendron Opobalsamum, *Benth.*

a. Small branch, Somaliland. "Balm of Gilead tree." Mrs. Lort Phillips.

Balsamodendron Schimperi, *O. Berg.* "Oanka."

a. L. ft.

Note.—This was accidentally sent out on the same sheet as *B. Abyssanicum*, var. *simplicifolia*. Dr. G. Schweinfurth.

Bauhinia reticulata, *D.C.* (*Fabaceae*.)

a. L., Matombo. Dr. D. Kerr Cross, 1893, No. 47.

Note.—Used in medicine by the natives in East Africa.

Berchemia volubilis, *D.C.* (*Rhamnaceae*.)

a. L., ft., N. Carolina. Biltmore Herb.

Note.—Used as an antisyphilitic. Dragendorff, *Heilpflanzen*, p. 412.

Bertholletia excelsa, *Humb. and Bonpl.* (*Myrtaceae*.)

a. L., fl. Cultivated, Singapore. H. N. Ridley.

Note.—Yields the Brazil nuts of commerce, which are really seeds, the fruit being a woody capsule of the size of a pommelo.

Betula lenta, Linn. (*Betulaceae*) "Sweet Birch."

a. Fl. ft., Biltmore, N. Carolina. Biltmore Herb.

Note.—Yields oil of sweet birch (methyl salicylate), formed by the hydrolysing ferment betulase, from the glucoside gaultherin. See Schneegan, "Geroch," *Chem. Centralbl.*, 1894, p. 951.

Betula papyracea, Dryand. "Paper Birch."

a. L. ft., Vermont, N. Jersey. Prof. H. H. Rusby, Aug., 1892.

Note.—The E. Indian paper birch is *B. Bhojpattra*, Wall.

Blepharis hirtinervia, T. Anders., var. **longespicata**. (*Acanthaceae*.)

a. L. ft., Natal. Messrs. Burroughs and Wellcome.

Boswellia Socotrana, Balf. f. (*Burseraceae*) "Haliof."

a. L. ft., Socotra. Dr. G. Schweinfurth.

Note.—Yields a resin like olibanum, but with a slight lemon odour.

Bragantia corymbosa, Griff. (*Aristolochiaceae*) "Chambia."

a. L. fl., Selangor. H. N. Ridley.

Note.—Used as a diuretic, and for dysuria in women.

Buddleia Madagascariensis, Lam. (*Loganiaceae*.)

a. Lf., Cultivated, La Mortola. Sir T. Hanbury.

Burmannia cœlestis, D. Don. (*Burmanniaceae*) "Sisik Naga," or "Jangot Kei."

a. Fl. plt., Malacca. H. N. Ridley.

Note.—Mixed with other remedies in the treatment of fever.

Callicarpa Americana, Linn. (*Verbenaceae*.)

a. L. fl., N. Carolina. Biltmore Herb.

Note.—Used for dropsy. See Dragendorff, *Heilpflanzen*, p. 566.

Callicarpa longifolia, Lam. "Tampong Besih."

a. L. fl., Singapore, Perak. H. N. Ridley.

Note.—Used in confinements.

Canarium Schweinfurthii, Engl. (*Burseraceae*) "Mbilli" ("Mpaffic," Uganda).

a. L. fl., Turu River, Nyam Nyam. Dr. G. Schweinfurth.

Note.—The resin, resembling cedar in odour, is used by the natives.

Canavalia obtusifolia, D.C. (*Fabaceae*.)

a. L. fl. ft., Sydney. J. H. Maiden.

Note.—The leaves are used externally as a discutient.

Canna coccinea, Mill. (*Scitamineae*.)

a. Fl. ft., St. Kitts. W. Martindale.

Note.—The rhizomes yield "Tous les mois."

Capparis frondosa Jacq. (*Capparidaceae*.)

a. L. fl., Panama. Sutton Hayes, 3, 1862. Sir T. Hanbury.

Carthamus helenioides, Desf. (*Asteraceae*.)

a. L. fl., Algiers. Coll., M. Battandier; from J. S. Ward.

Note.—The leaves have been found in commerce mixed with those of stramonium. See *Pharm. Journ.* [4], XII., p. 326-334.

Carya alba, Nutt. (*Juglandaceae*.) "Scaly bark hickory."

a. L. fl., N. Carolina. Biltmore Herb. See *Treas. Bot.*, 1874, p. 238.

Carya amara, Nutt. (*Juglandaceae*.) "Bitter nut hickory."

a. Lf., N. Carolina. Biltmore Herb.

Casimiroa edulis, La Llave. (*Rutaceae*.) "Sapote blanco."

a. Fl. ft. Oaxaca, Mexico. From U.S. Nat. Herbarium.

Note.—The bitter bark and seeds are used medicinally. The fruit is said to be unwholesome, and to induce sleep. *Treas. Bot.*, 1874, p. 231. See also W. Bichern, in *Archiv. der Pharm.*, 241 Bd. 2 Heft, 1903.

Cassia Beareana, Holmes. (*Fabaceae*.)

a. L. fl. ft., Mombasa. Dr. O'Sullivan Beare.

Note.—The root is used as a remedy for blackwater fever. See *Pharm. Journ.* [4], XIII., p. 616; [4], XIV., p. 42; *Lancet*, February, 1902, p. 263-285.

Cassia chamæcrista, Linn.

a. L. fl. ft., N. Carolina. Biltmore Herb.

Cassia Goratensis, Fres.

a. L. fl. ft., B.C. Africa. Dr. D. Kerr Cross.

Note.—Used in medicines by the natives. It has a small nodulose legume about 3 inches long, and elliptic obtuse mucronate leaflets about 1 inch long.

Cassia hirsuta, Linn.

a. L. fl., Singapore. H. N. Ridley.

Cassia Kituiensis, *Vatka*.

a. L. fl. rt., Zomba. Dr. D. Kerr Cross.

Note.—Used in medicine by the natives.

Cassia montana, *Heyne*.

L. fl. fl., Shanikulam, S. India, 8, 9, 1899. From Royal Bot. Gardens, Calcutta.

Note.—The leaves were offered in the London drug market as senna. *Pharm. Journ.* [4], XII., p. 646.

Cassia podocarpa, *Guill. and Perrot*. "Assumoun."

a. L. stem. fl., Abbeokuta, W. Africa. Rev. E. Fry; from Mr. T. Wardleworth.

Note.—The bark and root are used in infusion as a purgative and remedy for thread-worm.

Cassia tomentosa, *Linn. f.*

a. L. fl., young ft. Cultivated, La Mortola. Sir T. Hanbury.

Castanea dentata, *Barkh.* (*Corylaceæ*.)

a. L. fl. ft., New Jersey. Dr. H. H. Rusby.

Note.—Prof. Rusby considers this distinct from *C. sativa*, Mill., to which the name is referred as a synonym in the appendix to the *Index Kewensis*. A decoction is used for whooping cough.

Castanopsis castanæcarpa, *Spach.* (*Corylaceæ*.) "Berangan."

a. L. fl., Singapore. H. N. Ridley.

Note.—The seeds are used as a purgative.

Caulophyllum thalictroides, *Michx.* (*Berberidaceæ*.) "Blue Cohosh."

a. L. fl. rt., N. Carolina. Biltmore Herb. See *Pharm.* [2], IV., p. 52.

Note.—Used as a uterine tonic.

Celastrus scandens, *Linn.* (*Celastraceæ*.)

a. L. fl. rt., New Jersey. Dr. H. H. Rusby.

Celastrus serratus, *Hochst.*

a. L. fl. ft., Abyssinia. Dr. Steudner.

Note.—W. Schimper asserts that the leaves are an effective remedy against fevers—as good as Cinchona.

Celosia anthelmintica, *Aschers.* (*Amaranthaceæ*.)

a. L. fl., E. Africa. Dr. F. Stuhlmann. Emin Pasha Exped., 1890-1892, No. 688.

C. trigyna, *Linn.*

a. L. fl., Utundua. Dr. F. Stuhlmann.

Cephalanthus occidentalis, *Linn.* (*Rubiaceæ*.) "Button Bush."

a. L. fl., N. Carolina. Biltmore Herb.

Note.—The bark is used as a tonic and laxative.

Chamælririum Carolinianum, *Willd.* (*Liliaceæ*.)

a. L. fl. rt., N. Carolina. Biltmore Herb.

Note.—The rhizome is better known under the old name of the plant, *Helenias dioica*, Pursh. It is used in dysmenorrhœa and as a diuretic. Two saponin principles, chamælririn and helonin, have been found in it. See *Jahrb. für Pharm.*, 1878, p. 58; *Ph. Zeitung*, 1889, p. 782; Kruskal, *Ueber Zwei Saponin Substanzen*, Dorpat, 1890.

Champerea Griffithiana, *Planch.* (*Santalaceæ*.)

a. L. ft., Singapore. H. N. Ridley.

Note.—Said to be poisonous.

Chimaphila maculata, *Pursh.* (*Ericaceæ*.)

a. L. fl. ft. rhiz., N. Carolina. Biltmore Herb.

Note.—It contains arbutin, and yields chimaphilin on distillation. See *Amer. J. Phar.*, 1892, p. 395; also *Nat. Disp.* 1894, p. 447.

Chloanthes officinalis, *King.* (*Verbenaceæ*.)

a. L. fl. Malacca. H. N. Ridley.

Cicuta maculata, *Linn.* (*Apiaceæ*.)

a. L. fl., N. Carolina. Biltmore Herb.

Note.—It contains an alkaloid resembling conia. See *Nat. Disp.*, 5th ed., 1894, p. 477.

Cinnamomum parthenoxylum, *Meissn.* (*Lauraceæ*.) "Medang Kamange."

a. L. fl., Pulau-Penang. H. N. Ridley.

Cissampelos Pareira, *Linn.*, var. **tomentosa**. (*Menispermaceæ*.)

a. L. fl., B. C. Africa. Dr. D. Kerr Cross.

Cissus carnosa, *Lam.* (*Ampelidaceæ*.) "Lakom."

a. L. fl., Selangor. H. N. Ridley.

Note.—A decoction of the leaves is applied externally for the relief of rheumatism and headache.

Clerodendron spinosum, *Oliv.* (*Verbenaceae*.)

a. L. fl., Zomba, B. C. Africa. Dr. D. Kerr Cross.

Note.—Used in medicine by the natives.

Cneorum tricoccum, *Linn.* (*Simarubaceae*.) “Widow wale.”

a. L. fl., La Mortola. Cultivated, Sir T. Hanbury.

Note.—This plant is supposed by C. Bauhin to be the mezereon of Avicenna. See *Per., Mat. Med.*, II., pt. I., p. 477.

The leaves and berries are drastic, diuretic, and anti-syphilitic.

Cnesmone Javanica, *Blume.* (*Euphorbiaceae*.)

a. L. fl., Malacca. H. N. Ridley.

Note.—Used as an ingredient in Antiar poison.

Connaropsis monophylla, *Planch.* (*Geraniaceae*.)

a. L. fl., Perak. H. N. Ridley.

Note.—The acid fruit is eaten.

Connaropsis monophyllus, *Planch.* (*Geraniaceae*.)

a. L. fl.

Note.—The acid fruit is eaten.

Connarus ferrugineus, *Jack.* (*Connaraceae*.)

a. L. fl., Malacca. H. N. Ridley.

Note.—The fruit is used to poison dogs.

Conopholis Americana, *Wallr.* (*Orobanchaceae*.)

a. Fl. st., N. Carolina. Biltmore Herb.

Note.—A root parasite on *Quercus velutina*, Lam.

Coptosapelta flavescens, *Korth.* (*Rubiaceae*.) “Pruai.”

a. L. fl. ft., Perak. L. Wray, Jun.

Note.—Said to be used by the Sakais under the name of Prual as an ingredient in arrow poison. The root of the plant was, however, found by Prof. T. Cash not to be poisonous to fish, although “Pruai” root previously sent was distinctly poisonous. It would appear, therefore, that Prual is not derived from this plant.

Coptosapelta Griffithii, *Hook. f.* (*Akar Sibusuh*.)

a. L. fl. ft., Singapore. H. N. Ridley.

Note.—This is employed by the Malays as an ingredient in a remedy much used in confinements.

Coriaria thymifolia, Humb. and Bonpl. (*Coriariaceæ*.)

a. L. fl. ft., Colombia. T. A. Sprague.

Note.—This is the ink plant of the Andes. See *Journ. Linn. Soc.*, VII., p. 120-1.

Corynanthe Yohimbi, K. Schum. (*Rubiaceæ*.)

a. L. fl., Cameroons. Dr. E. Gilg.

Note.—The plant contains four alkaloids, the principal one of which, yohimbine, has recently been introduced into medicine as an aphrodisiac. See *Pharm. Journ.* [4], V., 458; XII., p. 779; XIV., p. 141; XV., p. 607.

Cratoxylon Blancoi, Bl. (*Hypericaceæ*.) “Gonggang.”

a. L. fl. ft., Malacca.

Note.—The resin of the bark is used in spinal diseases.

Crotalaria Saltiana, Andr. (*Fabaceæ*.)

a. B. C. Africa. Dr. D. Kerr Cross.

Note.—Used in medicine by the natives.

Croton caudatus, Geisel. (*Euphorbiaceæ*.)

a. L. fl., Singapore. H. N. Ridley.

Note.—Roots used under the name of “Tokatai” for coughs, fever, and headache.

Curcuma longa, Linn. (*Scitaminaceæ*.)

a. L., India. Kanny Loll Dey.

Cyathula geniculata, Lour. (*Amarantaceæ*.)

a. L. fl., Singapore. H. N. Ridley.

Note.—Used in liver disease.

Daviesia latifolia, R. Br. (*Fabaceæ*.)

a. L. fl., Australia. J. Bosisto.

Note.—The plant contains a bitter principle, used as a remedy for hydatids and malaria. The active principle was examined by Paul and Cowley, and is believed to be a glucoside, *Pharm. Journ.* [4], VI., p. 187.

Delphinium Requienii, D.C. (*Ranunculaceæ*.)

a. L. fl., S. Europe. Cultivated, Sevenoaks. E. M. Holmes.

See *Pharm. Journ.* [5], IX., p. 93.

Delphinium Zalil, *Aitch. and Hemsl.* (*Ranunculaceæ.*)

a. L. fl., Afghanistan. Cultivated, Sevenoaks. E. M. Holmes.

Note.—The flowers are used as a yellow dye, *Kew Bulletin*, 1889, p. 112; *Trans. Linn. Soc.* [2], III., p. 30, t. 3; *Pharm. Journ.* [3], XIX., p. 993. The colouring matter has been examined by Perkin and Pilgrim, *Pharm. Journ.* [4], VI., p. 323.

Dendrocalamus flagellifer, *Munro.* (*Palmaceæ.*)

a. L. fl., Penang. H. N. Ridley.

Note.—The young shoots are eaten.

Dendropanax arboreum, *Pl. and Decn.* (*Araliaceæ.*)

a. L. fl., Panama. Sir T. Hanbury.

Desmodium cajanifolium, *D.C.* (*Fabaceæ.*)

a. L. fl., W. Indies. Elenthera. H. E. Matthews.

Note.—It is known as the "Wild Ground Nut."

Desmodium spirale, *D.C.* (*Fabaceæ.*)

a. L. fl., Panama. Sir T. Hanbury.

Dialium laurinum, *Baker*; **D. platysepalum**, *Baker*; and **D. Wallichianum**, *King* (?).

a. L. fl., Singapore. H. N. Ridley.

Note.—The fruit of these three species are eaten under the name of Kranji, that of *D. platysepalum* being distinguished as Kranji skar lat.

Dianella cærulea, *Sims.* (*Liliaceæ.*)

a. L. fl., Perak, J. Wray, junr.

Note.—The root is used as a rat poison.

Dichrostachys nutans, *Benth.* (*Fabaceæ.*)

a. L. fl., B. C. Africa. Dr. D. Kerr Cross.

Note.—The root is used in dysentery.

Dicksonia Barometz, *Link.* (*Filicaceæ.*) "Pulu."

a. Frond and stipes, Selangor. H. N. Ridley.

Note.—The hairs at the base of the frond are used as a styptic under the name of "Pulu." See *Pharm. Journ.* [1], XVI., p. 322; [2], L., p. 501. Two species, *D. Chamissoi*, Hook, and *D. Menziesi*, H. and B., yield a similar product in the Sandwich Islands. The hairs are used there for stuffing pillows. See also *Pharm. Mus. Cat.*, 1878, p. 158.

Didymocarpus platypus, *C.B. Cl.* (*Gesneraceæ*.)

a. L. fl., Malacca. H. N. Ridley.

Note.—The plant is used as an emmenagogue.

Diphylleia cymosa, *Michx.* (*Berberidaceæ*.)

a. L. fl., N. Carolina. Biltmore Herb.

Diplorhynchus Angolensis, *Bütt.* (*Apocynaceæ*.)

a. L. fl., B. C. Africa. Dr. D. Kerr Cross.

Note.—The plant yields an indiarubber.

Dipteris Lobbiana, *T. Moore.*

a. L. fl., Malacca. H. N. Ridley.

Note.—It is used as an aphrodisiac.

Dipterocarpus crinitus, *Dyer.* (*Dipterocarpaceæ*.)

a. L. ft., Malacca. H. N. Ridley.

Dischidia nummularia, *R.Br.* (*Asclepiadaceæ*.)

a. L., Singapore. H. N. Ridley.

Note.—The milky juice is used for poisoned wounds and in gonorrhœa.

Doryphora Sassafras, *Endl.* (*Monimiaceæ*.)

a. L. fl., New S. Wales. J. H. Maiden.

Note.—The bark is used like sassafras in Australia.

Dysophylla auricularia, *Bl.* (*Lamiaceæ*.)

a. L. fl., Malacca. H. N. Ridley.

Note.—Used for colic in children two to three years old.

Elæodendron Capense, *Eckl. and Zeyh.* (*Celastraceæ*.)

a. L. fl., S. Africa. Sir T. Hanbury.

Embothrium grandiflorum, *Lam.* (*Proteaceæ*.)

a. L. fl., Loxa. Sir T. Hanbury.

Entada polystachya, *D.C.* (*Fabaceæ*.)

a. L. fl. Cultivated, Singapore. H. M. Morgan.

Note.—Used in Trinidad for gonorrhœa.

Ephedra fragilis, *Desf.* (*Gnetaceæ*.)

a. L. fl. La Mortola. Sir T. Hanbury.

Note.—The twigs and flower are used as a styptic for piles, and the fruit is eaten.

- E. siderophloia**, Benth.; **E. sideroxylon**, A. Cunn.; **E. Sieberiana**, F. von Müll.; **E. stellulata**, Sieb., and var. **angustifolia**, Benth.; **E. stricta**, Sieb., and var. **rigida**, Sieb.; **E. tereticornis**; and var. **brevifolia**, Benth. and Maiden; **E. squamosa**; **E. terminalis**, F. von Müll.; **E. viminalis**, Labill., and var. **pedicellaris**, F. von Müll.; **E. virgata**, Sieb., and var. **altior**, Deane and Maiden.
a. L. fl. ft., N. S. Wales. J. H. Maiden.

Note.—Information concerning the essential oils and chemical products of these species will be found in Baron F. von Müller's *Eucalyptographia*, and Baker and Smith's *Research on the Eucalyptus*, 1902. The latter work contains more especially matter relating to species and varieties which have been discriminated and examined since the publication of *Eucalyptographia*. For these species J. H. Maiden and R. T. Baker are chiefly responsible.

Eugenia Brasiliensis, Lam. (Myrtaceæ.)

a. L. fl., Singapore. H. M. Morgan.

Euonymus atropurpureus, Jacq. (Celastraceæ.)

a. L. fl., New Jersey. Dr. H. H. Rusby.

Euphorbia dendroides, Linn. (Euphorbiaceæ.)

a. L. fl., La Mortola. Sir T. Hanbury.

Euphorbia Drummondii, Boiss.

a. L. fl., N.S. Wales. J. H. Maiden.

Euvodia Roxburghiana, Benth. (Rutaceæ.)

a. L. fl., Malacca. H. N. Ridley.

Note.—The shoots are used as an anthelmintic for children.

Fantumia Scheffleri, K. Schum. (Apocynaceæ.)

a. L. fl., E. Africa. Messrs. Burroughs and Wellcome.

Note.—Yields an indiarubber. By Dr. Stapf this species is included under *F. latifolia*, Stapf.

Fatsia papyrifera, Benth. and Hook. (Araliaceæ.)

a. L. fl. Cultivated, La Mortola. Sir T. Hanbury.

Ferula sp.

a. L. rt., Baluchistan. Dr. D. Prain.

F. alliacea, Boiss.

a. L. fl., Cultivated, Dublin. F. W. Burbidge.

Ficus diversifolia, Blume. (Urticaceæ.)

a. L. ft., Selangor. H. N. Ridley.

Fraxinus Americana, Linn. (Oleaceæ.)

a. L. fl. ft., N. Carolina. Biltmore Herb.

Note.—The bark is used in medicine.

Fusanus acuminatus, *D.C.* (*Santalaceæ*.)

a. L. fl., N. S. Wales. J. H. Maiden.

Note.—The stony endocarps are used for necklaces under the name of “Quandong” stones, or “nuts.”

Galax aphylla, *Linn.* (*Diapensiaceæ*.)

a. L. fl. N. Carolina, Biltmore Herb.

Geophila reniformis, *D. Don.* (*Rubiaceæ*.) “Akar pegagautan.”

a. L. fl., Penang. H. N. Ridley.

Note.—Used as a poultice for sore legs.

Geranium Wallichianum, *D. Don.* (*Geraniaceæ*.)

a. L. fl., Cultivated, Sevenoaks. E. M. Holmes.

Note.—The root is used in India as an astringent.

Gleditschia monosperma, *Wall.* (*Fabaceæ*.)

a. L. fl. ft., Kentucky, Biltmore Herb.

Gloriosa Carsoni, *Baker.* (*Liliaceæ*.)

a. L. fl., B. C. Africa. Dr. D. Kerr Cross.

Gomphocarpus fruticosus, *R. Br.* (*Asclepiadaceæ*.)

a. L. fl. ft., N. S. Wales. J. H. Maiden.

Goniothalamus Curtisii, *King.* (*Anonaceæ*.)

a. L. fl., Selangor. H. N. Ridley.

Note.—Used as a sort of universal medicine, in much repute, called Denawar Hitam.

Goniothalamus macrophyllus, *Hook. f.* (*Anonaceæ*.) “Akar Sindarah.”

a. L. fl., Perak. L. Wray, Jun.

Note.—The root is used to procure abortion.

Gossypium Sturtii, *F. von Muell.* (*Malvaceæ*.)

a. L. fl., N. S. Wales. J. H. Maiden.

Grindelia robusta, *Nutt.* (*Asteraceæ*.)

a. L. fl., California. Parke, Davis and Co.

Gymnosporia montana, *Benth.*, var. **obovata**, *H. Loes.* (*Celastraceæ*.) “Argutti.”

a. L. fl. ft.

Note.—Used by the Abyssinians for diarrhoea in dogs.

Gymnosporia Senegalensis, *Loes*, var. **spinosa**, *Engl.*

a. L. fl., Erythræa.

b. L. fl. ft., Niam Niam Land. Dr. G. Schweinfurth.

Hanburya Mexicana, Seem. (*Cucurbitaceæ*)

a. L. Sir T. Hanbury.

Hedeoma pulegioides, Pers. (*Lamiaceæ*) "American Penny-royal."

a. L. fl., New Jersey. Dr. H. H. Rusby.

Helipterum moschatum, Benth. (*Asteraceæ*)

a. L. fl., N. S. Wales. J. H. Maiden.

Hepatica triloba, Choix. (*Ranunculaceæ*)

a. L. fl. rt., New Jersey. Dr. H. H. Rusby.

Hevea Brasiliensis, Müll. Arg. (*Euphorbiaceæ*)

a. L. fl., Singapore. H. N. Ridley.

Note.—Yields Para rubber. For fig., see *Koehler Illust.*, Vol. III., taf. 8.

Hibiscus Moscheutos, Linn. (*Malvaceæ*)

a. L. fl. ft., N. Carolina. Biltmore Herb.

Note.—Used as an expectorant.

Hibiscus mutabilis, Linn.

a. L. fl. Cultivated, La Mortola. Sir T. Hanbury.

Note.—Used in poultices in China, where it is called "muh-fu-yung."

Hyoscyamus albus, Linn. (*Solanaceæ*)

a. L. fl. Cultivated, Regent's Park.

Ilex macrophyllus, Wall. (*Ilicaceæ*)

a. L. fl., Malacca. H. N. Ridley.

Note.—The bark, powdered with camphor and Mangosteen rinds, is used for wounds.

Ilex quercifolia, Meerb.

a. L. fl. ft., N. Carolina. Biltmore Herb.

Note.—This is used in the United States under the name of *Ilex opaca*.

Illicium evenium, King. (*Magnoliaceæ*)

a. L. fl., Selangor. H. N. Ridley.

Note.—Fruits not aromatic.

Imperata arundinacea, Cyrilli. (*Graminaceæ*)

a. L. fl., N. S. Wales. J. H. Maiden.

Note.—In China the rhizome is used like *Triticum repens* as a diuretic, under the name of "Mau-Ken."

Imperatoria Ostruthium, *Linn.* (*Apiaceae*.)

a. L. fl. Cultivated, Sevenoaks. E. M. Holmes.

Indigofera Anil, *Linn.* (*Fabaceae*.)

a. L. fl. ft., Bolivia. Dr. H. H. Rusby.

Indigofera Heudelotii, *Benth.*

a. L. fl. ft., B. C. Africa. Dr. D. Kerr Cross.

Indigofera secundiflora, *Poir.*

a. L. fl. ft., B. C. Africa. Dr. D. Kerr Cross.

Note.—Both these African species are used in medicine by the natives.

Ipomæa fastigiata, *Sweet* (***I. pandurata***, *Meyer*). (*Convolvulaceae*.)

a. L. fl., N. Carolina. Biltmore Herb.

Isoetes Engelmanni, *A. Br.* (*Lycopodiaceae*.)

a. Plant, N. Carolina. Biltmore Herb.

Jasminum bifarium, *Wall.* (*Oleaceae*.)

a. L. fl., Singapore. H. N. Ridley.

Note.—The leaves rubbed into a paste are used for "kedel," a skin disease in which the skin blisters and peels off, especially on the feet.

Juniperus drupacea, *Labill.* (*Pinaceae*.)

a. Male plant. Cultivated, La Mortola. Sir T. Hanbury.

Jussieua Blumeana, *D.C.* (*Onagraceae*.) "Bujang Samalam."

a. L. fl., Singapore. H. N. Ridley.

Note.—The leaves are boiled and applied to the head for headache.

Kolreuteria paniculata, *S.* (*Sapindaceae*.)

a. L. fl., Knockolt, Kent. Cultivated, Mr. Vavasseur.

Note.—The tree yields a gum like gum arabic.

Krameria lanceolata, *O. Berg.* (*Polygalaceae*.) "Texas rhatany."

a. L. pl., rootstock, Texas. Dr. H. H. Rusby.

Labisia pothoina, *Lindl.* (*Myrsinaceae*.)

a. L. fl., Singapore. H. N. Ridley.

Note.—Used for syphilis.

Lachnanthes tinctoria, Ell. (*Hamodoraceæ*.)

a. L. fl. rt., N. Carolina. Biltmore Herb.

Note.—Introduced as a remedy for phthisis. See *Pharm. Journ.* [4], XIV., p. 103. J. Britten suggests that Salisbury's name for the plant, *Gyrotheca capitata*, should be adopted, *Journ. Bot.*, 1902, p. 23.

Lagetta lintearia, Lam. (*Thymelæaceæ*.)

a. L. fl. Cultivated, Singapore. H. N. Ridley.

Note.—Yields the lace bark of the West Indies.

Landolphia Owariensis, Beaur. (*Apocynaceæ*.)

a. L., Karonga, B.C. Africa. F. L. M. Moir.

Note.—Yields India-rubber. The leaves may be distinguished from those of *L. florida* by having a dark midrib.

Lantana asperifolia, Rich. (*Verbenaceæ*.)

a. L. fl., B. C. Africa. Dr. D. Kerr Cross.

Lantana Indica, Roxb.

a. L. fl., Singapore. H. N. Ridley.

Lantana mista, L.

a. L. fl. ft. Cultivated, Singapore. H. M. Morgan.

Leea Janglii, Ridley, MS. (*Ampelidaceæ*.)

a. L. fl., Singapore. H. N. Ridley.

Note.—The leaves are pounded and used by the Sakai as an application for rheumatism.

Leontopodium alpinum, Cass, var. **Himalayanum**. (*Asteraceæ*.)

a. L. fl., Himalaya. O. Corder.

Note.—This is an Asiatic variety of the Guide's flower.

Lepidagathis hyalina, Nees. (*Acanthaceæ*.)

a. L. fl., Penang. H. N. Ridley.

Note.—The leaves are chewed for coughs.

Lepidagathis longifolia, Wight.

a. L. fl. H. N. Ridley.

Note.—Used as an abortifacient.

Lepidagathis Wightiana, Ridley, MS.

a. L. fl., Selangor. H. N. Ridley.

Note.—Used for gonorrhœa.

Lepidium perfoliatum, Linn. (*Brassicaceæ*.)

a. L. fl. ft.

Note.—Raised at Sevenoaks from a Museum specimen of seed received from India, labelled *Sisymbrium Irio*. See Watt, *Dict. Ec. Prod. India*, Vol. VI., pt. III., p. 244. There is a remarkable difference between the lower leaves, which are pinnate, and the upper, which are entire and perfoliate.

Leucadendron decurrens, R. Br. (*Proteaceæ*.)

a. L. fl., Cape Colony. I. Meiring.

Note.—This was sent as the plant from which Mr. Meiring obtained the crystalline principle proteacin, exhibited at the Indian and Colonial Exhibition in 1886.

Leuconotis Griffithii, Hook. f. (*Apocynaceæ*.)

a. L. fl. ft., Singapore. H. N. Ridley.

Note.—It yields a caoutchouc.

Leucothoe Catesbœi, Gray. (*Ericaceæ*.)

a. L. fl. ft., N. Carolina. Biltmore Herb.

Lobelia inflata, Linn. (*Campanulaceæ*.)

a. L. fl., N. Carolina. Biltmore Herb.

Luvunga scandens, Buch-Ham. (*Rutaceæ*.)

a. L. fl. ft., Penang. H. N. Ridley.

Lycopodium casuarinoides, Spring. (*Lycopodiaceæ*.)

a. Frond, Malacca. H. N. Ridley.

Lygodium dichotomum, Swartz. (*Filices*.)

a. Fertile frond, Singapore. H. N. Ridley.

Macaranga hypoleuca, Muell. Arg. (*Euphorbiaceæ*.)

a. L. ft., Singapore. H. N. Ridley.

Note.—The wood of this plant is used for stirring Gambier during the evaporation of the extract.

Magnolia acuminata, Linn. (*Magnoliaceæ*.)

a. L. fl., N. Carolina. Biltmore Herb.

Mallotus Cochinchinensis, Lour. (*Euphorbiaceæ*.) "Matang Bayer."

a. L. fl. ft., Singapore. H. N. Ridley.

Note.—Used for poulticing in enlargement of the spleen.

Manihot Grahami, Hook. f.

a. L., Brazil. T. Christy.

Marsdenia suaveolens, R. Br. (*Asclepiadaceæ*.)

a. L. fl., N. S. Wales. J. H. Maiden.

Medicago arborea, Linn. (*Fabaceæ*.)

a. L. fl. Cultivated, Ventimiglia. Sir T. Hanbury.

Melaleuca ericifolia, Sm. (*Myrtaceæ*.)

a. L. fl., N. S. Wales. J. H. Maiden.

Melochia arborea, Blanco. (*Sterculiaceæ*.)

a. L. fl., Selangor. H. N. Ridley.

Menispermum Canadense, Linn. (*Menispermaceæ*.) Yellow Parilla.

a. L. fl., New Jersey. Dr. H. H. Rusby.

Mentha spicata, Linn. (*Lamiaceæ*.)

a. L. fl., New Jersey. Dr. H. H. Rusby.

Note.—Resembles *Mentha viridis* in appearance and flavour, but has stalked leaves and narrower spikes.

Microstemon officinale, King. (*Anacardiaceæ*.)

a. L. fl. ft., Perak. L. Wray.

Note.—This plant was named and described as a new species by Sir G. King in the *Flora of Malaya*, after it was mentioned in the Pharmaceutical Society's *Museum Report* in 1895, p. 68, as the source of Plang oil, a remedy used for scaly skin diseases by the Malays.

Milletia quinqueflora, Ridley, M. S. (*Fabaceæ*.)

a. L. fl., Panama. Sir T. Hanbury.

Mimosa asperata, Linn. (*Fabaceæ*.)

a. L. fl., B. C. Africa. Dr. D. Kerr Cross.

Mitracarpum scabrum, Zucc. (*Rubiaceæ*.) "Dravoile."

a. L. fl., Lagos. M. and H. Marsden.

Mitragyne speciosa, Korth. (*Rubiaceæ*.) "Biah."

a. L., Perak. L. Wray, Jun.

Note.—Said to possess narcotic properties like opium; *Pharm Journ.* [3], XXV., p. 1,098.

Modecca Singaporensis, Mast. (*Passifloraceæ*.)

a. L. ft., Singapore. H. N. Ridley.

Note.—Said to be poisonous.

Monarda fistulosa, Linn. (*Lamiaceae*). "Wild Bergamot."

a. L. fl., N. Carolina. Biltmore Herb.

Note.—An account of the volatile oil of the plant may be found in *Pharm. Journ.* [4], XII., pp. 61, 253.

Monsonia attenuata, Harv. and Sond.; **M. biflora** and **M. ovata**, Cass.; var. **biflora**, F. and Z.

a. L. fl. ft., Natal. J. M. Wood.

Note.—*Monsonia ovata* has recently been recommended as a remedy for dysentery. See *Pharm. Journ.* [4], XI., p. 727; XII., p. 106. The two last-named species are illustrated in *Wood and Evans' Natal Plants*, Vol. I., pt. II., pl. 96-97.

Moringa aptera, Gaertn., var. **Arabica** (Pers.) (*Moringaceae*.)

a. L. fl. ft., Upper Egypt. Dr. G. Schweinfurth.

Note.—The seeds yield an oil called by the Arabs "Cain" oil.

Mussaenda variolosa, Wall. (*Rubiaceae*). "Balik Adap."

a. L. fl., Singapore. H. M. Morgan.

Myoporum acuminatum, R. Br. (*Myoporaceae*.)

a. L. fl., N. S. Wales. J. H. Maiden.

Myristica intermedia, Blume. (*Myristicaceae*.)

a. L. ft., Singapore. H. N. Ridley.

Nelsonia campestris, R. Br. (*Acanthaceae*.)

a. Fl. ft. rt., B. C. Africa. Dr. D. Kerr Cross.

Note.—Used in medicine by the natives.

Nephelium lappaceum, Linn. (*Sapindaceae*.)

a. L. ft., Malacca. H. N. Ridley.

Nuphar advena, Ait. (*Nymphaeaceae*.)

a. L. fl., N. Carolina. Prof. H. H. Rusby.

Ocimum affine, Hochst. (*Lamiaceae*.)

a. L. fl. ft., Zomba. Dr. D. Kerr Cross.

Note.—A paste made of ground leaves is applied to boils as a discutient.

Olea maritima, Wall. (*Oleaceae*.)

a. L. fl., Malacca. H. N. Ridley.

Olearia argophylla, F. v. M. (*Asteraceae*.)

a. L. fl., N. S. Wales. Cultivated, Ventimiglia. Sir T. Hanbury.

Omphalea megacarpa, Hemsl. (*Euphorbiaceæ*.)

a. Seeds, Trinidad. J. H. Hart.

Note.—The oil is recommended as a tasteless substitute for castor oil. *Pharm. Journ.* [4], VIII., p. 563.

Opuntia decumana, Harr. (*Cactaceæ*.)

a. Stem fl., Algiers. Messrs. Potter and Clarke.

Note.—Sent as the plant from which the flowers of *Cactus grandiflorus* of commerce were obtained in 1897. See *Pharm. Journ.* [4], V., p. 165.

Pæpalanthus elegans, Ruhl. (*Eriocaulonaceæ*.)

a. Infl., Brazil. W. H. Hammond.

Note.—Has a remarkable resemblance to *Helichrysum*. It is distinguished from its allies by the white scaly involucre, nearly a centimetre broad, and by the spreading hairs of the peduncles and the large size of its capitulum. See *Engler, Das Pflanzenreich*, IV., 30, p. 275. Used for decorative purposes.

Panax quinquefolium, Linn. (*Araliaceæ*.) “American Ginseng.”

a. L. fl., Vermont. H. H. Rusby.

Note.—Now referred to *Aralia quinquefolia*, Decne and Planch., in the *Index Kewensis*.

Pangium edule, Reinw. (*Bixaceæ*.)

a. L. fl., Selangor. H. N. Ridley.

Note.—The seeds contain hydrocyanic acid and a fatty oil. The bark is used as a fish poison, and the juice of the leaves externally in skin disease. See *Jahrb. f. Pharm.*, 1891, p. 134.

Panicum ovalifolium, Poir. (*Graminaceæ*.)

a. L. fl., Lagos. P. H. Marsden.

Passiflora foetida, Linn. (*Passifloraceæ*.)

a. L. fl., Singapore. H. M. Morgan.

Payena Malaccensis, C. B. Clarke. (*Sapotaceæ*.)

a. L. fl., Singapore. H. N. Ridley.

Petalostigma quadriloculare, F. v. Muell. (*Euphorbiaceæ*.)

a. L. fl. ft., Queensland. J. H. Maiden.

Peucedanum fraxinifolium, Hiern. (*Apiaceæ*.)

a. L. fl., B. C. Africa. Dr. D. Kerr Cross.

Note.—Used as a charm during parturition.

Phellodendron Japonicum, Maxim. (*Rutaceæ*.)

a. L. fl. Cultivated, La Mortola. Sir T. Hanbury.

Note.—Yields a yellow dye bark used in China and Japan. See *Pharm. Journ.* [3], 1896, p. 1339.

Phoradendron flavescens, Nutt. (*Loranthaceæ*.)

a. L. fl. ft., Parasitical on *Nyssa sylvatica*,
N. Carolina. Biltmore Herb.

Note.—Used in medicine in the United States under the name of Mistletoe.

Phyllanthus epiphyllanthus, Linn. (*Euphorbiaceæ*.)
"Princewood."

a. L. fl., Eleuthera, W. Indies. H. A. Matthews.

Phyllocllamys Wallichii, King. (*Urticaceæ*.)

a. L. fl., Penang. H. N. Ridley.

Note.—The powder is rubbed on the jaw for toothache.

Physalis viscosa, Linn. (*Solanaceæ*.)

a. L. fl., United States. Dr. H. H. Rusby.

Phytolacca decandra, Linn. (*Phytolaccaceæ*.)

a. L. fl. ft., Erythræa. Dr. G. Schweinfurth.

b. L. fl. ft., New Jersey. Dr. H. H. Rusby.

Pieris Mariana, Benth. and Hook. (*Ericaceæ*.)

a. L. fl. ft., Long Island, U.S.A. Dr. H. H. Rusby.

Pinus Tæda, Linn. (*Pinaceæ*.)

a. L. fl., N. Carolina. Biltmore Herb.

Piper miniatum, Bl. (*Piperaceæ*.)

a. L. fl., Singapore. H. N. Ridley.

Note.—Used for stomach-ache in children.

Piper Novæ-Hollandiæ, Miq. (*Piperaceæ*.)

a. L. fl., N. S. Wales. J. H. Maiden.

Note.—See Christy, *New Commercial Plants*.

Piper peltatum, Linn.

a. L. fl., Selangor. H. N. Ridley.

Note.—A decoction of roots is used as a wash in fevers.

Piptadenia Africana, *Hook. f.* (*Fabaceæ*.)

a. L. fl., B. C. Africa. Dr. D. Kerr Cross.

Note.—The leaves are ground and the juice squeezed through a cloth, and dropped into the eye for eye disease.

Piptocalyx Moorei, *Oliv.* (*Monimiaceæ*.)

a. L. fl., N. S. Wales. J. H. Maiden.

Note.—Introduced as a substitute for hops. See *Pharm. Journ.* [3], XXIV., p. 977.

Pithecolobium lobatum, *Benth.* (*Fabaceæ*.)

a. L. fl., Singapore. H. N. Ridley.

Note.—The fruit is eaten and gives a peculiar odour to the urine and is said to produce stricture if eaten to excess.

Podaxon pistillaris, *Fr.* (*Fungi*.)

a. Plant.

Pogostemon comosus, *Miq.* “Dilem.”

a. L. fl., Java. Mr. J. C. Sawer.

Note.—The Dilem plant is figured and described in the *Pharm. Journ.* [4], II., p. 223.

Polygala alba, *Nutt.* (*Polygalaceæ*.)

a. L. fl., rt., Texas. Dr. H. H. Rusby.

Polygala venenosa, *Juss.*

a. L. fl. ft., Selangor. H. H. Ridley.

Polygonum pedunculare, *Wall.* (*Polygonaceæ*.)

a. L. fl. ft., Selangor. H. N. Ridley.

Premna cordifolia, *Roeb.* (*Verbenaceæ*.)

a. L. fl., Singapore. H. N. Ridley.

Note.—Used in curry and in medicine.

Prismatomeris albidiflora, *Thw.* (*Rubiaceæ*.)

a. L. fl., Sumatra. H. N. Ridley.

Note.—The plant is used as a dart poison in the Malay Peninsula.

Prunus Caroliniana, *Ait.* (*Rosaceæ*.)

a. L. fl., N. Carolina. Biltmore Herb.

Prunus Lauro-cerasus, *Linn.*, vars. **camelliæfolia**, **Caucasica**, **Colchica**, **latifolia**, **rotundifolia**, and **Schipkaensis**.

a. Leafy twigs. Cultivated, Messrs. J. Veitch and Sons.

Note.—These represent the different varieties of *Prunus Lauro-cerasus* in cultivation in this country. Experiments are wanting as to their relative yield of hydrocyanic acid.

Prunus serotina, *Ehrh.*

a. L. fl. ft., New Jersey. Dr. H. H. Rusby.

Pseudo-Tsuga Douglasii, *Carr.* (*Pinaceæ*.)

a. L. Cultivated, Falmouth. Miss Fox.

Note.—See *Icones Plantarum*, 573.

Psilotum triquetrum, *Swartz.* (*Lycopodiaceæ*.)

a. Frond in fructification, N. S. Wales. J. H. Maiden.

Psychotria Jackii, *Hook. f.* (*Rubiaceæ*.)

a. L. fl., Selangor. H. N. Ridley.

Note.—Used as an antidote for snakebite.

Pterisanthes heterantha, *M. Laws.* (*Ampelidaceæ*.)

a. L. fl., Selangor. H. N. Ridley.

Note.—The leaves are applied for swollen legs.

Pterisanthes polita, *M. Laws.*

a. L. fl., Selangor. H. N. Ridley.

Note.—The flowers are borne on a curious leaf-like expansion of a tendril, opposite to a leaf.

Pterocarpus Angolensis, *D.C.* (*Fabaceæ*.)

a. L. fl., B. C. Africa. Dr. D. Kerr Cross.

Note.—The bark and gum are used for dysentery and pleurisy.

Pterocarpus erinaceus, *Lam.*

a. L. fl. Comm. Sir T. Hanbury.

Note.—This tree is the source of African Kino.

P. Indicus, *Willd.*

a. L. fl. Cultivated, Singapore. H. M. Morgan.

P. melliferus, *Welw.* "Bousia."

a. L. fl., B. C. Africa. Dr. D. Kerr Cross.

Note.—The tree yields an astringent bark and gum.

Pycnanthemum incanum, Michx. (*Lamiaceæ*.)

a. L. fl., N. Carolina. Biltmore Herb.

Pyrola elliptica, Nutt. (*Ericaceæ*.)

a. L. fl., New Jersey. Dr. H. H. Rusby.

Pyrus Americana, D.C. (*Rosaceæ*.)

a. L. fl., N. Carolina. Biltmore Herb.

Quercus alba, Linn. (*Corylaceæ*.)

a. L. fl. (1) New Jersey. Dr. H. H. Rusby. (2) N. Carolina. Biltmore Herb.

Quercus palustris, Du Roi.

a. L. fl., Tennessee. Biltmore Herb.

Quercus rubra, Linn.

a. L. fl., N. Carolina. Biltmore Herb.

Note.—The leaves of the last two species, as well as those of *Q. coccinea*, turn a brilliant red in autumn.

Randia longiflora, Lam. (*Rubiaceæ*.) “Kayu jilong gelong.”

a. L. ft., Malacca. H. N. Ridley.

Note.—Used in dysentery.

Randia malleifera, Hook. f.

a. L. ft., B. C. Africa. Dr. D. Kerr Cross.

Note.—Used in medicine by the natives.

Raphiolepis Indica, Lindl. (*Rosaceæ*.)

a. L. fl. Cultivated, La Mortola. Sir T. Hanbury.

Note.—Yields a red dye.

Rhamnus alnifolia, L'Herit. (*Rhamnaceæ*.)

a. L. ft., Vermont. Dr. H. H. Rusby.

Rhamnus Caroliniana, Wall.

a. L. ft., Tennessee. Biltmore Herb.

Rhus glabra, Linn. (*Anacardiaceæ*.)

a. L. fl. ft., N. Carolina. Biltmore Herb.

Note.—Fruit official in the U.S.P.

Rhyncosia cyanosperma, Benth. (*Fabaceæ*.)

a. L. fl. ft., B. C. Africa. Dr. D. Kerr Cross.

Note.—An infusion of the root is used as a vermicide for *Bilharzia hamatobia*.

Rhyncosia mimima, *D.C.*

a. L. fl., B. C. Africa. Dr. D. Kerr Cross.

Note.—Used in medicine by the natives.

Rhyncosia viscosa, *D.C.*

a. L. fl., B. C. Africa. Dr. D. Kerr Cross.

Note.—"This is stated to be a medicine used to find out an adulterer."

Robinia Pseudacacia, *Linn.*

a. L. fl. and young ft., N. Carolina. Biltmore Herb.

Note.—See *Report*, Nos. 20 and 21, of the *Wellcome Research Laboratory*, on the chemistry of the bark, by Dr. F. Power, and on its anatomy, by P. E. F. Perrédès, B.Sc.

Rosa centifolia, *Linn.*, var. **alba**. "Rose unique."

a. L. fl. Cultivated, Sevenoaks. E. M. Holmes.

Rosa Indica, *Linn.* "Rose verte."

a. L. fl. Cultivated, Sevenoaks. E. M. Holmes.

Note.—In this variety the petals are green like the leaves.

Rourea fulgens, *Planch.* (*Connaraceæ*) "Akar asam."

a. L. fl. Cultivated, Singapore. H. M. Morgan.

Rubus Canadensis, *Linn.* (*Rosaceæ*)

a. L. fl., New Jersey. Dr. H. H. Rusby.

Rubus strigosus, *Michx.*

a. L. fl. ft., N. Carolina. Biltmore Herb.

Rubus villosus, *Ait.*

a. L. fl. ft., N. Carolina. Biltmore Herb.

Note.—The root bark of *R. Canadensis* and *R. villosus* and the fruit of the *R. strigosus* are official in the U.S.P.

Rumex Magellanicus, *Griseb.* (*Polygonaceæ*)

a. L., Costa Rica. C. T. Underwood.

Note.—Used in medicine by the natives.

Sabal Palmetto, *Lodd.* (*Palmaceæ*)

a. L. fl., N. Carolina. Biltmore Herb.

Note.—Used in medicine in the United States.

S. purpurea, Linn., var. *minor*. (*Salicaceæ*.)

a. L. fl.

S. vitellina, Linn.

a. L. fl.

Note.—These specimens represent the plants used in Jowett and Potter's experiments on the salicin contents of willow barks, the *S. purpurea*, Linn. f. *minor*, being the species described without name as "narrow leaved." See *Year-book of Pharmacy*, 1902, p. 483.

Salvia Chia, *La Llave*. (*Lamiaceæ*.)

a. L. fl. Cultivated, Cambridge. R. I. Lynch.

Note.—*Amer. Journ. Pharm.*, 1882, p. 23. In *Pharm. Mexicana*, 1896, p. 64, Chia seed is referred to *Salvia polystachya*, Orteg, and *S. Columbaria*, Benth. The plant was grown from Mexican seed sent from this Museum to Cambridge Botanic Gardens.

Sambucus Canadensis, Linn. (*Caprifoliaceæ*.)

a. L. fl. ft., New Jersey. Dr. H. H. Rusby.

Note.—The flowers are official in the U.S.P.

Sapium Jenmani, Hemsl. (*Euphorbiaceæ*.)

a. L. Bogota. R. Thomson.

Sapium verum, Hemsl.

a. L. Bogota. R. Thompson.

Note.—This is the *Sapium* species of the *Museum Report* of 1895, p. 87. It has been described in the *Icones Plantarum*, No. 2647, from perfect specimens. It yields an excellent India-rubber known as "Virgen."

Sciadopitys verticillata, Sieb. et Zucc. (*Pinaceæ*.)

a. L. Cultivated, Falmouth. Miss Fox.

Smilax leucophylla, Bl. (*Liliaceæ*.)

a. L. ft., Singapore. H. N. Ridley.

Solanum chenopodium, F. v. Muell. (*Solanaceæ*.)

a. L. fl. ft., Queensland. Dr. E. B. Ormerod.

Note.—See *Pharm. Journ.* [4], XIV., p. 174. The plant is used in the Gulf of Carpentaria, Australia, for dysentery or enteritis.

Sphæranthus Africanus, Linn. (*Asteraceæ*.)

a. L. fl., Singapore. H. N. Ridley.

Note.—Used for toothache, like *Spilanthus oleraceus*.

Spiræa tomentosa, Linn. (*Rosaceæ*). "Hardhack."

a. L. fl., Maine, U.S.A. Dr. H. H. Rusby.

Note.—The leaves are used as an astringent in the United StatesSee *Nat. Disp.*, p. 493.**Stillingia sylvatica**, Linn. (*Euphorbiaceæ*). "Queen's Root."

a. L. fl., Florida. Dr. H. H. Rusby.

Striga Forbesii, Benth. (*Scrophulariaceæ*)

a. L. fl., B. C. Africa. Dr. D. Kerr Cross.

Note.—The plant is used in medicine by the natives.**Strophanthus Amboensis**, Engl. and Pax. (*Apocynaceæ*.)

a. Seeds, Angola. Herb. Berlin.

Note.—The seeds are pale brown and hairy.**Strophanthus Arnoldianus**, De Wildem. and Durand.

a. Seeds, Congo. Rev. M. Bentley.

Note.—Received through Messrs. Burroughs Wellcome and Co. The seeds resemble those of *S. hispidus*, are five lines long, dark brown in colour, and give a green reaction with sulphuric acid, but the bare part of the awn is only slightly longer than the seed. A second specimen imported for Old Calabar, and offered to Liverpool as "Kakoni" seed, was presented by Mr. T. Wardleworth. Professor Hartwich has examined the seeds of this species and finds *Strophanthin* in them.

Strophanthus Courmontii, Saccl.

a. L. fl., Nyassaland. F. L. Moir.

S. Courmontii, Saccl., var. **fallax**, Holmes.

a. L. fl. ft., B. C. Africa. J. M. Clounie.

Note.—Presented by Messrs. Burroughs and Wellcome. These plants were grown from seed introduced by the late Sir J. Buchanan, and grown at Zomba at an altitude of 2,000 ft. The flowers are open in April, May and June, and the fruits ripen about September.

Strophanthus Courmontii, Saccl., var. **Kirkii**, Holmes.

a. St. L. fl. ft., Mikorongo. F. L. Moir.

Note.—This plant has smaller leaves and smaller flowers with undulating petals, short pods, and a remarkably corky stem. See *Pharm. Journ.* [4], XII., p. 483.

Strophanthus dichotomus, D.C.

a. L. Cultivated, Cambridge. R. I. Lynch.

Strophanthus ecaudatus, Rolfe. (*E. Welwitschii*, K. Schum.)

a. L. fl. Dr. Franchet; Seeds, *ex* Herb. Berlin.

Strophanthus gratus, Franch.

a. L. fl. Abbeokuta. Dr. Rowland. Presented Herb. Kew.

b. Fl. l. pod, Abbeokuta. Rev. E. Fry. Comm. T. Wardleworth.

c. Seeds, Cameroons, *ex* Herb. Berlin.

Note.—The seeds of this species or of *S. Tholloni* were used by Arnaud as a source of Ouabain.

S. Paroissii, Franch.

a. L. pod, Senegambia.

Note.—See Planchon, *Prod. Apocyn.*, p. 58-83; Peyrau, *Strophanthus*, pp. 88, 91, 163, with fig. Dr. Stapf identifies this with *S. sarmentosus*, A.V.D.C., in *Flora Trop. Africa*, Vol. I., pt. 1, p. 180.

Struthiopteris Germanica, K. Schum. (*Filices*.)

a. L., fruiting frond, Sausitz, Hohenacker, No. 844.

Note.—Used in Germany like *Athyrium Filix-femina* as a substitute for male fern, and contains also polystichic acid.

Strychnos cogens, Benth. (*Loganiaceae*.) "Arimeru."

a. L., Mt. Roraima, B. Guiana. *Ex* Herb. Kew. Coll. Mr. J. J. Quelch.

Note.—An ingredient in Urali poison. See p. 58, under Curare.

Strychnos gracillima, Gilg.

a. L., Zomba, B. C. Africa. Dr. D. Kerr Cross.

Note.—The pulp and ground seeds of the fruit are applied to sores. See Engler, *Jahrb.*, VII., p. 513, for the description of the plant.

Strychnos Gubleri, G. Planch. "Arakwa."

a. L., Mt. Roraima, Herb. Kew. Coll. J. J. Quelch.

Strychnos hirsuta, Spruce. "Roraibong."

a. L., Mt. Roraima. J. J. Quelch. Herb. Kew.

Strychnos Malaccensis, Benth.

a. L., Penang. H. N. Ridley.

Strychnos pedunculata, Benth. (*S. Schomburgkiana*, Klotzsch. "Jaki.")

a. L. Mt. Roraima. J. J. Quelch. *Ex* Herb. Kew.

Swertia paniculata, Wall. (*Gentianaceæ*.)

a. Plt. Konain, India. Dr. G. Watt. No. 9979.

Symplocos tinctoria, L. Herit. (*Styracææ*.)

a. L. fl. ft., N. Carolina. Biltmore Herb.

Note.—The leaves have a sweet taste and give a yellow dye. The root is used as a digestive.

Tabernæmontana corymbosa, Roxb. (*Apocynaceæ*.)

a. L. fl., Singapore. H. N. Ridley.

Note.—The milky juice is used for syphilis by the Malays.

Teucrium Canadense, Linn. (*Lamiaceæ*.)

a. Plt., New Jersey. Dr. H. H. Rusby.

Teucrium fruticans, Linn.

a. L. fl. Cultivated, La Mortola. Sir T. Hanbury.

Tinomisium petiolare, Miers. (*Menispermaceæ*.)

a. L. fl., Singapore. H. N. Ridley.

Trachylobium Hornemannianum, Hayne. (*Fabaceæ*.)

a. L. fl. Coll. Capt. Playfair, 1865. Comm. Sir T. Hanbury.

Note.—This tree yields Zanzibar copal or animi.

Trillium erectum, Linn. (*Liliaceæ*.) “Beth root.”

a. L. fl. rt., N. Carolina. Biltmore Herb.

Triphasia Aurantiola, Lour. (*Rutaceæ*.)

a. L. fl. ft., Singapore. H. N. Ridley.

Tristania suaveolens, Sm. (*Myrtaceæ*.)

a. L. fl., N. S. Wales. J. H. Maiden.

Turnera ulmifolia, Linn. (*Turneraceæ*.)

a. L. fl. Cultivated, Singapore. H. M. Morgan.

Note.—It possesses mucilaginous properties.

Uncaria Gambier, Roxb. (*Rubiaceæ*.)

a. L. fl. ft. Cultivated, Singapore. H. N. Ridley.

Unona discolor, Vahl. (*Anonaceæ*.)

a. L. fl., Selangor. H. N. Ridley.

Uraria crinita, Derr. (*Fabaceæ*.)

a. L. fl., Malacca. H. N. Ridley.

Urceola elastica, Roxb. (*Apocynaceae*) "Getah gegrip tembago."

a. L. fl., Penang. H. N. Ridley.

Note.—This species yields a good rubber.

Urceola lucida, Benth. and Hook. "Akar gegrip merah."

a. L. fl., Malacca. H. N. Ridley.

Urophyllum Griffithianum, Hook. f. (*Rubiaceae*)

a. L. fl., Singapore. H. N. Ridley.

Note.—An infusion of the leaves is used for fever and headache.

Verbena littoralis, H. B. and K. (*Verbenaceae*)

a. L. fl., Costa Rica. C. T. Underwood.

Note.—Used in medicine by the natives.

Viburnum prunifolium, Linn. (*Caprifoliaceae*)

a. L. fl. ft., N. Carolina. Biltmore Herb.

b. L. ft., New Jersey. Dr. H. H. Rusby.

Villamilla octandra, Hook. f. (*Phytolaccaceae*)

a. L. fl. ft. (1) Panama. Sutton Hayes, No. 48; (2) Cordoba, Mexico. Sir T. Hanbury.

Viola hastata, Michx. (*Violaceae*)

a. L. fl., N. Carolina. Biltmore Herb.

Note.—*V. tripartita*, Ell., is referred to this species in the *Kew Index*. The degree of division of the leaf varies considerably, the two forms often growing together.

Vitis hederacea, Ehrh. (*Ampelidaceae*) "Virginia creeper."

a. L. ft., New Jersey. Prof. H. H. Rusby.

Willughbeia coriacea, Wall. (*Apocynaceae*) "Getah garu."
"Getah gerip putch."

a. L. fl. ft., Penang. H. H. Ridley.

Willughbeia edulis, Roxb. "Getah gerip."

a. L. fl., Singapore. H. N. Ridley.

Willughbeia firma, Blume. "Getah gerip Hitam."

L. fl., Singapore. H. N. Ridley.

Note.—"One of the best rubber vines. It has a black bark, hence the name "hitam." *W. edulis* yields a rubber; that of *W. coriacea* sets slowly, and is used for mixing with other rubbers." Ridley, *Malay Plant Names*, p. 97.

Xanthoxylon Clava-Herculis, Linn. (*Rutaceæ*.)

a. L. fl. ft., Florida. Dr. H. H. Rusby.

Note.—The bark is official in the U.S.P., under the name of *X. Carolinianum*, Lambert.

Zingiber Cassumunar, Roxb. (*Scitamineæ*.)

a. L. fl., Selangor. H. N. Ridley.

Note.—Yields cassumunar root.

Zygadenus muscætoxicum, Regel. (*Liliaceæ*.) (*Amianthium muscætoxicum*.)

a. L. fl. rt., N. Carolina. Biltmore Herb.

Zysmalobium bellum, N. E. Brown. (*Asclepiadaceæ*.)

a. L. fl., B. C. Africa. Dr. D. Kerr Cross.

Note.—Used in medicine by the natives.



DONATIONS TO THE MUSEUM.

WITH DESCRIPTIVE NOTES.

Aconitum ferox.

The botanical source of the large root, known as Nepal or Indian aconite, which occasionally appears in the English drug market, has hitherto been stated to be *Aconitum ferox*, Wall. But, about twelve years ago, on growing at Sevenoaks some of the plants so called in botanic gardens, I noticed that the roots never approached in size or in character those of the imported root, and was led to believe that the latter must be derived from some other species. Dr. George Watt, the Government Reporter on Economic Products to the Indian Government, happened to visit this country soon afterwards, and at my request, about the year 1893, he promised to try to find out what species of *Aconitum* really yielded it. On his return to India he sent to all the aconite-producing districts in the north of India for specimens of the plants, with roots, of any kind of aconite collected for use in medicine or as poisons; and specimens of these were forwarded to the Museum of this Society, and to the Royal Herbaria at Kew and Edinburgh, and roots to the Imperial Institute in quantity sufficient for chemical examination. The fine collection of herbarium specimens of these plants reserved for the Calcutta Museum have been compared in the Kew Herbarium with the rich collection of species of aconite there, by Dr. O. Stapf, who has identified most of them as new species hitherto undescribed. In the absence of a good series of other species for comparison, they had previously been regarded by Dr. P. Bruhl as varieties of *A. ferox*, Wall. (*Ann. Roy. Bot. Gard., Calcutta*, Vol. V., p. 110), a conclusion which has been shown to be incorrect, since the plants differ both in flower and root structure, as well as in less important details.

Dr. Stapf's identifications are as follow:—The plant cultivated in botanical gardens under the name of *A. ferox*, Wall., is not that species but a new one, which he describes under the name of *A. Balfourii*, Stapf, in honour of Professor J. H. Balfour, who first published a description and illustration of the plant in the *Edinb. Phil. Trans.*, 1849 (p. 366, pl. V.). The Nepal aconite of commerce he believes to be derived from the following species which have been obtained from the northern provinces of India, but not as yet from Nepal, which is exceedingly difficult of access to botanists:—(1) *A. spicatum*, Stapf; (2) *A. deinorrhizum*, Stapf; (3) *A. laciniatum*, Stapf. Externally, the dried roots of all three much resemble each other. Internally the root of *A. deinorrhizum* can be distinguished by having a discontinuous stele of two or more horseshoe-shaped bundles, and by tapering more rapidly from the broad crown. I have not found this species in the Museum specimens of the Nepal aconite of commerce. The root of *A. spicatum* shows a rounded or compressed stele without well-marked angles, and that of *A. laciniatum* has a strongly-marked stellate stele. These two species appears to yield the chief roots present in the Nepal aconite of commerce. The plants are distinguished by the vernacular names of "Bikh" for *A. spicatum* (Sikkim), "Kalo Bikhoma" for *A. laciniatum* (Sikkim), and "Mohra" for *A. deinorrhizum* (Bashahr). Other species of aconite presented by Dr. Geo. Watt will be found in the list of additions to the Herbarium, but none of them are large enough to be regarded as sources of Nepal aconite.

Aloes (*Uganda aloes*).

A variety of aloes appeared in commerce in 1899 under the name of Uganda aloes. At first it was supposed from the name "Uganda," which is used as a brand name, that it came from Uganda, and was similar to Socotrine aloes, and consequently it then fetched the price usually paid for that aloes. It was found, however, on examination, that it did not correspond chemically to that aloes, but to Cape aloes, and subsequently it was discovered that it was produced in Mossel Bay, in Cape Colony, and the price then went down to that paid for fine Cape aloes. It consists of the juice of *Aloe ferox*, carefully dried in the sun. In purity, and in the care taken in its preparation, it is superior to any other variety of Cape aloes, but on analysis it has been found to vary somewhat in the amount of aloin present, probably according to the time of year at which it is prepared. It gives about 65 per cent. of soluble matter to water, as against 60 from Cape and 69 from Barbados aloes. An account of it will be found in the *Pharm. Journ.* [4], VIII., p. 230, 296; [4], XI., p. 573; XIII., p. 33.

Aloes Wood (*Lignum Aloes*).*

This drug consists of heartwood in which a resinous deposit has been formed in lines or striæ, which vary in diameter and in distribution in different kinds of the wood. This resinous matter is absent from the young wood, and appears to be a pathological product (at all events in some cases) developed by injury caused by fungi or insects. It is especially developed in the isolated phloem bundles, hence the streaky appearance of the wood. The resinous matter is insoluble in water, alcohol or ether, but is soluble in alkalies, and in chloral hydrate.

The exact botanical sources of the different varieties of aloes wood in eastern commerce have long been doubtful. These woods are generally attributed to species of the genus *Aquilaria*, but some are evidently derived from other genera and families.

The Museum is comparatively rich in these varieties, which include a series of specimens of the drug contributed some years since by Mr. J. G. Prebble, of Bombay. During the time that Dr. Josef Moeller was investigating the microscopical structure of lignum aloes, specimens from this Museum were forwarded to him for examination. A report of the results he obtained was published in the *Pharm. Post* for 1896 and 1898, of which an abstract is here given so far as relates to specimens in the Museum of this Society, with a few illustrations of the different structures found in the more distinct kinds.

Further information concerning aloes wood is given in *Hanbury Science Papers*, pp. 263-5; *Dymock, Mat. Med., West India*, p. 239; *Watt, Dict. Econ. Prod., India*, I., p. 279; *Linn. Soc. Trans.*, XXI., pp. 199, 206., XI., p. 230.

TRUE ALOES WOODS.

The wood of the genus *Aquilaria*, from which the true aloes woods are derived, is characterised by intraxylary phloem strands, which have hitherto been found in no other wood (see Fig. 1); by the libriform tissue being replaced by fibre-like tracheids; by the radially arranged vascular groups sparingly surrounded with parenchyma; and by the medullary rays consisting of a single row of cells. The differences in the structure in the various species are not very pronounced.

Chinese Agar, or "Hiang-chai," from Hong Kong. The Museum specimens consist both of young wood without resinous deposit, and of pieces of resinous heartwood. This drug is referred by Dr. J. Moeller to *Aquilaria grandiflora*, Benth.

The phloem bundles often extend across more than one of the medullary rays, and occur also in the pith, which contains large prisms of calcium oxalate. The vessels are in short radial groups, and are not entirely encircled by parenchymatous cells, these being sparsely scattered. The medullary rays are free from crystals. Isolated parenchyma fibres are only to be distinguished by their pores. The tracheids are broad and slightly thickened.

* Various local vernacular names are given to Aloes wood, e.g., Agar, Garoo, Ood, Calambac, Eaglewood, etc.

Lignum aloes, of Bombay. This is the produce of *Aquilaria Agallocha*, Roxb. It may be the kind which earned for the drug the name of eaglewood, since the black resinous streaks recall the appearance of the markings on feathers. The vessels occur singly, or in groups of two or three, and parenchyma occurs irregularly outside the phloem strands. The medullary rays very rarely contain crystals, though the resinous matter occurs in them, and in the tracheal elements.

Gaguli Agar of the Bombay bazaars. This is said to come from Canton.

In structure it resembles *Aquilaria grandiflora*, Benth., but the tracheids are broader and less thickened. The contents of the medullary rays and phloem parenchyma are of a more or less deep blackish-brown colour. Dr. Moeller doubtfully suggests *Aquilaria ophiosperma*, Poir, as the source of this wood.

Jangli Agar (Fig. 2), as well as the Singapore agar of the Bombay market (Fig. 3), is referred to *Aquilaria Malaccensis* by Dr. J. Moeller. In the former the resinous lines are thicker (about $\frac{1}{8}$ inch in diameter), and the transverse section shows them as a loose network of lines, $\frac{1}{4}$ to $\frac{1}{3}$ inch apart. In the Singapore agar (Fig. 3) the greater proportion of the wood is formed of dark bands with only narrow lines of pale wood separating them.

"*Jaho Jandjong Penang*," from Borneo, is possibly the product of *Aquilaria microcarpa*, Baill., a Bornean species.

Marwadhi Agar.—Mr. J. G. Prebble attributes this wood to *Aquilaria Malaccensis*, Benth., and Dr. J. Moeller confirms his opinion. The latter also refers a dark-coloured agar, from the India Museum, to the same species. In the former the dark resinous lines are very long and slender. In the marwadhi agar the wood is soft, the tracheids are not coloured, and the phloem strands scarcely browned with deposit. In the agar from the India Museum the wood is dark brown, as if impregnated with tar, very hard, and aromatic when burned. The resinous matter is partly soluble in alkalies, and partly emulsified by them. The distinctive characters reside in the greater thickening of the elements, and the widening out here and there of the medullary rays into two rows of cells, and in the greater abundance of single crystals in the medullary rays and wood parenchyma.

FALSE ALOES WOODS.

Gaguli Agar from Singapore, of the Bombay market (Fig. 4). This wood does not agree in structure either with *Aquilaria* or with *Gonostylus Miquelianus*, from which some of the false aloes woods are obtained. The vessels are irregularly distributed, frequently grouped radially, and are not surrounded with parenchyma, which is distributed in single, or rarely in double, transverse rows, which often anastomose, and thus give the wood a reticulated appearance. The libriform tissue consists of strongly thickened fibres. The medullary rays usually consist of a single row of cells, and contain numerous large crystals.

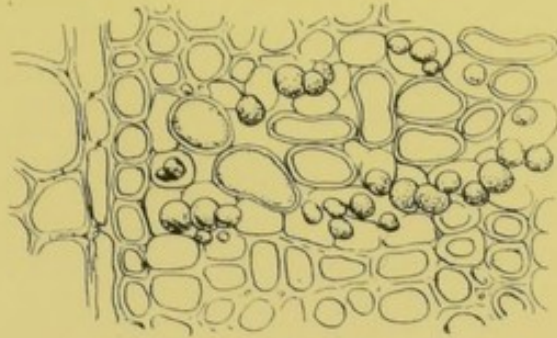


FIG. 1.

Aquilaria sp.—Showing intraxylary phloem bundle and starch.

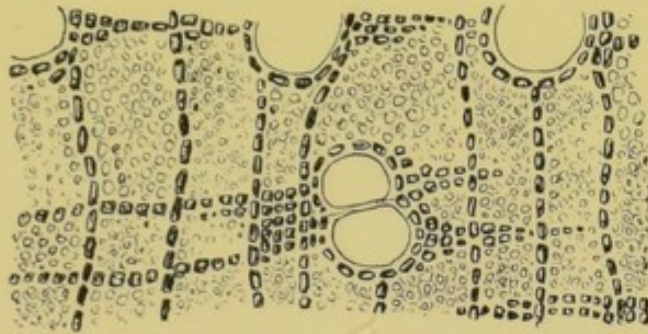


FIG. 2.

Jangli Agar (*Aquilaria Malaccensis*), from *Bombay*.

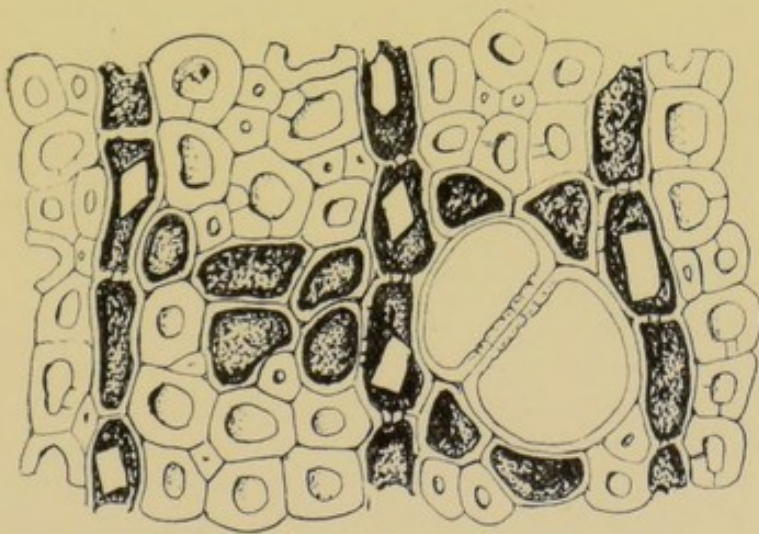


FIG. 3.

Singapore Agar (*Aquilaria Malaccensis*) of the *Bombay Market*.

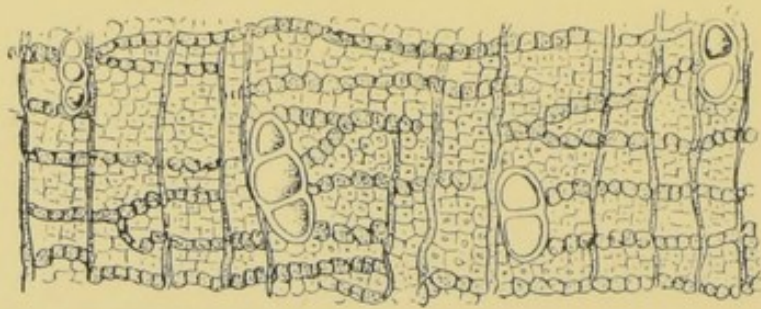


FIG. 4.

False Lignum Aloes.—*Gaguli Wood from Singapore.*

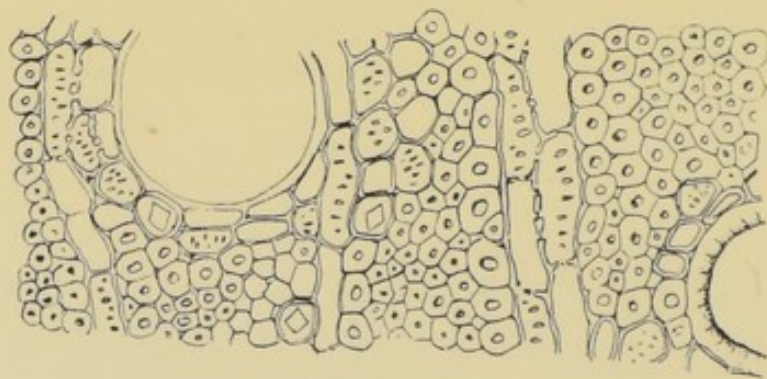


FIG. 5.

Taggar Wood.—*Transverse section, after J. Moeller.*

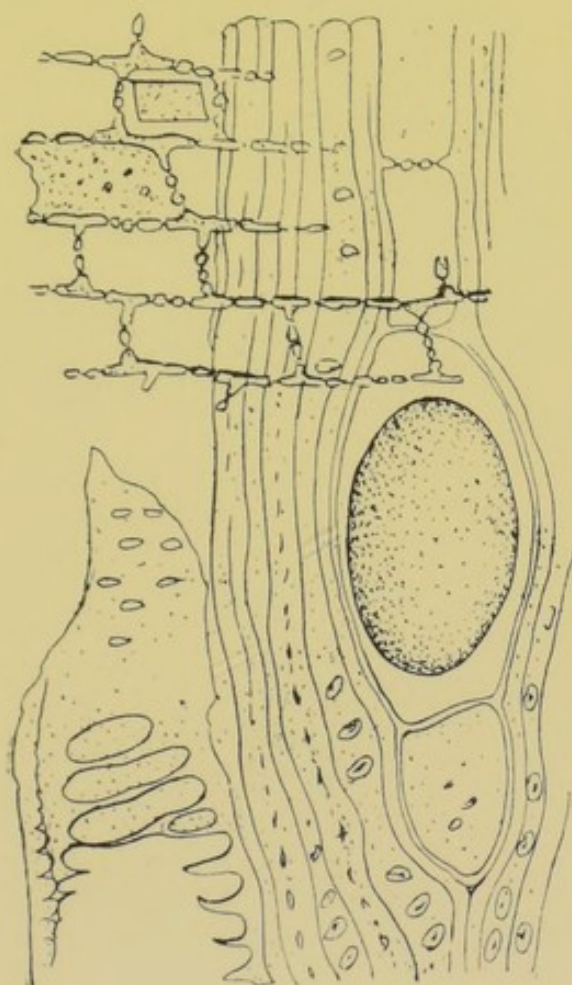


FIG. 5A.

Taggar Wood.—*Radial section.*

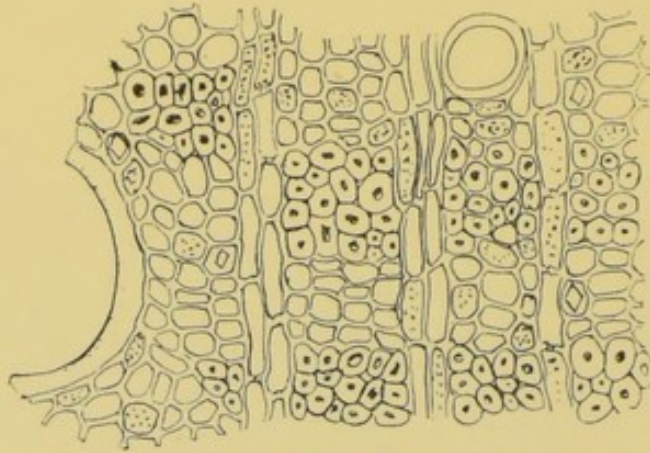


FIG. 6.

Lakar Wood (Dalbergia Zollingeriana).

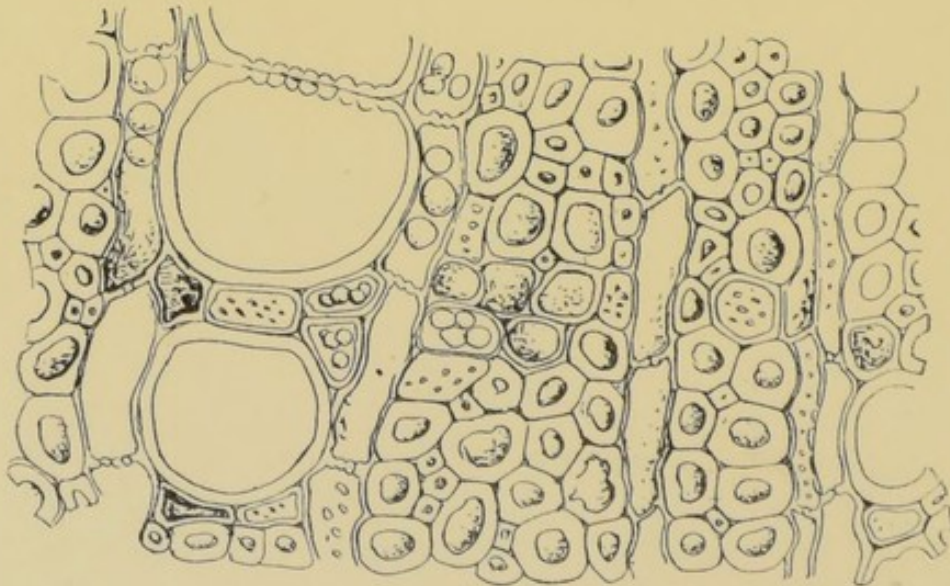


FIG. 7.

Gonostylus Miquelianus.—Transverse section, after J. Moeller.

Garoo Wood of the Island of Riour (Fig. 7).—This is a light coloured wood, with a few blackish veins, and has an odour recalling slightly that of patchouli. It is referred by Dr. J. Moeller and also by the late Dr. W. Trimen to *Gonostylus Miquelidanus*, Teijsm. and Binn. (See Fig. 7.) This differs from *Aquilaria* in the sap-wood being very hard like that of beech, in the absence of intraxylary phloem, and in the presence of cluster crystals, as well as single crystals, in the medullary rays. The wood is rich in vessels, which are usually in pairs, and is poor in parenchyma. The vessels are relatively strongly thickened, and their walls thickly beset with large bordered pores. The wood fibres are replaced by tracheids, which are less thickened than the vessels.

Lakar Wood of Borneo (Fig. 6).—This wood occurs in collections of Chinese materia medica as a substitute for lignum aloes, and figures in the Blue Books under the name of Lakar. It is a dark purplish-red, heavy resinous wood. It is usually attributed to *Dalbergia Zollingeriana*, Miq.

Taggar Wood (Figs. 5 and 5a).—This dark, brown wood is exported from the north of Madagascar (where the tree is known as "Hazo-mainty," i.e., black wood) to Zanzibar, whence it reaches Bombay. The vessels are usually isolated, their joints perforated in a scalariform manner, their walls have relatively large pits, and they are only sparingly surrounded with parenchyma fibres, which are either isolated or form short transverse series between the fibre tracheids, which are thick walled and furnished with large pits. Large oil cells, with yellow contents, are also present, and the medullary rays consist of one or two rows of cells. The oil cells and scalariform vessels indicate that it is probably derived from a Lauraceous tree. The dark brown volatile oil of the wood has been prepared by Messrs. Schimmel and Co.

Anhalonium Lewini.

The flowering tops of this singular Cactaceous plant have long been used in Mexico and Texas in medicine, and as a kind of intoxicant, under the name of Pellote or Peyote. It was introduced into medicinal use in the United States under the name of muscale or mescale buttons, and produces some remarkable physiological effects (*Pharm. Journ.* [4], V., p. 520, 534; and Vol. VII., p. 457), due to several alkaloids which have been examined by Lewin, Hefter, and E. White.

Anhalonidine and mescaline were obtained to the extent of 1.16 per cent. (about equal proportions of each), anhalonine, 0.46 per cent., and lophophorine 0.14 per cent. (*Pharm. Journ.* [4], IX., p. 357). The characteristic feature of its action is stimulation of the occipital cerebrum (*Journ. Physiology*, Sept., 1899, p. 69). For illustration of the plants, see *Rep. Missouri Bot. Gard.*, 1898, p. 127.

Anise Bark of Madagascar.

This bark was examined in 1891 by Schimmel and Co., who received it from Madagascar. Gildermeister and Hoffman (*Volatile Oils*, 1900, p. 690-1) suggest that it may be the bark of *Illicium parviflorum*, Mich., but that is a Floridan species. The late Prof. Baillon referred it to *Cinnamosma fragrans*, Baill. (*Canellaceae*). The bark yields 3.5 per cent. of a volatile oil, specific gravity 0.959, and a rotation of -0.46 . It consists largely of methyl-chavicol with a small amount of anethol. It is not certain that Prof. Baillon's determination is correct, since the bark has been microscopically examined by Dr. E. Heckel, who has no doubt that the structure of the bark indicates that it belongs to the *Lauraceae*. A tree called "Laza" in the north of Madagascar is mentioned in a list of timber trees by M. Cachin, who states that the wood smells of aniseed, and who refers the tree to the *Lauraceae*. This tree has apparently not yet been identified botanically.

Asafetida.

The asafetida of British commerce is probably derived from more than one species, since some of the specimens in tears do not turn red, even if kept for years. The tears derived from *Ferula Narthex*, collected some years ago by Dr. J. E. T. Aitchison, have not the faintest tinge of red, but he could not ascertain that the drug was collected from this species in Kashmir. Whether the ordinary kind that turns red on exposure to light and air is derived from *Ferula fœtida*, Regel., or from some other species has not yet been determined, and the plant seen by Kämpfer, from which he saw the drug collected in Laristan, has not ever been absolutely identified. A plant received from Dr. D. Prain, obtained in Baluchistan, is not, so far as can be judged from its fragmentary character, either *F. fœtida* or *F. Narthex*. It was collected by Surgeon-Captain F. P. Maynard at an altitude of 5,000 feet, on the hills between Samuli and Robat, March 21, 1896. The young leaves of it approach more nearly in character to those of the *Ferula alliacea*, Boiss., but do not seem to be identical in character. A specimen of an Asafetida plant presented by Mr. F. W. Burbidge, which flowered in the Botanical Gardens of Trinity College, Dublin, in 1895, appears to be closely allied to *Ferula alliacea*, if not identical with it.

Asclepias Curassavica.

This plant was forwarded by Dr. Dathan de St. Cyr, of Hayti, as a valuable remedy in the treatment of phthisis. He states that he has used it since 1875, and that "*Ses vertues contre la tuberculosis pulmonaire sont incontestables, et les nombreuses guérisons déjà obtenues viennent l'affirmer.*" *Les malades guéris par les extraits existent encore et peuvent le certifier.* Mr. J. R. Johnson, formerly resident in Jamaica, states that the plant is used in that island for various medicinal purposes. The leaves bruised are applied as a styptic to wounds, and the expressed juice is used as a clyster for bleeding piles, or poured into a wound as a styptic. Internally the juice is given as an emetic, in doses of one drachm to one ounce, for the same purpose, but the latter is regarded as not safe. The leaves are also given as a vermifuge and in female complaints.

Belladonna.

A new and dangerous adulterant of belladonna root was met with in this country in 1901, and proved to be the root of *Phytolacca decandra*. It was present to the extent of 60 per cent. in belladonna root imported from Trieste. The concentric rings present in the root readily distinguish it from belladonna (*Pharm. Journ.* [4], XII., pp. 591-2, Figs. A, B, C, D). The same root had previously been noticed by C. B. Lowe in America (see *Amer. Journ. Pharm.*, LXVI., p. 353, and *Pharm. Journ.* [3], XXV., p. 73). More recently the dried leaves of the same plant have been offered as belladonna, but may be recognised by their thinness, darker colour, and the absence of sandy raphides (*Pharm. Journ.* [4], XIII., p. 296). The epidermal cells also differ in the leaves of the two plants, being sinuate in belladonna, and polygonal in *Phytolacca* (*Pharm. Journ.* [4], XIV., p. 41). An interesting note on the oxydases in belladonna will be found in *Pharm. Journ.* [4], VIII., p. 96.

Cannabis Indica.

Recent publications have shown that the finest qualities of this drug are not exported to Great Britain, and that there is difficulty in obtaining it even in Calcutta, since the natives know that it loses its activity by age and exposure to the air, and prefer to dispose of the previous year's crop to Europeans. See *Dr. Prain's Report on the Cultivation and Use of Ganjah*, Calcutta, 1893, and *Pharm. Journ.* [4], XV., p. 129; XIV., p. 342. The new crop is harvested in February and March, and the spring is therefore the time to purchase the drug in the best condition. The resin "charas," or "churrus," appears to contain the active principle, and in this preparation the oxidation takes place more slowly than in the plant. Dr. C. R. Marshall considers the

activity to be due to a body containing cannabinol—a red, oily, or resinous fluid very prone to oxidation (*Pharm. Journ.* [4], XV., pp. 131, 171, 263, 284). Probably the best possible active preparation would be made with alcohol from the fresh resinous tops of the plant. See also *C. R. Marshall's Contribution to the Pharmacology of Cannabis Indica*, Dundee, 1899; Dixon in *Brit. Med. Journ.*, Nov. 11, 1899, p. 1354; *Pharm. Journ.* [4], IX., p. 521, on the use of inhalations of the smoke of the drug, and *Pharm. Journ.* [4], VI., p. 318.

Cassia Barks.

Specimens of the extremely expensive cassia bark used by the Chinese, but not exported to this country, presented by a former student, Mr. H. Humphreys, of Hong Kong, to this Museum, were sent for examination, together with other unnamed varieties of cassia, to Dr. Pfister, of Munich, and other specimens subsequently to Prof. Hartwich, of Zurich, when these pharmacognosists were investigating the histological characters of the different commercial varieties of cinnamon. Dr. Pfister's observations were published in 1893 (*Zur Kenntniss der Zimmtinden*, E. Wolff, Munich), and those of Prof. Hartwich in the *Archiv. der Pharmacie*, 1901. So far as these results concern the specimens from this Museum, an abstract is here given. Dr. Pfister reports as follows:—

(1) The high-priced thick-coated cassia barks received from Mr. Humphreys are derived from *C. Cassia*, D.C. See also p. 51, 54.

(2) The "*Cassia vera*" from Padang, and the cassia from Timor, and the "Cinnamon Kiamis" bark are the produce of *C. Burmanni*, D.C. Some of the cinnamon of Japan in the Museum of the Society is probably derived from *C. Loureirii*, Nees.

(3) *Cinnamomum iners* (Reinw.) is probably the source of the bark presented by Dr. Dymock under the name of *C. Tamala*, T. Nees, and Eberm., although the structure bears some resemblance to that of *C. Zeylanicum*.

(4) *Cinnamomum obtusifolium*, Nees, is the source of the cassia bark in the collection of Indian drugs in the Society's Museum, and of a hard cassia bark from Calcutta, *Mus. Cat.*, 1878, p. 112, No. 452e, then doubtfully referred to *C. Tamala*. Besides the ordinary cassia barks, several allied barks were reported on by Dr. Pfister, viz.:—

(5) *C. Culilawan*, Bl.—This yields "Kulit-Lawang," or Malayan clove bark, which has the following characters:—Bark of 4 to 5 Mm. thick, externally grey and smooth, inner surface yellowish brown.

The innermost layer of the periderm is developed into stone cells, the outer consists of thick-walled cells. The sclerenchymatous ring is irregular, not continuous; the secondary bark contains numerous groups of strongly thickened stone cells. The bast fibres are lignified, usually ribbon-shaped, 60μ broad and $500-900\mu$ long, generally arranged in tangential bands; porous cells absent; starch grains isolated, usually less than 10μ , rarely 20μ . Calcium oxalate crystals acicular and hone-shaped (p. 23). The botanical sources of Culilawan, Sintok, and Massoi barks, p. 21, were unknown to Hanbury. See *Science Papers*, pp. 178-187.

C. Sintok, Bl.—This is the source of "Sintok" bark. The fracture of the inner bark is laminated; the phelloderm formation extends outwards from the inner part of the pericycle; in the secondary bark band-formed bast fibres of 30 to 50μ broad and 780μ long occur; porous cells are present, often in groups; there is a considerable tendency to stone-cell formation, the sclerosis in the secondary bast developing usually towards the outside, but sharply limited on the inner side, forming a zone interrupted by the medullary rays, and easily seen under the lens as white tangentially-elongated strips; calcium oxalate occurs in needles (p. 24).

Cinnamomum Loureiri, Nees.—This is probably the source of Japanese cinnamon. Stone-cell ring very thin, interrupted here and there; the elements less than 50μ broad, slightly thickened; medullary rays, consisting of porous thickened cells, arranged in two to three rows. Bast fibres numerous, usually 30 to 40μ broad and $350-800\mu$ long, but also relatively short; starch grains usually 8 to 12μ , rarely 20μ in diameter; calcium oxalate occurs in tabular crystals. The bark examined was young, and the Japanese cinnamon appears to be root-bark, which may differ from stem-bark, though not necessarily so (p. 22). The characteristic features of the species of *cinnamomum* examined are the presence of thick-walled, small epidermal cells, with very few stomata. In the pericycle there are bundles of strongly-thickened fibres connected by a more or less continuous ring of stone cells, which are always thickened first on the inner side. The bast fibres are fusiform with few pores, rounded quadrangular in transverse section, and strongly thickened. The medullary rays are usually of thin-walled cells in one to three rows. The parenchyma of the whole bark shows a tendency to the formation of stone cells and mucilage cells. Calcium oxalate is always present, but never in cluster crystals. Dr. Pfister adds the following analytical table for distinguishing the different species under the microscope:—

1. Calcium oxalate in needle-shaped crystals, especially in the medullary rays.

a. Bast fibres few.

Secretory cells 60 to 100 μ in diameter. Secondary parenchyma, thin-walled, no porous cells.

C. Cassia.

b. Bast fibres numerous.

Cells of sclerenchymatous ring strongly elongated tangentially. Cells of secondary parenchyma isodiametric (not tangentially elongated).

C. Zeylanicum.

c. Cells of sclerenchymatous ring, as in *C. Zeylanicum*, but cells of secondary parenchyma tangentially elongated, flattened in the inner bark.

C. obtusifolium.

d. Cells of the sclerenchymatous ring not tangentially but usually radially elongated.

C. iners, Reinw.

2. Calcium oxalate in tabular crystals.

a. Cells of medullary rays with porous thickening.

Japanese cinnamon (root-bark).

b. Cells of medullary rays without porous thickening and with thin walls, groups of stone cells isolated.

C. Burmanni.

c. Porous cells present even in young bark, the whole of the secondary parenchyma with a tendency to sclerosis.

C. Tamala, Nees et Eberm.

In the powdered state the ordinary barks met with in commerce may be thus distinguished:—

1. Calcium oxalate in needles, rarely in tables.

d. Bast fibres and stone cells predominating.

Secretory cells 50 to 60 μ in diameter; wood elements and cork present.

Chips of *C. Zeylanicum*.

e. Bast fibres and stone cells not predominating over the starch-filled parenchyma secretion cells, 50 to 100 μ .

C. Cassia.

2. Calcium oxalate in tables; rarely in needles;

Porous cells absent.

C. Burmanni.

Porous cells present.

C. Tamala.

Dr. Hartwich describes the following barks from the Museum of the Society.

a. Saigon Cassia.—This is the Annam cinnamon of Dr. Henry (*Pharm. Journ.* [4], VI., p. 47), and is official in the *United States Pharmacopœia*, 1894, under the name of Saigon cinnamon. Dr. Hartwich considers it distinct from *C. Cassia* for the following reasons:—

1. The secondary fibres are extremely few and small, their diameter being 21 to 25μ to 25.8μ , the average being 23.6μ , as against those of *C. Cassia*, which are 24 to 40μ , according to Pfister, or $15-45\mu$, according to Tschirch and Oesterle.

2. The raphides are always acicular and abundant, sometimes forming thick tufts, measuring in the parenchyma of the primary bark 8.6μ , and in that of the secondary bark 21.5μ , and in the medullary rays 17.2μ . In *C. Cassia* they are more slender, in the medullary rays the largest are 7.6μ ; they are not found in the primary bark.

3. The secretory cells of the secondary bark are abundantly present, but measure only 64.5 to 73.1μ , or an average of 68.8μ at their largest diameter, those of *C. Cassia* being 60 to 100μ according to Pfister.

4. The mixed sclerotic ring in the primary bark presents no special features, the bundles of the primary fibres being almost wholly surrounded by the stone cells, so that the outer surface of the ring is limited by the parenchyma of the primary bark.

Thick Chinese Cassia (four specimens). These were presented to the Museum by Messrs. A. S. Watson and Co., of Hong Kong. The Chinese value them respectively at twenty-five and thirty times their weight of silver, and the fourth at 10 dollars (per catty?). A similar thick bark is mentioned in a *Pharmacographia* sent by Dr. H. F. Hance, Vice-Consul in Whampoa, and valued at 18 dollars per catty (65 francs for 484 grammes), see p. 54.

Dr. Hartwich considers all four to be derived from the same source, viz., *C. Cassia*, or possibly forms of it. In this respect his opinion coincides with that of Dr. Pfister.

The following specimens are from the Daniel Hanbury Collection of *Materia Medica*, but are not identified with known species.

b. Cassia lignea. Hanbury Collection. "Old, flavourless, and astringent."—The quills are of a clear red-brown colour with short clear striations, dark brown on the inner surface, inrolled, 3.1 Cm. in diameter and 3.5 Mm. in thickness. The outer bark is removed so that no primary or secondary sclerotic ring is visible. The cells of the medullary rays are in one to two rows, and are here and there lignified. Bast fibres are abundantly present and arranged in tangential series, and are strongly compressed in a radial direction, measuring 17 to 34μ in diameter, or on the average 25.8μ . The secretory cells measure 80μ . Porous cells are absent. The crystals, which occur almost exclusively in the medullary rays, are cubical or columnar, and about 34.4μ in size. This is the tasteless *Cassia vera* bark of Ellis and Hale's sale, April, 1856, in the Hanbury Collection of *Materia Medica*.

c. Cassia lignea, "Wild," 1851. Hanbury Collection.—Of a red-brown colour with darker striae on the outer surface. The quills are 1 Cm. wide and the bark 2 Mm. thick. The flavour is like that of *C. Cassia* but weaker, and the taste decidedly mucilaginous. The outer surface is removed and the bark consists almost exclusively of the secondary tissues. In the remains of the primary bark there are here or there isolated stone cells, and in these here or there a tabular crystal may be seen. The sclerotic ring is not visible. The secretory cells are up to 106μ in diameter. The crystals in the medullary rays are tabular, measuring 21.5μ , and are tolerably abundant in the parenchyma. These also are sometimes acicular. Porous cells are sparingly present.

d. Cassia lignea. Hanbury Collection.—This bark resembles the last, but is more spicy and has not a mucilaginous taste. The medullary rays are not extended as in *b*, and there is abundance of bast fibres (which are absent in *b*) forming a tangential series; they measure 28μ in diameter. Secretory cells rather smaller than in *b*.

e. Cassia lignea. Hanbury Collection.—Purchased from a Basle druggist in 1850. Resembling the former, but imperfectly peeled, since much of the primary bark and mixed sclerotic ring are present. The last is broken up by patches of parenchyma. The calcium oxalate crystals are very small and tabular, at the most 2μ . The secondary fibres very slender, up to 23μ in diameter. The secretory cells up to 60μ . The medullary rays are not extended outwards. The taste resembles that of *b*.

f. *Cassia lignea*, resembling Saigon cassia. Hanbury Collection.—This differs from the Saigon cassia in its feeble flavour, and is somewhat astringent. The colour is red-brown. The thinner pieces retain the primary bark and cork, the thicker are peeled and are up to 6 Mm. thick. The thinner pieces exhibit here and there extraordinary thick cuticle. The cork cells are strongly thickened on the inner side. In the parenchyma of the primary bark, tangentially-extended groups of stone cells occur, but there is no closed sclerotic ring, and there are no bast fibres. Secondary fibres are very sparingly present, and are isolated, and about 25.8μ in diameter. The secretory cells are tolerably numerous, up to 60μ in diameter. Tabular crystals are present in the medullary rays measuring up to 13μ . The medullary rays are extended outwards. Tangentially-elongated groups of stone cells occur outside the sclerotic tissue of the primary bark, and also tolerably deep within the bast. Porous cells are absent in the thin pieces, but abundantly present in the older scraped pieces. But in the bark of *C. Tamala*, Nees and Eberm., and in that of *C. pauciflorum*, porous cells were found by Pfister in the young bark, and in others, as *C. Burmanni*, they were found neither in the young nor in the thicker bark. This character must therefore be used cautiously in the discrimination of species.

g. *Cassia vera*, from Calcutta. Hanbury Collection.—The bark has a weak cassia flavour, and is somewhat astringent. The colour is dark red-brown. It occurs in quills and half-quills imperfectly scraped, in pieces about 3.5μ thick. The primary bark is mostly retained, and the mixed sclerotic ring is sometimes present in the remains of it. A few of the cells of the primary bark and of the bast are changed to thin-walled stone cells. The medullary rays are two cells broad, but are not extended outwards. Porous cells are absent. Fibres are abundantly present, mostly large in diameter up to 25.8μ compressed in short tangential rows. The secretory cells measure up to 60.2μ . Crystals are very abundant in the parenchyma, chiefly in the form of tables, in the medullary rays tables, and abundantly in the form of cylinders measuring up to 4.3μ and somewhat thicker in the middle than at the ends, where they are rounded off.

h. *Soapy Cassia Bark*. Hanbury Collection.—This is a thin bark of a dark red-brown colour 1.1 Mm. thick. The taste is remarkable, having at first a weak flavour of cinnamon, passing into a distinct one of rue. The bark is so strongly scraped that only the bast remains. The usually few fibres are arranged in tangential series, and measure 22.6μ , the secretory cells 47.3μ . The acicular crystals are so small that they can only be detected by polarisation.

i. Thick Cassia Bark.—From Mr. Reeves, Hanbury Collection, valued at 10 dollars per lb. The bast fibres measure as a maximum 34.4 to 35.7μ ; the secretory cells, which are very numerous, 77.4 to 94.6μ . The crystals, also very abundant, are acicular, or form slender cylinders and measure 25.8μ ; sometimes they form bundles in the medullary rays. Porous cells are absent. Only in one sample dotted cells were found in tolerable abundance in the bast parenchyma.

The following specimens of *Cinnamomum* barks, from the Museum of the Pharmaceutical Society, were also examined by Dr. Hartwich.

1.—*CINNAMOMUM OBTUSIFOLIUM*, Nees. Two samples (*a* and *b*) so named were examined.

a. From the India Museum. This is identical with a *cinnamomum* (No. 4, pp. 18) that Pfister has investigated. The bark has a very weak taste, scarcely recalling that of cinnamon, but the crystals are not only as Pfister states, in needles, but also in columnar forms and in elongated rhombs, and attain a length of 24.8μ . The maximum limit of fibres and secretory cells Hartwich finds to be:—Secondary fibres 28.0μ (Pfister 30 to 36μ); secretory cells 63 to 50μ (Pfister, 50 to 60μ .)

b. This is peeled as far as the primary sclerotic ring. The stone cells of the ring are tangentially elongated and mostly thickened on all sides, seldom only on the inner side. There are also isolated stone cells in the secondary bark. Porous cells were not found in either *a* or *b*. The secondary fibres form short tangential series, which are strongly compressed in the radial direction, and measure 29.5μ in diameter, the secretory cells 43.4μ . The crystals have the same form as in *a*, and measure 30.1μ . With the exception of the secretory cells *b* agrees with *a*. The smaller size of these, and the distinct coriander odour, shows that it cannot be referred to *C. obtusifolium*. Flückiger (*Pharmacognosie*) mentions a cinnamon that smells like tree bugs.

2.—*CINNAMOMUM INERS*, Reinw.

One sample so labelled (No. 23) is an imperfectly scraped quilled bark resembling cassia in appearance and in taste, and the other (No. 10) is in thicker pieces from Travancore, collected by Dr. Waring, and is evidently the kind mentioned in *Pharmacographia* (2nd edition), p. 239. It is probably derived from a plant which Thwaites considers not specifically distinct from *C. Zeylanicum*, but which Meissner regards as a good species.

In No. 23 the mixed sclerotic ring is scattered in isolated groups, the stone cells in which are essentially isodiametric and show frequently a tendency to be radially elongated, which Pfister has pointed out as characteristic of this bark. Tangential elongation of the groups, which in other species is so characteristic, is hardly noticeable. The few scattered fibres measure 32.25μ (Pfister 22 to 28μ), the secretory cells 51.6μ (Pfister 60 to 80μ), and the sparingly present needle-shaped or slender rhombic crystals 8.6μ . In No. 10 the bark is 5 Mm thick, of remarkably granular fracture, and the taste does not at all resemble cinnamon, is somewhat sweet and difficult to characterise, but recalls that of senna leaves. There is no trace of the primary sclerotic ring, which is evidently scaled off by cork formation. Numerous single cells of the parenchyma are transformed into thin-walled stone cells, which are frequently thicker on the inner side. There are also considerable radially-extended sclerotic groups, single cells of which show tangential elongation. Porous cells are few, sometimes with a few smaller pores in the large pore-plates. Secondary fibres show a tendency to a radial arrangement: they measure 26.9μ ; the secretory cells 51.6μ . The oxalate crystals are mostly needles, seldom slender rhombs; in the medullary rays they measure 12.9μ , in the parenchyma 38.7μ .

No. 23 agrees fairly well with the description given by Pfister of an authentic piece of *C. iners*, and doubtless is correctly named, but No. 10 evidently does not belong to this species.

3.—CINNAMOMUM WIGHTII.

This is a thick unscraped bark from Ootacamund. The quills are 1.2μ thick, and are covered with a clear grey-brown epidermis.

It has a sharp taste recalling the flavour of nutmeg. The cork cells are mostly thickened on one side; nothing more is to be seen of the primary sclerotic ring. There are numerous groups of stone cells tangentially elongated in the outer part and radially in the inner portion. The numerous secondary fibres are indistinctly arranged in tangential groups; they measure up to 34.4μ ; the secretory cells up to 56μ ; and the acicular crystals 8.6μ . There are a few small tabular crystals. The porous cells are indistinct.

ALLIED BARKS.

Clove bark from Singapore.—This resembles the Massoi bark of Schimmel and Co., but is more fibrous. It has a splintery fracture, and exhibits numerous tangential groups of stone cells. The fibres measure 26.5μ , the secretory cells 43μ . The crystals are acicular and up to 13μ long. (See Hartwich, *Neue Arzneidrogen*, p. 101.)

Massoia aromatica, Becc.—Dr. Pfister gives the following characters for *Massoia* bark:—Bast fibres 25 to 30 μ thick, very variable in form, slightly but equally thickened, roundish in transverse section, but always with oblique narrow pores. The stone cells are in groups, and have extremely numerous slender pore canals, the interior of the cells usually containing one or two large crystals of calcium oxalate (p. 26). The bark from German New Guinea used by Messrs. Schimmel and Co., under the name of *Massoi* bark, is probably yielded by a species of *Cinnamomum*. It has the following histological characters:—The primary bark is 3 Mm. thick, covered with a greyish cortex, the stone cell ring is not continuous, and is of very irregular thickness. The oxalate of calcium occurs in needles. Porous cells are present and isolated stone cells. The secondary bark is more than 1 Cm. thick, and shows phelloderm formation. The bast fibres are 44 μ broad. There is little tendency to sclerosis, which occurs only in isolated cells. Stone cells occur in groups only in the outer part of the inner bark, elsewhere isolated, and of roundish form (p. 25).

Xylocinnamomum.—Of this there are two examples, one purchased in a Chinese shop and the other purchased in a Chinese pharmacy in Saigon; both from the Hanbury Collection. Both have a strong taste of cassia, and are evidently from the same source, but the Saigon sample consists of very small twigs which show no trace of cork formation. The bundles of primary fibres are close together, and in the small intermediate spaces, some cells are changed into stone cells, thickened on one side. The secondary bark is little developed, secondary fibres being absent in both samples. In the second sample the mixed sclerotic ring is more developed. In both, acicular crystals are sparingly present.

Cassia Beareana.

"The root of this small tree is used in East Africa by the natives and the Catholic Fathers as the most satisfactory remedy for blackwater fever, which is one of the most fatal diseases of that part of the African Continent. Its use was observed by Dr. O'Sullivan Beare, who was the first to bring it under the notice of the medical profession" (*Lancet*, Feb. 1, 1902, pp. 283-5). An account of the botany of the plant is given in the *Pharm. Journ.* [4], XIII., p. 616; XIV., p. 42. It has also been stated that it destroys the germs in the blood in cases of ordinary malarial fever, for which it was tried in the New Jersey State Hospital.

Champaca or Guaicum Wood Oil.

Under this name a fatty aromatic oil, resembling in appearance oil of orris, was introduced a few years ago under the name of oil of champaca and oil of guaicum wood. It is distilled from the wood of *Bulnesia Sarmienti*, Lorentz, a Zygophyllaceous tree, growing in the Argentine Republic, and nearly allied to *Guaicum*

officinale, the wood of the two trees being somewhat similar in appearance. It has nothing to do with *Michelia Champaca*, the flowers of which yield an oil having a more powerful and different fragrance. Messrs. Schimmel and Co. obtained from it about 5 per cent. of essential oil, having a specific gravity of 0.965 to 0.975 and a rotation of -6 to -7 . The crystalline substance is named by Wallach, *Guaijol* (*Liebig Annal.*, p. 279; 1894, p. 395), which is a hydrate of a terpene $C_{15}H_{26}O$. The oil has an odour like tea roses, and is said to have been used to adulterate otto of rose (*Schimmel's Report*, Oct., 1898, p. 43). See also *Gildemeister and Hoffmann, The Volatile Oils*, 1900, pp. 353-453; *Dominguez, Materia Medica Argentina*, 1903, pp. 55-58.

Chaulmugra Oil.

In the *Indian and Colonial Addendum to the British Pharmacopoeia*, published in the year 1900, the botanical source of this oil is given as *Gynocardia odorata*, R.Br., or of *Taraktogenos Kurzii*, King, as at the time the monograph was written accurate information was not forthcoming. There is now, however, no doubt that the Chaulmugra oil of commerce is not derived from *Gynocardia odorata*, the seeds of which have a thinner testa, a less angular form, and yield hydrocyanic acid; in future the oil must be referred to as the produce of *Taraktogenos Kurzii*, King, only. It should be noted that the Chaulmugra oil used by the Chinese is derived from *Hydnocarpus anthelmintica*, Pierre, a tree indigenous to Siam, although in Dr. Porter Smith's work on *Chinese Materia Medica*, pp. 108 and 149, it is erroneously referred to *Gynocardia odorata*. The seeds are less used in leprosy than as an insecticide (*Pharm. Journ.* [4], p. 522; XII., p. 596).

Chicle Gum.

This product is exported from Mexico. A similar product named Balata comes from British Guiana. Both bear a considerable resemblance to gutta percha. Chicle is chiefly used in the manufacture of chewing gum. An interesting account of its introduction into use in the United States was given about two years ago by Mr. E. N. Butt (*Pharm. Journ.* [4], p. 328), in which the mode of manufacture and recipes for the preparation of chewing gum are given. It is stated to be the produce of *Achras Sapota*. An account of its chemistry is given in *Pharm. Journ.* [3], IX., pp. 1045-1067. It contains 45 per cent. of alban, 30 per cent. of fluavil, 17 per cent. of a hydrocarbon insoluble in ether, arabin 10 per cent., sugar 5 per cent., and salts of lime (oxalate, sulphate, and phosphate), 9 per cent. Although abundant in Yucatan, where it is called "Ya," and not uncommon in Central America, the trees are easily ruined by a careless process of tapping, and large tracts of *Sapota* forests

near Tuxpan, the original base of supply, have of late years been practically unavailable from this cause (*Pharm. Journ.* [4], XV., p. 210; [4], IV., p. 568). An average tree will yield about 6 lb. of gum.

Chillies, Japanese.

The Japanese drug has a much brighter colour and cleaner appearance than the Sierra Leone and Zanzibar varieties, but is less pungent and contains apparently less oil, since an alcoholic tincture diluted with water gives, according to Mr. J. C. Umney, a clearer solution. When powdered it gives a brilliant cayenne pepper, but the finest coloured and strongest cayenne pepper is made from a small capsicum, apparently a variety of *C. annuum* that is grown in Natal (*Pharm. Journ.* [4], V., p. 519). The exact species that yields Japanese chillies has not yet been ascertained.

Coriaria thymifolia.

This is known as the ink plant of the Andes. It is a native of New Granada. In the *Journal of the Linnean Society*, Vol. VII., p. 120, there is a letter from Dr. W. Jameson, of Quito, who says, "I generally use this ink (juice) in preference to the commercial article, and it is not so apt to corrode the steel pen. . . . When newly written its colour is reddish, becoming black after a few hours. There is a tradition here respecting this vegetable juice that merits attention. It happened during the Spanish administration that a number of written documents destined to the mother country were embarked in a vessel and transmitted round the Cape. The voyage was unusually tempestuous, and the documents got wetted with salt water. Those written with common ink became nearly illegible, whereas those written with Chauchi (the name of the juice) remained unaltered. A decree was therefore issued that Government communications should in future be written with this juice."

Curare, Urari or Woorali poison.

According to G. Planchon, this poison is prepared in Venezuela, French Guiana, North Brazil, and the United States of Columbia, from various species of *Strychnos*, and other ingredients are added by different tribes. The Curare of British Guiana is chiefly prepared by the Macusis tribe of Indians living near the Canaku Mountains in the south of that country. The chief species used are "Urari" (*Strychnos toxifera*, Schomb.), "Yakki" (*S. pedunculata*, Benth.), "Arimeru" (*S. cogens*, Benth.), and "Muramu," probably a species of *Cissus*. The other ingredients have not been identified (*Pharm. Journ.* [3], X., 646; XI., 754). A recent account of the articles used in curare poison is given by Mr. J. J. Quelch, in *Timchri*, n.s., Vol. IX., 1895, pp. 258-269,

from which the following is an abstract. According to Mr. J. J. Quelch, by whom the specimens presented to the Museum were collected, there is no fixed uniform or prescription used among the native people as a body. The excellence of the poison is regarded as especially dependent on the professional observances to be gone through during the time of its preparation. Mr. Quelch gives two recipes for the poison, one made at Waipokau, containing *S. toxifera*, *S. cogens*, and two poisonous trees, called respectively, "Tung" and "Kenaima-Inda Kurapichi," which are apparently undescribed; Muramu, a yam-like climber with irregular bulbous roots; and Ekoi-Aipa, a cactus. The two latter are innocuous but are used as mucilaginous bases. The second recipe, used, at the Urali Mountains, contains the bark of *S. toxifera*, *S. Schomburgkii*, "Arakwa" (*S. Gubleri*?), "Roraibong" (*S. hirsuta*), the bitter and poisonous root "Ratsha," and the very poisonous bark of a large tree called "Komatana," with the mucilaginous plants Muramu and Ekoi-apa. The bitter and poisonous leaves of another *Strychnos*, called by the Makushis "Waiamuri-prakung," are also stated to be used. In all the recipes, *S. toxifera* appears to be the chief ingredient, and is used largely in excess of the others.

According to Planchon, the curare of Venezuela, usually imported in small gourds (*Pharm. Journ.* [3], X., 322), is chiefly derived from *Strychnos Gubleri*, G. Planch. The other plants used have not been identified (*Pharm. Journ.* [3], XI., 531-592). The curare is prepared in the neighbourhood of the Orinoco, from the Cassiquiare affluent to the falls of the Ature, by the Maquiritares, Piaroas, and other Indian tribes. The curare of Northern Brazil is prepared by the Pebas and Ticuna Indians, east of the confluence of the rivers Negro and Madeira, from *Strychnos Castelnæana*; other poisonous plants used are *Cocculus toxiciferus*, Wedd. and *Dieffenbachia Seguine*, Schott. Three species of *Piper*, an *Aristolochia* and *Petiveria alliacea* are also used. In the basin of the Yapuca River, the Indians use *S. Yapucensis*, G. Planch. as well as *S. Castelnæana*; a species of *Spigelia* and an aroid are also used (*Pharm. Journ.* [3], XI., 539-592). In French Guiana, the curare is prepared from *S. Crevauxii*, G. Planch. in the upper districts of the Yari and Parou rivers, the accessory plants being four species of pepper, one referred to *Piper latum*, C. D.C., another (Pot peu) to *P. Hostmannianum*, C.D.C., and the others, named "alimiéré" and "Aracoupani," are not yet identified. (*Pharm. Journ.* [3], XI., p. 695).

Derris elliptica.

The root of this leguminous plant has long been used by the Malays as a fish poison under the name of Tuba root. Mr. Oxley, in the *Journal of the E.I. Archipelago*, 1848, p. 646, refers

to it as the best remedy known to him for killing the insects that infest the leaves of the nutmeg tree and cause them to turn yellow (*Pharm. Journ.* [3], XVII., p. 5), and in 1877 an infusion of the root was recommended in the *Kew Report* for that year, p. 43, as an insecticide. A chemical examination of the root was made by Greshoff in 1890 (*Ber. der Deutsch. Chem. Ges.*, 1890, 23, pp. 35 to 38), and an abstract of it was published in the *Pharm. Journ.* [3], XXI., p. 559. Mr. Leonard Wray, Curator of the Perak Museum, also examined the root chemically (*Pharm. Journ.* [3], XXIII., p. 61). The acid resinous body obtained by Greshoff was named "derrid," and that obtained by Wray, "tubain," apparently in ignorance of Greshoff's previous work. Greshoff found the crude active principle, or derrid, to consist of a crystalline and an amorphous body. It is accompanied in the root by a brown colouring matter, called "derris red." Sillevoldt subsequently examined the root, and also found an amorphous and a crystalline body, which, he suggested, were respectively anhydroderrid and derrid (*Arch. der Pharm.* 1899, p. 595); see also *Museum Report of the Pharmaceutical Society* 1895, p. 45. An allied species from Fiji, called by the natives "Duva," and which proved to be *Derris uliginosa*, was examined in the Wellcome Research Laboratory by Dr. F. Power, who obtained from it, besides red colouring matter, two resins, one soluble in chloroform, and apparently nearly related to, but not identical with Sillevoldt's anhydroderrid, and a resin insoluble in chloroform. An account of these bodies was given in *Pamphlet* No. 34, published by the Wellcome Chemical Research Laboratories, 1903.

Frejar Oil.

This is a thick oil containing a resin, obtained from a wood imported from the East Indies since 1895, and was introduced into commerce by H. Haensel, of Pirna-on-the-Elbe. The oil, when rectified, loses 20 per cent. in the form of resin, and is then clear and fluid. The specific gravity of the crude oil is 0.9295, and that of the rectified oil, 0.9065 at 15° C. Its perfume has a permanent character like that of sandal wood, and some other oils distilled from wood. The name of the plant yielding it is at present not published (*Haensel Rep.*, April, 1902, p. 7, and January, 1903, p. 11).

Gentian Root.

There occasionally appears in commerce a gentian root which is distinguished by the name of white gentian root, pale brown in transverse section, which gives a much more bitter tincture and infusion than the ordinary root, and leads to occasional difficulties in dispensing. The deeper brownish colour of the interior of ordinary, or "red," gentian root appears to be artificially pro-

duced by allowing the root after collection to heat slightly in heaps and to undergo a kind of fermentation, the result of which appears to be a diminution of bitterness and the development of a brownish colour (*Meyer, Droguenkunde*, Vol. I., p. 276), but it is not certain if the white gentian root is derived from *G. lutea*, *G. purpurea*, or other species. The white gentian root is, I am informed by Mr. J. Slinger Ward, collected in the Pyrenees. The collection of the root in Italy of late years and its importation from Leghorn have been stopped to a considerable extent on account of the damage done to vineyards by the washing down of the stony *débris* made by the collectors. The drug comes now chiefly from France (*Pharm. Journ.* [4], XV., p. 17-18.) The fat which exists in gentian root to the extent of 5.67 per cent. is stated to be of the nature of cholesterin *i.e.*, a phytosterin (*Pharm. Journ.* [4], XV., p. 41-2). During the process of fermentation, gentiobiose, a hygroscopic sugar, appears to be formed (*Pharm. Journ.* [4], XV., p. 316), and to this the softness of gentian root is probably partly due.

Guarana.

This specimen, presented by Dr. S. Wilks, is accompanied by a letter from Mr. G. H. Brandt stating that it has been carved by the Indians into the shape of a fish called the Piraruccu (*Arapaima gigas*, Cuv.), the tongue of which is used for grating the Guarana. The tongue is also used by them as a file for grating several of their hard odoriferous roots. Among these is the root of the Piperioca, which, when reduced to powder, they use for washing and perfuming their bodies. The so-called tongue consists of a long bony plate, nearly 6 inches long and $1\frac{1}{4}$ inch broad, densely covered with bony pointed papillæ, about $\frac{1}{4}$ inch high and half a line broad. See *Cuvier and Valenciennes, Hist. Poiss.*, XIX., pp. 441-461, with fig.; *Agassiz and Spix, Pisc. Braz.*, p. 31.

Hyoscyamus muticus.

The seeds of this plant have been shown to be richer in hyoscyamine than *H. niger*. In the "Kew Bulletin," 1896, p. 155, the seeds are stated to be used in Egypt for criminal poisoning. The natives call the plant Sakran, which means "drunken," a name also applied to *H. albus*. Dr. Gates, who brought the seeds of this plant from the Soudan, states that the Arabs say that if a drunkard stoops over the plant it cures his drunkenness. The plant has recently been offered in bales in the London market. See *Pharm. Journ.* [4], XVII., p. 159. It is said to be utilised by some manufacturers as a source of hyoscyamine. It is difficult to grow in this climate, and the imported plant could, therefore, only be used.

Lachnanthes tinctoria, Ell.

This plant was recently introduced into allopathic practice as a remedy for phthisis, but it has previously been employed by homœopathic practitioners. An account of the plant may be found in *Pharm. Journ.* [4], XIV., p. 103.

Maize Oil.

The grain of *Zea mays* contains 6 to 8 per cent. of oil, which is contained chiefly in the germs, and in the process of malting these are removed by first crushing the malted grain and then sifting. The sifted germs are then subjected to hydraulic pressure, and yield 15 per cent. of oil, 4.35 being left in the pressed cake. If the malted grain is mashed without freeing it from the germs, the oil is skimmed from the mash before distillation, and poured through a fine sieve into a large vat. When the vat is half full, it is filled up with hot water, stirred, and filtered into another vat, from which, after standing some hours to settle, the oil is drawn off. If required quite clear, it is poured into globular glass vessels and exposed to the sun, and, after the slimy precipitate has settled down, is poured off clear. The oil is clear to golden yellow in colour, clear, and has a flavour like the grain. It forms a thick fluid with a specific gravity of 0.9215 at 59° F., and contains olein, stearine, palmitine, and a little volatile oil, 0.88 per cent. of free fatty acids, and 1.3 per cent. of non-saponifiable (phytosterin), mucilaginous, and albuminous substances. If exposed in a very thin layer on paper a membranaceous film is not formed inside of three weeks. It is, however, distinctly a drying oil. Sulphuric acid gives with the oil a characteristic green colour, lasting for a few minutes. The elaidin test gives a mass of a pasty consistence. The saponification number of the oil is 181 to 189.2, and of the fatty acids 198. The iodine number 119.4 to 119.9, and of the fatty acids 125. The oil is used for dressing wood, as a machine oil, in the manufacture of soap, and for the adulteration of lard. As an illuminant it gives a bright white flame, and a high degree of heat. *Brannt, Animal and Vegetable Fats and Oils*, Vol. I., p. 523. See also *Benedikt and Leucoritsch, Oils, Fats, and Waxes*, pp. 302-304; *Journ. Soc. Chem. Ind.*, 1892, p. 505.

Smooth Jalap.

A new variety of Jalap has recently appeared in English commerce which, in size and shape, resembles Vera Cruz Jalap, but has not the characteristic transverse warty scars found on that root. Its exact botanical and geographical source is as yet

not known, but it comes from Mexico. In the Mexican Pharmacopœia four species with tuberous roots are described, viz., *Ipomœa purga*, *I. Orizabensis*, *I. simulans*, and *I. triflora* (Velasco). The last-named comes from Queretaro, and is called Jalapa de Queretaro, but only occurs in slices 10 centimetres broad, 2 centimetres thick, and is evidently a much larger root than the Jalap in question. The new Jalap was first noticed in January, 1901, by Messrs. Allen and Hanburys, and subsequently by Messrs. Wright, Layman and Umney, in September, 1902. It appears to be rather richer in percentage of resin than the Vera Cruz Jalap recently imported. There is a species, *I. armata* (Rœm. and Schult.), growing at Tacupaya and other places in the valley of Mexico, which is used as a purgative, but I have not seen an authentic sample.

Monsonia ovata, Cav.

This species, as well as *M. biflora*, D.C., has long been used for dysentery and diarrhœa in Natal. It was introduced into this country by Dr. Maberly, who published a paper in the *Lancet*, September 30, 1899, in which he gives a tabular statement of 100 cases successfully treated with the tincture in nearly every instance. Figures of these plants are given in *Wood and Evans, Natal Plants*, Vol. I., Part II., pp. 96, 97. The Rev. A. Smith, M.A., in his *Contribution to South Africa Materia Medica*, 2nd Edition, p. 7, states that it is called by the Hottentots, "Keita" or "Nceta," and although it has a reputation for curing dysentery and chronic diarrhœa, yet in many cases it fails, while in others it effects a remarkable cure. It possesses astringent qualities like many of the *Geraniaceæ*, but not in a high degree. See also *Pharm. Journ.* [4], XI., p. 728, and *Chemist and Druggist*, Dec. 1, 1900, pp. 491, 988.

Myrrh.

The specimens of the myrrh tree brought home from Somaliland by Mr. and Mrs. Lort Phillips (*Pharm. Journ.* [4], VII., p. 295; XIII., p. 667; XI., p. 443) conclusively prove, by the fruits, leaves, and gum-resin attached to the bark, that true myrrh is the produce, at all events in Somaliland, of *Balsamodendron Myrrha* (Nees.), and that the native name for the tree is "Didthin." It is still uncertain whether the Fadhli and Yemen myrrh of South Arabia are obtained from other species, or only from varieties of the *Balsamodendron Myrrha*. But it is tolerably certain that the Habaghadi of the Somalis, the Bissabol of the Arabs, the perfumed Bdeilium of Bombay, and the opoponax of European perfumers is the produce of *Balsamodendron Erythræum* var. *glabrescens*, Engl.; and Balm of Gilead or Balm of Mecca of *B. Opobalsamum*, and African Bdeilium that of *Balsamodendron*

Africanum (*Pharm. Journ.* [4], VII., p. 547; VIII., pp. 26-77). For the nitric acid test to distinguish myrrh from the gum-resins of other species of *Balsamodendron*, see *Pharm. Journ.* [4], XII., p. 256; XIII., p. 666. For ash of powdered myrrh, [4], X., p. 43.

Oil of Amber.

In commerce there were, until recently, two oils of amber, viz., one supposed to be prepared from amber, and sold at about 1s. oz., and the other varying in price from 1s. 9d. to 2s. 10d. lb. The latter is not made from amber, but is obtained in the destructive distillation of resin, and forms part of the so-called resin spirit, of specific gravity 0.850, that of ordinary resin spirit being 0.864. As the ol. succini rect. is usually acid to test-paper, it is probably not agitated with caustic soda before redistillation (*Pharm Journ.* [4], VIII., p. 98). An account of the physical characters of true oil of amber, distilled at Leipzig, is given in *Schimmel's Report*, April, 1903, p. 12.

Otto of Rose.

The specimens presented to the Museum by Mr. Shipkoff are portions of some especially prepared for exhibition purposes and are of guaranteed purity. They consist respectively of otto prepared from red rose petals, white rose petals, from red roses including the calyces, white roses including the calyces, otto from the calyces only, and stock otto. The last-named consists of the bulked product of several distilleries, obtained by purchase from peasant proprietors, selected according to a recognised standard of purity. This standard is obtained by the average character of their own distillation. This standard is given in the account published for the Exposition Universelle de Paris, 1900, as 12½ per cent. of stearoptene, and 87½ per cent. of elaioptene, the point of crystallisation being 19.5° C., the specific gravity .854, and the rotation —3.2 as taken at a temperature of 30° C. The otto varies somewhat according to the district where it is produced, whether elevated or otherwise, the stearoptene being more in quantity from plants grown at high elevations. Mr. Shipkoff states that the presence of oil of geranium in otto of rose can be determined by treatment with iodine and nitric acid, that the oil of the red rose petals has a honey-like odour, and is called *Essence de rose de miel*. It is considered the best. For recent literature on the subject, see *Pharm. Journ.* [4], XIII., pp. 664, 674; *Chemist and Druggist*, Vol. LVI., pp. 961, 1013; LVII., pp. 125, 618; LIX., p. 614. An examination of similar specimens to those presented to the Society is given by Mr. E. J. Parry in the *Chemist and Druggist*, Vol. LVII., p. 126.

Phellandrene.

It is a curious fact that the eucalyptus oil first introduced into use and medicine, viz., that of *E. amygdalina*, contained phellandrene, and that most of the oil used in Australia at the present time also contains phellandrene, whilst in Europe oils with a high percentage of eucalyptol are preferred. According to *Baker and Smith, Research on the Eucalyptus*, pp. 172-3, much of the oil sent to Europe under the name of *E. amygdalina* is derived from *E. dives*, or *E. radiata*, which yields an oil rich in phellandrene, but not so in eucalyptol; true *E. amygdalina* yielding in the crude oil 22 to 32 per cent. of eucalyptol only. The oils richest in phellandrene are those of *E. dives*, *E. radiata*, *E. coriacea*, *E. Siberiana*, *E. oreades*, *E. Delegatensis*, and *E. obliqua* (*l.c.*, p. 179). These contain little if any eucalyptol, but contain piperitone, a ketone having the odour of peppermint. This also is present in the oil of *E. amygdalina*. Thinking it desirable to ascertain how far the value of eucalyptus oil was dependent on phellandrene, a specimen of the pure article, presented by Messrs. Schimmel and Co., was handed to Mr. P. Squire for experiment, but the report obtained from him indicates that it possesses no advantage over eucalyptol. The therapeutic properties of piperitone have, however, not yet been examined.

Propolisine.

Under this name, a preparation has recently been introduced as an antiseptic. It is stated to be made by the dry distillation of propolis, a bye-product in the bee-keeping industry. It consists chiefly of oxygenated hydrocarbons and an alkaloid not yet thoroughly investigated. Its specific gravity is 0.8986 at 150° C., and its boiling point is 15° C. It is a dark fluid, having an empyreumatic odour; and it is said to be neither poisonous nor corrosive to human beings, and in an undiluted state it rapidly destroys all known bacteria. A 5 per cent. solution is usually found to be sufficiently strong for external application to wounds, and internally the dose is ten drops twice daily. The specimen in the Museum was presented by Mr. W. Poppelreuter of Manchester, from whose pamphlet, giving the properties and use of propolisine in full detail, further information is obtainable.

Sansevieria thyrsiflora, Thunb.

The fleshy cylindrical rhizome of this plant, about the thickness of the finger, is stated by Mr. J. Jack, who presented it, to be used by the old-fashioned Dutch families at Cape Colony as an efficacious cure for hæmorrhoids; for a dose, about 1 inch of the rhizome, which remains fresh for weeks, is cut off and chewed. It

has not any well-defined taste. In *Pappé's Flora Capensis Medica*, p. 40, it is stated to be not uncommon on Karroo-like hills between the Zwartkops and Bosjesman Rivers, flowering in December and January. In the eastern districts the fleshy root when boiled is made use of internally in piles, and is called T'ray by the natives. The leaves are broadly sword-shaped, and the flowers racemose, and white.

Stramonium leaves.

The leaves of *Carthamus helenioides*, Desf., and of *Xanthium strumarium*, Linn., have been found in commerce mixed with stramonium leaves. The microscopical characters by which they can be distinguished are given in the *Pharm. Journ.* [4], XII., pp. 326-334.

Strophanthus seed.

Since the issue of the last *Museum Report* (1895), much has been added to our knowledge of the species of the genus. The kombe seed of commerce has been shown to be a mixture of the seeds of certainly two, and probably three species, viz., *S. Kombe*, Oliv., *S. Courmontii*, Franch. and *S. Courmontii*, var. *Kirkii*, Holmes, possibly also at times of var. *fallax*, and of the seed of *S. Emini*. See *Pharm. Journ.* [4], XII., pp. 486 and 518. The seed of *S. Kombe* gives a green reaction with a mixture of 80 parts of pure sulphuric acid (B.P.) with 20 parts of water (*Pharm. Journ.* [4], XIV., p. 254). The other seeds give a slowly developing rose-red reaction. During the last year unmixed seeds of *S. Kombe* have been imported bearing the name of "Mandala" as a brand. The woolly strophanthus seeds occasionally imported have been identified as those of *S. Nicholsoni*, Holmes (*Pharm. Journ.* [3], V., p. 209). The distinctive histological characters of genuine kombe seed have been described by Mr. P. E. F. Perrédès, *Pharm. Journ.* [4], pp. 136 to 174, 241 and 265, and of those of *S. Courmontii*, var. *Kirkii*, in *Pharm. Journ.* [4], XII., p. 518. The chemistry of the different commercial kinds is as yet not satisfactorily cleared up (*Pharm. Journ.* [4], XI., p. 314). But a new glucoside named pseudostrophanthin, having a melting point of 195° has been obtained by Franz Feist, and gives a red reaction with sulphuric acid, from seeds which are probably those of *S. Arnoldianus*, De Wild. and Durand.







