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CATALOGUE

OF THE

COLLECTIONS IN THE MUSEUM

OF THE

Pharmaceutical Society

OF

Great Britain.

1878.

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OF THE

Pharmaceutical Society of Great Britain.

COMPILED BY

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

Curator of the Museum.

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PREFACE.

The collections in this museum represent to a certain extent the history of pharmacy in this country for the last thirty years. Many of the specimens are those which have at different periods served to illustrate papers in the *Pharmaceutical Journal*. To those papers references have been given, and at the same time attention has been directed to works where fuller information may be obtained, preference having been given to such works as are in the Society's library, and easy of access to students.

Of several of the works quoted, more than one edition exists; the following are the particular editions to which references have been made :—

Attfield: "Chemistry," 4th edition, 1872.
Bentley: "Manual of Botany," 3rd edition, 1873.
Cooley: "Cyclopædia of Practical Receipts," 5th edition, 1872.
Dana: "Mineralogy," 5th edition, 1868.
Fownes: "Chemistry," 11th edition, 1873.
"Histoire des Drogues," 6th edition, 1869–1870.
"Histoire des Drogues," 7th edition, 1876 (quoted in Collection of Animal Materia Medica only).
King: "American Dispensatory," 8th edition, 1872.
Pereira: "Materia Medica," 4th edition, 1854–1857.
Pomet: "History of Drugs," 3rd edition, 1737.
"Treasury of Botany," new edition, 1874.
Ure: "Dictionary of Arts, Manufactures, and Mines," 6th edition, 1872.
Wood and Bache: "United States Dispensatory," 11th edition, 1858.

References have been made to a collection of old English

drugs, to one of Chinese drugs, and to the Hanbury Collection, with a view to point out that there are in them other similar specimens which possess a certain degree of interest. Of these collections, which include drugs not official in any pharmacopœia, from China, India, Australia, South America, the Cape of Good Hope, Western Africa, and Morocco, it is intended to publish a catalogue hereafter in the form of an appendix.

Throughout the catalogue short notes have been appended for the guidance of students in their examination of the specimens, to extend the interest of the collection, and to stimulate further research.

The arrangement of the natural orders in the Materia Medica portion of the Museum is that adopted in Bentley's "Manual of Botany."

The names printed in italics and inclosed in parentheses are the common or vernacular names of the specimens or of the plants from which they are derived.

In the Chemical portion of the catalogue the specimens are for facility of reference arranged in the following groups:—

INORGANIC COMPOUNDS.

Non-metallic elements.
Monad Metals.
Dyad ,,
Triad ,,
Tetrad Metals.
Pentad ,,
Hexad ,,

ORGANIC COMPOUNDS.

Hydrocarbons.
Alcohols and Ethers.
Carbohydrates.
Aldehydes.
Ketones.
Acids.
Artificial Bases.
Alkaloids.
Amides.
Oxidation products of Uric Acid.
Colouring Principles.
Compounds derived from the Animal Kingdom.

The collection of Animal Materia Medica has been arranged according to the classification generally accepted in this country; the arrangement of isinglass and galls is necessarily somewhat imperfect, the sources of several varieties being at present very obscure.

The collection of Minerals has been arranged in the same manner as the inorganic compounds in the chemical collection, in order to admit of easy reference by those who are studying chemistry.

It will be observed that some interesting and valuable specimens are without the donor's name or their own history information with regard to these is much needed.

The names of donors are mentioned only when the specimens are unusually fine or of special interest.

The Curator will be glad to receive references to any papers of value in home or foreign journals, having an immediate bearing on those subjects in connection with which the information is at present incomplete.

MATERIA MEDICA MUSEUM.

☞ *The Specimens marked * in this Catalogue are under glass shades in the Museum; those marked †, are on the lower shelves in the cases.*

THALAMIFLORÆ.

RANUNCULACEÆ.

1. ACONITUM NAPELLUS, *L.* (*Aconite, Monkshood, Wolfsbane.*)

   a. Root. For micr. section, see *Berg, Anat. Atlas*, taf. 24.

   b. Seeds.

   Note.—The fresh root has been mistaken for horseradish. *P. J.* [1], vol. xv., p. 449. It is smaller than that root, dark brown, conical, and has a numbing taste without the pungency of horseradish. See *P. J.* [2], vol. v., p. 317, for Aconella; and *P. J.* [3], vol. i., pp. 121, 382, for alkaloids; and *Pharmacographia*, pp. 9, 10. For cultivation of plant in England, *P. J.* [1], vol. x., p. 171. For fig. of plant, etc., see *Bentley and Trimen, Med. Plants*, tab. 6 & 21.

2. ACONITUM FEROX, *Wallich.* (*Nepaul Aconite, Bish* or *Bikh.*)

   a. Root.

   b. Stem.

   Note.—Root official in the Indian Pharmacopœia. In appearance it resembles Tampico Jalap, but it is more conical, is marked with the scars of rootlets, and of the base of the stem, and is paler internally. The principal alkaloid yielded by this root is pseudaconitine. See *P. J.* [3], vol. iv., p. 293, and for fig., *P. J.* [3], vol. i., p. 434; *Pharmacographia*, p. 12. For fig. of plant, see *Bentley and Trimen*, tab. 5.

3. ACONITUM HETEROPHYLLUM, *Wall.*

   a. Root (*Atis* or *Atees*).

   Note.—Official in the Indian Pharmacopœia as a tonic and antiperiodic. It contains no aconitia. See *Ph. Ind.*, p. 4. *Pharmacographia*, p. 14. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 7.

4. ACTÆA SPICATA, *L.* (*Baneberry, Herb Christopher.*)

   a. Rhizome. For micr. section, see *Fluckiger, Grundlag. Pharm. Waar.*, p. 76.

   Note.—The rhizome resembles that of Helleborus niger, with which it is occasionally mixed. It is less branched than the latter, has more numerous transverse lines upon it, and has a cruciate meditullium. *P. J.* [2], vol. iii., p. 109. It is used in America to make a lotion for pediculi. For fig. of Rhizome, see *Goebel und Kunze*, pt. ii., taf. xxxi., f. 2.

5. ACTÆA RACEMOSA, *L.* (*Black Snakeroot, Bugbane, Black Cohosh.*)

   a. Rhizome. See *Bentley and Trimen, Med. Plants*, tab. 8.

   Note.—Official in the United States Pharmacopœia under the name of Cimicifuga racemosa. It is used in acute rheumatism and nervous diseases. *P. J.* [2], vol. ii., pp. 463–464. *Pharmacographia*, p 16.

6. COPTIS TRIFOLIA, *Salisb.* (*Gold Thread.*)

a. Root.

Note.—Official in the United States Pharmacopœia. A pure bitter tonic like calumba; probably owing its properties to berberia. *Wood and Bache, Dispens.*, p. 326; *P. J.* [3], vol. i., p. 161. *Amer. Journ. Pharm.*, May 1873, p. 193. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 3.

7. COPTIS TEETA, *Wall.*

a. Rhizome (*Coptis, Mishmi Tita*).

Note.—Official in the Indian Pharmacopœia as a tonic. In China it is used under the name of Hwang-lien and Chuen-lien. See *Ind. Pharm.*, p. 4. *Pharmacographia*, p. 4. *Porter Smith, Mat. Med. Chin.*, p. 126 (art. Justicia). It contains 8½ p. c. of Berberine.

8. DELPHINIUM STAPHISAGRIA, *L.* (*Stavesacre.*)

a. Seeds. See *Bentley and Trimen, Med. Plants*, tab. 4.

b. Oil expressed from the seeds.

9. HELLEBORUS NIGER, *L.* (*Black Hellebore, Christmas Rose.*)

a. Rhizome and rootlets preserved wet.

b. Rhizome.

Note.—The root of Actæa spicata may be detected by its decoction being blackened by ferric salts. *Vide* Actæa spicata, and *P. J.* [1], vol. xii., p. 274; *Berg, Anat. Atlas*, taf. 17. For fig. of rhizomes of H. niger, see *Goebel und Kunze*, pt. ii., taf. xxxi., f. 1; and for rhizomes of H. viridis, *L.*, and H. fœtidus, *L.*, pt. ii., taf. xxxii., ff. 2, 3. For fig. of H. niger, see *Bentley and Trimen, Med. Plants*, tab. 2.

10. HYDRASTIS CANADENSIS, *L.* (*Golden Seal, Yellow Puccoon, Yellow Root, Ground Raspberry.*)

a. Rhizome. For fig. of plant, see *Bentl. & Trim., Med. Plants*, tab. 1.

Note.—Official in the United States Pharmacopœia. A powerful bitter used in atonic states of the mucous membrane. An available source of berberia, as it contains 4 per cent. of that alkaloid. *P. J.* [2], vol. iii., pp. 540–546; and [3], vol. iii., p. 694.

11. XANTHORHIZA APIIFOLIA, *Hérit.* (*Yellow Root.*)

a. Root.

b. Ditto. Presented by Mr. D. Hanbury.

Note.—A pure bitter tonic like calumba, and also containing berberia. Official in the secondary list of the United States Pharmacopœia. *P. J.* [2], vol. iv., p. 12. Specimen *b* is an authentic one collected by Professor Asa Gray. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 9.

MAGNOLIACEÆ.

12. DRIMYS WINTERI, *Forster.* (*Winter's Bark; Pepper Bark.*)

a. Bark. Presented by Mr. F. J. Hanbury.

b. Section of Trunk.

Note.—The section of the trunk formerly belonged to Robert Brown The bark of Drimys Winteri, var. granatensis, sometimes appears in the English market under the name of pepper bark. The true Winter's bark is known from the spurious drug by its very rough inner surface, by occurring in small pieces, and by being of a red-brown colour. *See* Cinnamodendron, p. 17 *Pharmacographia*, p. 17.

13. ILLICIUM ANISATUM, *Loureiro.* (*Star Anise.*)

a. Fruit. For micr. section, *vide Berg, Anat. Atlas*, taf. 41.

b. Essential Oil. (*Oleum Badiani.*)

Note.—The essential oil resides in the pericarp only. It is distinguished from that of aniseed by not congealing at 50° F., but at 34° F. *Pharmacographia*, p. 20. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 10.

14. LIRIODENDRON TULIPIFERA, *L.* (*Tulip Tree.*)

a. Bark.

Note.—Official in the secondary list of the United States Pharmacopœia. It is a stimulant, tonic, and diaphoretic. It is apt to deteriorate by keeping. *Wood and Bache, Dispens.*, p. 517.

15. MAGNOLIA GLAUCA, *L.* (*Swamp Sassafras. Beaver Tree.*)

a. Bark.

Note.—It possesses similar properties to those of Liriodendron, and also deteriorates by keeping. *Wood and Bache, Dispens.*, p. 528.

16. MAGNOLIA TRIPETALA, *L.* (*Umbrella Tree.*)

a. Fruit.

Note.—The fruit is interesting on account of the very long stalk or funiculus by which the seed remains suspended for some time after the fruit has dehisced. *Treas. Bot.*, p. 710.

17. TASMANNIA AROMATICA, *R. Br.* (*Australian Pepper.*)

a. Fruit.

Note.—Used in New Holland as a substitute for pepper. *Treas. Bot.*, p. 1125. *P. J.* [1], vol. xv., p. 115.

ANONACEÆ.

18. MONODORA MYRISTICA, *Gaert.*

a. Fruit.

Note.—The seeds are known as Jamaica, American, or Calabash nutmegs, and possess the properties and in some degree the flavour of nutmegs. *Treas. Bot.*, p. 752.

19. XYLOPIA ÆTHIOPICA, *A. Rich.* (*Habzelia.*)

a. Fruit. (*Ethiopian Pepper.*)

b. Fruit, preserved wet.

Note.—Used by the natives of West Africa as an aromatic stimulant and also as an anthelmintic. *P. J.* [1], vol. xiv., p. 112. For figure, see *Hist. des Drog.*, vol. iii., p. 736, 1869.

20. XYLOPIA GLABRA, *L.* (*The Bitter Wood of the West Indies.*)

a. Wood.

Note.—The wood possesses tonic properties. *Treas. Bot.*, p. 1242.

MENISPERMACEÆ.

21. ABUTA RUFESCENS, *Aublet.* (*White Pareira Brava, Parreira Brava Grande, Abutua.*)

a. Root and stem.

b. Flat specimen of the root.

Note.—This may be known from the genuine Pareira Brava by the

21. ABUTA RUFESCENS (continued).

medullary rays being white and large in proportion to the porous woody tissue. Iodine turns a decoction of the root bright blue. *Pharmacographia*, p. 29.

22. ANAMIRTA COCCULUS, *Wight & Arnott*; ANAMIRTA PANICULATA, *Colebrooke*. (*Cocculus Indicus.*)

a. Fruit.

Note.—The fruit resembles bayberries in appearance, but is known by being slightly depressed on one side and by the crescent-shaped seed. Picrotoxin is contained in the kernel; menispermia in the shell. For Detection of Picrotoxin, *P. J.* [3], vol. v., p. 567. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 14.

23. CISSAMPELOS PAREIRA, *Lam.*

a. Root. Presented by Mr. D. Hanbury.

Note.—This root is distinguished from that of Chondodendron by having only one woody zone, and by not being larger round than the forefinger. For fig. see *P. J.* [3], vol. iv., p. 102. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 15.

24. CHONDODENDRON TOMENTOSUM, *R. et P.* (*Pareira Brava, Butua.*)

* *a.* Specimen of leaves, stem, root, and fruit, mounted in a glass case. Presented by Mr. D. Hanbury.

b. Fruit, preserved wet. Presented by Mr. D. Hanbury.

c. Root.

Note.—This specimen (*c*) originally belonged to Pereira, and is the one from which the description given in his work is partly taken. *Pereira, Mat. Med.*, vol. ii., pt. ii., p. 671. For fig. of fruit, see *P. J.* [3], vol. iv., p. 83. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 11.

d. Root. A very large specimen.

e. Ditto. A commercial specimen.

Note.—Specimen *e* shows well the dark colour and transverse ridges characteristic of the true Pareira Brava. For fig. of the root, see *P. J.* [3], vol. iv., p. 102. *Goebel und Kunze*, pt. ii., taf. xiii., fig. 1.

Iodine gives a bluish black colour with decoction of the root.

f. Stem.

g. Ditto. A commercial specimen.

Specimen *f* is a portion of prostrate stem, with root on its lower surface. Specimen *g* exhibits the paler coloured bark, and the numerous small warts on the exterior, which, together with the absence of transverse ridges and the presence of lichens, always distinguish the stem from the root. It is less bitter than the root. *P. J.* [3], vol. iv., p. 911.

For micr. structure of the stem, see *P. J.* [3], vol. vi., p. 702.

h. Common false Pareira Brava.

Note.—This specimen consists of the stem of an unknown plant. It is characterised by having an excentric pith, and only one perfect zone of wood, all the others being incomplete. For fig. see *P. J.* [3], vol. iv., p. 103.

Iodine does not give a blue colour with the aqueous decoction of this stem.

24. CHONDODENDRON TOMENTOSUM (continued).

i. Inert false Pareira Brava.

Note.—This specimen also consists of the stem of an unknown plant. It is distinguished from specimen *h* by the pith being in the centre, by the woody zone being complete, by the absence of bitterness. The exterior of the stem is not dark, is not marked with transverse ridges, and is not cracked. See *Pharmacographia*, p. 27.

j. Yellow Pareira Brava.

Note.—This specimen has numerous concentric zones of wood, but is at once distinguished by its yellow colour. See *Pharmacographia*, p. 30.

25. COSCINIUM FENESTRATUM, *Colebr.*

a. Root, imported as Calumba Wood.

b. Transverse slices of do.

Note.—It possesses similar properties to Calumba, and like it contains berberia. It is sold in the bazaars of S. India under the name of *Mara-Munjil.* In Ceylon it is called *Woniwal* and *Bangwell-zetta.* *P. J.* [1], vol. x., p. 321; [1], vol. xii., pp. 185, 188. *Ind. Pharm.*, p. 10.

26. JATEORRHIZA CALUMBA, *Miers*, and J. MIERSII, *Oliv.*

Note.—Hanbury considers these two species to be identical, and unites them under the name of J. palmata, *Miers.* *Vide Pharmacographia*, p. 22. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 13.

a. Sections of root. Presented by Mr. Ward.

b. Ditto. Sliced and dried in England. Presented by Mr. D. Hanbury.

c. Larger sections.

d. A commercial specimen.

Note.—Specimen *a* was obtained from a plant cultivated in the Mauritius in 1837. J. Miersii, *Oliver*, is the J. palmata, *Miers*, of the United States Pharmacopœia. Vide Bryonia, Frasera, Coscinium; for micr. section, *Berg, Anat. Atlas*, taf. 10. For fig of root, see *Goebel und Kunze*, pt. ii., taf. v., fig. *5, b, c.*

27. MENISPERMUM CANADENSE, *Torrey & Gray.* (*Yellow Parilla, Moon Seed, Vine Maple.*)

a. Root.

Note.—This root was at one time offered for sale in Philadelphia as Texan Sarsaparilla. It is a bitter tonic, and contains berberine. *American Dispensatory*, p. 522. For micr. section of the root, see *Amer. Journ. Pharm.*, 1855, p. 7.

28. TINOSPORA CORDIFOLIA, *Miers.*

a. Root and stem. (*Gulancha.*)

Note.—Official in the Indian Pharmacopœia. Used as a tonic and restorative. See *Ind. Pharm.*, p. 9. *Pharmacographia*, p. 32. See *Bentley and Trimen, Med. Plants*, tab. 12.

BERBERIDACEÆ.

29. BERBERIS LYCIUM, *Royle;* B. ARISTATA, *D. C.;* B. ASIATICA, *Roxb.* (*Indian Barberry.*)

a. Bark.

29. BERBERIS LYCIUM (continued).

b. Extract of the bark. (*Rusot.*)

Note.—The root bark is official in the Indian Pharmacopœia. The Rusot, or watery extract, is used in India as a febrifuge and as an application to the eyes. *Ind. Pharm.*, p. 12. *P. J.* [1], vol. iii., p. 415; vol. xiii., p. 413. *P. J.* [2], vol. vii., p. 303. *Pharmacographia*, p. 33. For fig. of B. aristata, see *Bentley and Trimen, Med. Plants*, tab. 16.

30. CAULOPHYLLUM THALICTROIDES, *Mich.*

a. Rhizome. (*Blue Cohosh, Squaw Root.*)

Note.—It is used in America as a uterine tonic by the Eclectic practitioners and in domestic practice. *P. J.* [2], vol. iv., p. 52.

31. JEFFERSONIA DIPHYLLA, *Pers.* (*Twin Leaf.*)

a. Rhizome. (*Rheumatism Root.*)

Note.—Used by the Eclectics as a stimulant and diaphoretic in rheumatism and syphilitic affections. The leaf offers an instance of the binate form, hence its name of "twin leaf." *P. J.* [2], vol. iv., p. 104. *American Dispens.*, p. 459.

32. PODOPHYLLUM PELTATUM, *L.* (*May Apple, Wild Lemon, Black Cohosh, Racoon Berry.*)

a. A Rhizome. (*American Mandrake Root.*)

b. Resin ("*Podophyllin*").

P. J. [1], vol. xviii., p. 179; [2], vol. iii., pp. 331–457; [2], vol. vi., pp. 155–244; [3], vol. i., p. 605; [3], vol. iii., p. 161. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 17.

NELUMBIACEÆ.

33. NELUMBIUM SPECIOSUM, *Willd.*

a. Fruit.

Note.—The fruit is remarkable on account of the carpels being immersed in the thalamus. The seeds are edible, and have been supposed to be the lotus beans of Egypt. *Bentley, Man. Bot.*, p. 276, and fig. 649. *Treas. Bot.*, p. 781.

SARRACENIACEÆ.

34. SARRACENIA PURPUREA, *L.* (*Side-saddle flower.*)

a. Rhizome.

b. Rhizome and leaves.

c. Perfect leaves. Presented by Mr. F. H. Peck.

Note.—The rhizome was at one time stated to be a specific for small-pox, but was found to be useless. The leaves (*c*) present an example of the ascidium, or pitcher. *P. J.* [2], vol. iv., p. 294. *Bentley, Man. Bot.*, p. 175, fig. 383.

PAPAVERACEÆ.

35. ARGEMONE MEXICANA, *L.*

a. Seeds.

b. Oil expressed from ditto.

Note.—The oil has been recommended to be taken in the early stage of cholera. *P. J.* [1], vol. xii., p. 292; [1], vol. xiii., p. 642.

36. PAPAVER RHŒAS, *L.*

a. Petals.

b. Syrup.

Note.—The petals do not contain morphia. *P. J.* [3], vol. iv., p. 290. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 19.

37. PAPAVER SOMNIFERUM, *L.*

a. Capsules.

b. Small capsules.

c. Ditto, showing horizontal incisions as made in Asia Minor. See *P. J.* [1], vol. xiv., p. 396; for fig., etc.

d. Ditto, showing vertical incisions as made in India.

Note.—These incisions are made in India by three or six pieces of flattened wire tied together into a kind of scarificator. See *P. J.* [1], vol. xi., p. 207, for fig. of instrument.

e. Seeds, white.

f. Ditto, black. (Maw seed.)

Note.—The maw-seed of commerce is the seed of the black variety of the plant. The seeds of the black variety have one end larger than the other, and are a little pointed. For micr. section, *vide Berg, Anat. Atlas*, taf. 46. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 18.

g. Smyrna Opium. See *P. J.* [1], vol. x., p. 474; [1], vol. xiv., p. 395.

h. Ditto, made in 1808.

i. Egyptian. Presented by Mr. Davenport.

Note.—Specimen *k* is an unusually good one, containing 9·66 per cent. of morphia. It is wrapped in radiate-veined leaves, supposed to be those of the oriental plane-tree. As now met with, it is generally wrapped in poppy leaves. Egyptian opium is known by its reddish colour, musty odour, and remaining soft when kept, but it varies much in consistence and purity. See *P. J.* [2], vol. iv., p. 199.

j. Constantinople Opium.

k. Ditto.

Note.—Specimen *k* belongs to the small or lenticular variety, which is not now known in commerce as a distinct kind. It belonged to Dr. Pereira's collection. The larger variety, which has rumex fruits on it, and differs only from Smyrna opium in being more mucilaginous, containing less morphia, and occurring more frequently in flattened cakes, is the variety which chiefly occurs in English commerce. *Royle, Mat. Med.*, p. 303; *Hist. des Drog.*, vol. iii., p. 710.

l. Persian stick opium, or Trebizonde opium. *P. J.* [2], vol. ii., p. 270.

m. Persian opium, in conical masses, weighing about half a pound each.

n. Ditto ditto wrapped in paper.

Note.—Specimen *m* is remarkable for the quantity of oil it contains, which gives it an odour resembling that of linseed oil. It is without poppy leaves or rumex capsules, and is generally packed in a kind of

37. Papaver somniferum (continued).

chaff made of comminuted poppy leaves. It yields from 8 to 10 per cent. of morphia. *P. J.* [3], vol. iii., p. 883; *Pharmacographia*, p. 46. *P. J.* [3], vol. vi., pp. 721, 890. Specimen *n* is richer in morphia than specimen *m*.

o. Indian opium.

p. Part of a ball of Patna opium, wrapped in poppy petals, collected in the year 1837.

q. Garden Patna opium. Presented by Dr. Christison.

r. Ditto, ditto, enclosed in mica plates, with an outer covering of wax.

s. Malwa opium. Presented by Dr. Christison.

t. Benares opium, 1837–8.

u. Candeish Opium.

Note.—Specimens *i*, *j*, *o*, *p*, *q*, *r*, *s*, *t*, *u*, and *x*, are from Dr. Pereira's collection. For Indian opiums, *vide P. J.* [1], vol. xi., pp. 205, 269, 306, 359; [3], vol. iv., p. 652.

v. English opium.

w. Bad opium.

Note.—It has an odour like liquorice, and remains soft and sticky. *P. J.* [1], vol. i., p. 91.

x. Spurious opium. Presented by Mr. Wells.

y. Smyrna opium, showing crystals said to be meconate of morphia. Presented by Mr. Horsely.

38. Sanguinaria Canadensis, *L.* (*Blood Root, Red Puccoon.*)

a. Rhizome. For fig., see *Goebel und Kunze*, pt. ii., taf. xxi., fig. 3.

Note.—Official in the United States Pharmacopœia. It is used as a stimulant to the liver, as an alterative, and as a local application to fungous growths. It resembles Tormentil root in appearance, but is not pitted externally, and has not the astringent taste of that root. *P. J.* [1], vol. xvii., p. 312; [2], vol. i., p. 454; [2], vol. iv., p. 263. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 20.

FUMARIACEÆ.

39. Dicentra formosa. *Borkh. & Gray.* (*Turkey Corn, Turkey Pea, Stagger Weed, Choice Dielytra.*)

a. Tubers.

b. Leaves.

Note.—Also known under the name of Corydalis formosa. It is used as a tonic alterative and diuretic in scrofulous and cutaneous affections, but chiefly by the Eclectics of America. *P. J.* [2], vol. iv., p. 353. *Amer. Dispensatory*, p. 300. For Corydalia see *Amer. Journ. Pharm.*, 1855, p. 205; 1861, p. 112.

CRUCIFERÆ.

40. Cardamine pratensis, *L.* (*Cuckoo Flower, Ladies' Smock.*)

a. Flowers.

Note.—The flowers were formerly used as a diuretic and antispasmodic in chorea and spasmodic asthma, etc.

41. SINAPIS ALBA, *L.*; BRASSICA ALBA, *Hook. f.* (*White Mustard.*)
    a. Seeds.
    b. Farina of the seed.

    Note.—For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 23.

42. SINAPIS NIGRA, *L.*; BRASSICA NIGRA, *Koch.* (*Black Mustard.*)
    a. Seed.
    b. Oil expressed from ditto. See *P. J.* [1], vol. ix., p. 81.
    c. Essential oil. See *P. J.* [1], vol. v., p. 76.
    d. Farina of the seed.
    e. Genuine flour of mustard, as supplied by Messrs. Fraser & Green.
    f. A commercial sample.
    g. Husks of the seed separated.
    h. Mustard cake.

    Note.—The last four specimens were used in illustration of Mr. Greenish's paper on Mustard, and were presented by him. *Vide P. J.* [3], vol. iii., p. 782; *Pharmacographia*, p. 61; for micr. section, *vide Berg, Anat. Atlas*, taf. xlvi., fig. 124. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 22.

43. SINAPIS JUNCEA, *L.*; BRASSICA JUNCEA, *Hook. f.*
    a. Seed. (*Indian Mustard Seed, Rai, Brown Mustard Seed.*) Presented by Mr. D. Hanbury.

    Note.—For an account of this seed see *Pharmacographia*, p. 64; *Ind. Pharm.*, p. 25.

CISTACEÆ.

44. CISTUS CRETICUS, *L.* (*Gum Cistus, Rock Rose.*)
    a. Leaves and fruit.
    b. Gum Labdanum, genuine. Presented by Mr. Winstanley.
    c. Ditto, in irregular masses. From Professor Guibourt.
    d. Ditto, in coils. From Messrs. Horner.

    Note.—Formerly used as a stimulant and expectorant, and still used in Turkey in fumigation. *P. J.* [1], vol. x., p. 349. *Treas. Bot.*, p. 289. For fig. of plant, see *Bentley and Trimen, Med. Plants*, fig. 24.

BIXACEÆ.

45. BIXA ORELLANA, *L.*
    a. Fruit.
    b. Seed.
    c. Roll annatto.

    Note.—Annatto is made from the coating of reddish pulp which surrounds the seeds. *P. J.* [1], vol. x., p. 349; [2], vol. i., p. 185. *Treas. Bot.*, p. 146.

46. GYNOCARDIA ODORATA, *R. Br.*
    a. Seed. (*Chaulmugra Seed.*)

    Note.—Official in the Indian Pharmacopœia, and used in India as a remedy for leprosy. See *Ind. Pharm.*, pp. 26, 440; *Pharmacographia*, p. 70. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 28.

VIOLACEÆ.

47. IONIDIUM IPECACUANHA, *L.* (*Woody Ipecacuanha, Poaya branca* (Brazil), *Poaya de Praja.*)

a. Root. False Brazilian Ipecacuanha.

Note.—Used as an emetic in Brazil. The branched character of the root, its pale colour, and the absence of annular rings, readily distinguish it from Ipecacuanha. *P. J.* [3], vol. ii., p. 970. For fig. see *Hist. des Drog.*, vol. iii., p. 98.

48. IONIDIUM MICROPHYLLUM, *Poir.* (*Cuichuncully de Cuença.*)

a. Root.

Note.—It is used in Venezuela as a remedy for tubercular elephantiasis. It possesses emetic and purgative properties. *Bentley, Man. Bot.*, p. 428. *Treas. Bot.*, p. 625.

49. VIOLA ODORATA, *L.*

a. Flowers.

b. Syrup.

For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 25.

CARYOPHYLLACEÆ.

50. GYPSOPHILA STRUTHIUM, *L.* (*Egyptian Soap Root.*)

a. Root.

Note.—It contains saponine, and is used in Spain, etc., for its detergent properties. It looks much like scammony root, but is not resinous.

MALVACEÆ.

51. ALTHÆA OFFICINALIS, *L.* (*Marsh Mallow; Guimauve, F.*)

a. Flowers.

b. Herb.

c. Root. For micr. section, *vide Berg, Anat. Atlas*, taf. 11.

d. Ditto, preserved wet.

e. Decorticated root.

Note.—The plant may be distinguished from Malva sylvestris by its pale pink flowers and downy leaves not cordate at the base. The root resembles elecampane, but may be readily distinguished by the transverse marks and fibrous structure. Its fibrous structure also distinguishes it from belladonna, with which it has been found mixed. *P. J.* [3], vol. iv., p. 811. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 35.

52. ABELMOSCHUS ESCULENTUS, *Guill. & Perr.*

a. Fan made from the leaves.

b. Seeds.

c. Necklace made from the seeds.

Note.—"The fan is made from the leaves of a plant called Ahoomneha, and the necklace of the seeds of a plant called Incroma-hom, in the Fantee language. Presented by Mr. J. Smith, a native of the Gold Coast, and formerly a pupil in the Laboratory, P.S.G.B." In the East and West Indies, the young and green fruits, which are edible and are used to thicken soups, etc., are known under the names of Ochro, Gobbo, Gombo, Bandikai, etc. *Bentley, Man. Bot.*, p. 435; *Pharmacographia*, p. 86.

53. GOSSYPIUM HERBACEUM, *L.* (*Cotton Tree.*)

a. Capsules, seeds, and cotton. *Bentley, Man. Bot.*, p. 435.

b. Oil expressed from the seeds. *P. J.* [2], vol. iii., p. 30; [3], vol. ii., p. 867.

c. Cotton-seed cake. *P. J.* [2], vol. iii., p. 485.

Note.—The root bark is official in the United States Pharmacopœia, and is used as a safe parturient and emmenagogue. *Wood and Bache*, p. 432, 12th ed. The oil of the seeds is used to adulterate olive oil, to which it imparts its drying quality. *P. J.* [2], vol. vii., p. 226. For difference between cotton and linen fibre, see *P. J.* [1], vol. iii., p. 351; [1], vol. x., p. 243; and for fig., *P. J.* [3], vol. i., p. 353. For alkaline compounds, see *P. J.* [1], vol. xi., p. 429. For fig. of cotton plant, see *Bentley and Trimen, Med. Plants*, tab. 37.

54. MALVA SYLVESTRIS, *L.* (*Common Mallow.*)

a. Flowers.

b. Root, preserved wet.

Note.—The tincture or infusion of the flowers serves as a test for acids and alkalies like litmus. The root and herb are sometimes substituted for those of Althæa officinalis.

STERCULIACEÆ.

55. ADANSONIA DIGITATA, *L.* (*Baobab Tree, Ethiopian Sour Gourd, Monkey Bread.*)

† *a*. Section of stem.

b. Fruit.

Note.—The fibres of the stem are made into ropes. The juice of the fruit is acidulous, and is used in Africa as a specific for putrid fevers. *Treas. Bot.*, p. 17.

56. STERCULIA ACUMINATA, *L.*

a. Fruit. (*Kola Nuts.*) Presented by Dr. Daniell.

Note.—The seeds are remarkable for containing theine. In Congo (West Africa) it is known under the name of Makasso. It is the Guru nut of Soudan. It is also used by the natives in diarrhœa and affections of the liver, as well as a beverage. See *P. J.* [2], vol. vi., pp. 450–457. *Bentley, Man. Bot.*, p. 439.

57. STERCULIA TRAGACANTHA, LINDL. (*African Tragacanth.*)

a. Gum.

Note.—This gum contains bassorin, and swells up in water like tragacanth. *P. J.* [1], vol. xv., p. 58. *Bentley, Man. Bot.*, p. 439.

BYTTNERIACEÆ.

58. THEOBROMA CACAO, *L.* (*Cocoa Tree.*)

a. Fruit.

b. Seeds.

c. Concrete oil, expressed from the seeds. (*Cacao butter.*)

d. Ditto, in flattened cakes.

Note.—This tree must not be confounded with the tree which yields the cocoa-nut, and which belongs to the Palmaceæ. *Vide* Cocos nucifera. Specimen *c* was prepared by Mr. H. B. Brady. See *Bentley and Trimen, Med. Plants*, tab. 38.

TILIACEÆ.

59. Tilia Europæa, *L.* (*Linden*, or *Lime Tree.*)

a. Flowers.

Note.—The flowers are still used in France in the form of Tisane and distilled water, as an antispasmodic. *Hist. des Drog.*, vol. iii., p. 635. *L'Officine*, p. 949. The flowers, as well as the leaves and bark, were formerly officinal in this country. *Ph. Lond.*, 1724, p. 159.

DIPTERACEÆ.

60. Dipterocarpus turbinatus, *Gaert*, and other species.

a. Oleoresin. (*Gurjun Balsam*, *Wood Oil*, *Gurgun Oil.*)

Note.—Official in the Indian Pharmacopœia. It is used in India instead of balsam of copaiba. It is also used in India as a varnish. *P. J.* [1], vol. xv., p. 321. *Ind. Pharm.* app., p. 441. *Pharmacographia*, p. 81. It has lately been used in the cure of leprosy. *P. J.* [1], vol. xiv., p. 65; [3], vol. v., p. 729.

61. Dryobalanops aromatica, *Gaert.*

a. Section of stem from Sumatra. From Dr. De Vriese.

b. Fruit, preserved wet.

c. Stearoptene. (*Borneo Camphor.*)

Note.—This camphor is found in the wood in fragments, and is remarkable for not subliming at the ordinary temperature of the air. *Hook. Journ. Bot.*, vol. iv., pp. 33–202. *P. J.* [3], vol. iv., p. 710. *Bentley*, *Man. Bot.*, p. 444. For fig. of crystals, see *P. J.* [1], vol. xii., p. 302; [3], vol. iv., p. 710.

TERNSTRŒMIACEÆ.

62. Thea Chinensis, *Sims.*; Camellia Thea, *Link.*

a. Leaves.

b. Green tea.

c. Black tea.

d. Oil expressed from the fruit.

Note.—Black and green tea are probably derived from the same plant; but Assam tea is the product of Thea Assamica. *Bentley*, *Man. Bot.*, p. 446. See *Bentley and Trimen*, *Med. Plants*, tab. 34.

GUTTIFERÆ.

63. Calophyllum Calaba, *Willd.*

a. Bark.

b. Resin. (*East Indian Tacamahaca.*)

Note.—This specimen is labelled "This is the Animi Tacamahac of Batka." See *P. J.* [3], vol. vi., p. 742. It is used as an application to indolent ulcers. Specimen *b* resembles some varieties of Olibanum, and gives off a similar odour when heated. It also has fragments of papery bark attached to it.

64. GARCINIA MANGOSTANA, *L.* (*Mangosteen.*)

a. Fruit.

b. Ditto. Perfect specimens.

Note.—The pericarp is used in India as an astringent in dysentery and diarrhœa. *Indian Pharm.*, p. 31. At one time this fruit was substituted for Indian Bael, from which it may be known by its stellate stigma and softer structure. *P. J.* [2] vol. viii., p. 654.

65. GARCINIA MORELLA, *var.* PEDICELLATA, *Desrous.*

† *a.* Section of stem.

b. Ditto, showing gamboge exuding from the bark.

c. Roll gamboge of good quality.

d. Ditto, one piece enclosed in bamboo.

e. Pipe gamboge from Siam, inferior quality.

† *f.* Fine specimen of pipe gamboge.

See *Bentley, Man. Bot.*, p. 448. *P. J.* [1], vol. vi., p. 60; [1], vol. viii., p. 398; [1], vol. x., p. 235; [2], vol. vi., p. 349; [3], vol. ii., p. 848; [3], vol. iv., p. 803. For fig. of plant, *B. & T., Med. Plants*, tab. 33.

66. GARCINIA PURPUREA, *Roxb.* (*Kokum Butter.*)

a. Concrete oil expressed from the seeds.

Note.—Official in the Indian Pharmacopœia. It has been recommended for use in ointments and suppositories. It melts at 98° F. *Ind. Pharm.*, p. 31. *Pharmacographia*, p. 80. *P. J.* [1], vol. xi., p. 65. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 32.

67. CALYSACCION LONGIFOLIUM, *Wight.*

a. Unexpanded flower buds.

Note.—These flower-buds form the *Nag-kassar* of the Indian bazaars, under which name the flowers of *Mesua ferrea, L.*, are also sold. *P. J.* [1], vol. x., pp. 449, 597; and for fig., [1], vol. xii., p. 62. *Bentley, Man. Bot.*, p. 448. See collection of Indian Drugs.

RHIZOBOLACEÆ.

68. CARYOCAR BUTYROSUM, *Willd.*

a. Fruit (*Souari Nuts.*) *Bentley, Man. Bot.*, p. 451.

Note.—These nuts are yielded also by *C. nuciferum, L.* They yield a bland oil. *P. J.* [1], vol. xi., p. 158. For fig. of the nuts, etc., see *Treas. Bot.*, p. 229.

SAPINDACEÆ.

69. PAULLINIA SORBILIS, *Mart.*

a. Guarana, in roll. (*Brazilian Cocoa.*)

b. Ditto, powdered.

c. Seeds. Presented by Dr. Symes.

Note.—It is used in sick headache, but sometimes purges violently. It contains theine and saponin; to the latter its occasional irritant effects are probably due. See *P. J.* [3], vol. i., p. 221; [3], vol. iii., p. 773. Guarana consists of the crushed nuclei of the seeds. For fig. of the plant, see *Bentley and Trimen, Med. Plants*, tab. 67.

70. SAPINDUS SAPONARIA, *L.* (*W. Indian Soap Tree, Black Nicker Tree.*)

a. Root. Presented by Mr. Edwards.

b. Fruit. (*Soap Berries.*)

c. Seeds.

Note.—The pericarps contain saponin, and are used in the W. Indies by laundresses. They are said to be as efficacious as sixty times their weight of soap. See *P. J.* [1], vol. vii., p. 225. The seeds are from the International Exhibition of 1851, and are contributed by Mr. Geo. Ross, of Ruimveld River, Demerara, where they are used for necklaces, bracelets, and other ornaments.

POLYGALACEÆ.

71. POLYGALA SENEGA, *L.*

a. Root. See *Bentley and Trimen, Med. Plants*, tab. 29.

Note.—Easily distinguished from other roots by the keel which projects from the concave side of the root. *Pharmacographia*, p. 72. For micr. section, see *Berg, Anat. Atlas*, taf. 8. See Panax quinquefolium.

KRAMERIACEÆ.

72. KRAMERIA TRIANDRA, *R. et P.*

a. Root. (*Peruvian* or *Payta Rhatany.*)

b. Ditto. Fine specimen.

c. Extract. *P. J.* [1], vol. iii., p. 82.

d. Ditto. "Thought by Guibourt to be the product of some species of acacia of S. America, of which an account was published in the *Journal de Pharmacie.*"

Note.—The extract is said to be extensively used to give astringency and colour to artificial port wine. *Pharmacographia*, p. 74. For fig. of root, see *Goebel und Kunze*, pt. ii., taf. iv., fig. 2.

73. KRAMERIA TOMENTOSA, *St. Hilaire.* (*K. Ixina β. granatensis, Triana.*)

a. Root. (*Savanilla*, or *New Granada Rhatany.*)

b. Ditto. A commercial specimen.

Note.—This rhatany generally occurs in short pieces, on account of being very brittle when fresh. Its pale purplish hue when seen in mass, smooth surface, and transverse cracks, as well as the thickness of the bark of the root, distinguish it from Peruvian rhatany. It is said to be more astringent than the latter. See *P. J.* [1], vol. xi., p. 420; [2], vol. vi., p. 460. *Botanische Zeitung*, Oct. and Nov., 1856. For Pará Rhatany, see *P. J.* [3], vol. i., p. 84; [3], vol. vi., p. 21. For fig. of K. triandra and K. Ixina, see *Bentley and Trimen, Med. Plants*, tabs. 30, 31.

ACERACEÆ.

74. ACER SACCHARINUM, *L.* (*Sugar Maple.*)

a. Crude juice. See *P. J.* [1], vol. xi., p. 115.

b. Maple sugar. See *P. J.* [1], vol. xvii., p. 324.

MALPIGHIACEÆ.

75. Byrsonima laurifolia, *H. B.*

a. Bark. (*Alcornoque Bark.*)

Note.—American Alcornoque bark is derived from other species of *Byrsonima* as well as from *B. laurifolia*, and also from *Bowdichia virgilioides*. It is used in tanning. Alcornoque is the Spanish name for the cork oak. See *Bentley, Man. Bot.*, pp. 459 and 498. *P. J.* [1], vol. vi., p. 362. For fig. of bark, see *Goebel und Kunze*, pt. i., taf. i., ff. 5–8.

ERYTHROXYLACEÆ.

76. Erythroxylon Coca, *Lam.*

a. leaves. (*Coca, Ypadu.*)

Note.—These leaves are used by the natives of Brazil to allay hunger and diminish fatigue. See *P. J.* [1], vol. ii., p. 660; [1], vol. xiii., p. 224; [1], vol. xiv., pp. 162, 213; [2], vol. i., p. 616. For Cocaine, see *Watts' Dict. Chemistry*, vol. i., p. 1059; *Supplt.*, i., p. 479. *P. J.* [3], vi., p. 883. See *Bentley and Trimen, Med. Plants*, tab. 40.

CEDRELACEÆ.

77. Cedrela febrifuga, *A. de J. Meliac.*

a. Bark. See *Bentley, Man. Bot.*, p. 461.

Note.—It is used as an astringent and febrifuge. For fig. of the bark, see *Goebel und Kunze*, pt. i., taf. xxxi., ff. 7, 8, 9.

78. Soymida febrifuga, *Juss.* (*Red Wood Tree, Bastard Cedar.*)

a. Bark. (*Rohun Bark.*)

Note.—Official in the Indian Pharmacopœia. It is used in diarrhœa and in intermittent fevers; also as a local astringent like oak bark. Nux vomica bark is sometimes met with in the Calcutta bazaars under this name. See *P. J.* [1], vol. i., p. 575; [1], vol. xi., p. 420; *Pharmacographia*, p. 137. For fig. of plant, see *Bentl. & Trim., Med. Plants*, tab. 63.

MELIACEÆ.

79. Carapa Guineensis, *G. Don.*

a. Stem.

b. Seeds.

c. Concrete oil expressed from the seeds. (*Tallicoona* or *Kundah Oil.*)

Note.—The specimen of oil is from the district of Assin, on the Gold Coast, on the frontiers of the kingdom of Ashantee. See *P. J.* [1], vol. ii., pp. 341, 342. It is purgative and anthelmintic, and is also used as lamp oil. This plant is believed by Oliver to be identical with Carapa Guianensis, *Aubl.*

80. Carapa Guianensis, *Aubl.*

a. Concrete oil expressed from the seed. (*Crab Oil.*)

Note.—This specimen is from the International Exhibition of 1851. See Catalogue No. 53. Contributed by Mr. J. S. Stutchberry, River Essequibo, British Guiana. It is used in the colony for burning, and as hair oil to prevent the hair turning grey. *P. J.* [1], vol. xi., p. 160.

81. Carapa Moluccensis, *Lam.*; Xylocarpus granatum, *Kön.*

a. Seeds. Presented by Dr. F. J. Farre.

Note.—The seeds are very bitter, and are used in Borneo in intermittent fever.

82. Melia Azedarach, *L.* (*Bead Tree.*)

a. Bark.

Note.—The root bark is used as an anthelmintic in America. See *American Dispensatory*, p. 520. See *Bentley and Trimen, Med. Plants*, tab. 62.

83. Melia Indica, *Brandis*; Melia Azadirachta, *L.*; Azadirachta Indica, *Juss.*

a. Bark. (*Cortex Azadirachtæ, Nim Bark, Margosa Bark.*)

Note.—This tree is sometimes confounded with *Melia Azedarach, L.* It differs in having a simple fruit (by abortion) and pinnate leaves; Melia Azedarach has a five-celled fruit and bi-pinnate leaves, *Pharmacographia*, p. 136. The bark and leaves are official in the Indian Pharmacopœia, the bark as a tonic, and the leaves, in the form of poultice, as an application to ulcers. See *Ind. Pharm.*, pp. 54, 443.

AURANTIACEÆ.

84. Ægle Marmelos, *Correa.* (*Indian Bael, Bilva Tree, Bengal Quince.*)

a. Fruit. The pulp is modelled in wax.

b. Entire Fruit.

c. The fruit, sliced and dried.

d. Ditto, commercial specimen.

e. Thin sheets formed of the dried pulp. Presented by Mr. J. G. Gould.

f. Bark.

g. Gum obtained from the fruit.

Note.—The fruit is stated by Hanbury and Flückiger not to contain tannin. See *Pharmacographia*, p. 117. For fig. of fruits, &c., see *P. J.* [1], vol. x., p. 166; of plant, *Bentley and Trimen, Med. Plants*, tab. 55.

85. Citrus Bergamia, *var.* vulgaris, *Risso et Poiteau.* (*Bergamot Orange.*)

a. Fruit preserved wet.

b. Rind of fruit. For micr. section see *Berg, Anat. Atlas*, taf. 45. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 52.

86. Citrus Bigaradia, *N. Duham.*

a. Flower buds. See *Bentley and Trimen, Med. Plants*, tab. 50.

b. Immature fruit.

c. Ditto, turned and perforated. (*Issue Peas.*)

d. Rind of fruit. For micr. section, see *Berg, Anat. Atlas*, taf. 45.

87. CITRUS LIMETTA, *N. Duham.*

a. Fruit, preserved wet.

Note.—It is from this fruit that lime juice is obtained. *Bentley, Man. Bot.*, p. 465. This specimen is from British Guiana. *P. J.* [1], vol. xi., p. 158.

88. CITRUS LIMONUM, *Risso.*

a. Fruit, preserved wet.

b. Rind.

c. Essential oil from ditto. For fig. of the plant, see *Bentley and Trimen, Med. Plants*, tab. 54.

89. FERONIA ELEPHANTUM, *Correa.*

a. Fruit. (*Elephant Apple. Wood Apple.*)

b. Gum from ditto.

† *c.* Section of stem.

Note.—This is the *Gomme de l'Inde* of Prof. Guibourt. Some of the gum arabic of India is probably derived from this tree. See *Bentley, Man. Bot.*, p. 466. *Pharmacographia*, p. 117.

VITACEÆ.

90. VITIS VINIFERA, *L.*

a. Fruit, preserved wet.

b. Grape-sugar.

CANELLACEÆ.

91. CANELLA ALBA, *Murr.*

a. Bark.

b. Branch.

Note.—Specimen *b* has "the outer layer of bark partially removed, so as to show the inner bark, which is the part exported." Presented by Mr. Lees. See *P. J.* [1], vol. iii., p. 290. *Goebel und Kunze*, vol. i., taf. iii., fig. 1–4. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 26.

92. CINNAMODENDRON CORTICOSUM, *Miers.*

a. Fine specimen. (*False Winter's Bark.*)

b. Entire bark.

c. Outer layer of bark removed.

Note.—This tree yields the bark now known in commerce as "Winter's bark." It resembles Canella both in colour and taste, but is darker on both surfaces, and contains tannin. For fig. of bark see *Goebel und Kunze*, taf. iii., ff. 5, 6, 7. The true Winter's bark is yielded by Drimys Winteri, *Forst.*, and is at once distinguished by its very rough inner surface and red brown colour. See *P. J.* [1], vol. xviii., p. 503. *Bentley, Man. Bot.*, p. 468. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 27.

RUTACEÆ.

93. BAROSMA BETULINA, *Bartl. and Wendl.*

a. Leaves. For fig., see *Bentley and Trimen, Med. Plants*, tab. 45.

94. Barosma crenulata, *Hook.*

a. Leaves. For fig., see *Bentley & Trimen, Med. Plants*, tab. 46.

b. Branchlets and leaves.

95. Barosma serratifolia, *Willd.*

a. Leaves. For fig., see *Bentley and Trimen, Med. Plants*, tab. 47.

Note.—Barosma crenulata must not be confounded with Diosma crenata, *L.*, which is a synonym for Barosma betulina.

96. Dictamnus Fraxinella, *Lam.* (*False Dittany.*)

a. Root.

Note.—Formerly much used as a tonic, diuretic, antispasmodic, and emmenagogue. For fig. of root see *Goebel und Kunze*, pt. ii., taf. xxviii., f. 2.

97. Galipea Cusparia, *St. Hilaire.*

a. Bark. (*Cusparia Bark, Angustura Bark, Quina de Caroni.*)

Note.—By some authors Cusparia bark is attributed to Galipea Cusparia, and Angustura bark to G. officinalis, *Hancock;* but Farre and Don decided the two were the same. Hanbury also considered both plants to be identical. *Pharmacographia*, p. 97, note. *Bentley and Trimen, Med. Plants*, tab. 43.

The bark of G. officinalis is official in the United States Pharmacopœia under the name of Angustura bark. Under a lens the transverse fracture of Cusparia bark shows a number of white points or minute lines, not present in Nux Vomica bark, with which it was at one time adulterated. See *P. J.* [3], vol. iii., p. 663. *Wood and Bache, Dispens.*, p. 116. *Journ. Pharm.*, 1836, p. 662. *P. J.* [3], vol. iv., p. 681. See Nux Vomica Bark, p. 93. For fig. of Cusparia bark, see *Goebel und Kunze*, pt. i., taf. ii., fig. 1–4.

98. Pilocarpus species. (*Pernambuco Jaborandi.*)

a. Leaves. *Bentley and Trimen, Med. Plants*, tab. 48.

b. Stem, root, and fruits.

c. Bark of the stem.

Note.—The word Jaborandi is used in South America as a generic term for several different plants possessing sialogogue and diaphoretic properties. For figure and description of Pernambuco Jaborandi see *P. J.* [3], vol. v., pp. 583, 641, 838; for its active principles, *P. J.* [3], vol. v., pp. 826, 965; vol. iv., p. 911; for its physiological action, *P. J.* [3], vol. iv., p. 850; vol. v., pp. 464, 561. For fig. of leaf, etc., of Serronia Jaborandi, *Guill.*, see *Archiv. der Pharmacie*, November, 1875, p. 416; and for Serronine, *P. J.* [3], vol. v., p. 1034. For other plants used under the name of Jaborandi, see *Piper* species in this catalogue, *Martius' Syst. Mat. Med. Brazil.*, p. 100, and *L'Union Pharmaceutique*, June, 1874, p. 183.

Ptelea trifoliata, *L.* (*Shrub Trefoil, Wing Seed, Wafer Ash.*)

a. Root bark, and ptelein. Presented by Prof. W. Procter.

Note.—The root bark is used to a limited extent in America, by the Eclectics, as a stimulant tonic in intermittent fevers. See *P. J.* [1], vol. xvi., p. 272; [2], vol. iv., p. 494.

100. Ruta graveolens, *L.* (*Rue. Herb of Grace.*)

a. Root, preserved wet.

100. RUTA GRAVEOLENS (continued).

b. Essential oil from the herb.

Note.—Official in the Indian Pharmacopœia, p. 40. Formerly much used in this country as a stimulant and deobstruent. It was also supposed to ward off pestilence. See *Treas. Bot.*, p. 1001. For fig. of the plant, see *Bentley and Trimen, Med. Plants*, tab. 44.

101. XANTHOXYLON CLAVA-HERCULIS, *L.*

a. Stem.

b. Bark.

c. Enlarged prickles from stem.

Note.—The bark is used in the West Indies for malignant ulcers, and is used both externally and internally as an alterative in syphilis. It is official in the secondary list of the United States Pharmacopœia, under the name of X. Carolinianum. The prickles are worthy of notice on account of their extraordinary development. The specimen *b* according to Prof. Bentley, is probably that of X. Carolinianum, *Lam.*, which is apparently a variety of X. fraxineum growing in the Southern States. See *P. J.* [1], vol. xvi., p. 271.

102. XANTHOXYLON FRAXINEUM, *Willd.* (*Prickly Ash, Toothache Shrub.*)

a. Stem.

b. Bark.

c. Fruit.

Note.—The bark is used in the United States as a permanent arterial stimulant, and as an alterative in syphilis and rheumatism. It resembles Guaiacum in its stimulant action, but is more permanent. The bark resembles that of Pomegranate root bark, but nitric acid colours it red, while it does not affect Pomegranate root bark. See *P. J.* [2], vol. iv., p. 399.

CORIARIACEÆ.

103. CORIARIA MYRTIFOLIA, *L.*

a. Leaves.

Note.—The leaves of this plant are sometimes found in Senna, on the Continent, but not in this country. They are poisonous. They may be readily detected by having three well marked veins, the two outer of which are situated near the margin of the leaf. For fig. of leaf, see *Per. Mat. Med.*, vol. ii., pt. ii., p. 356, fig. 67.

SIMARUBACEÆ.

104. PICRÆNA EXCELSA, *Lindl.* (*Jamaica Ash, Jamaica Quassia.*)

a. Section of stem.

b. Young branches. Presented by Dr. Lindley.

c. Bark.

d. Shavings of the wood.

Note.—For occurrence of sulphate of soda in this wood, see *P. J.* [1], vol. xiii., p. 642. For micr. section of wood, see *Berg, Anat. Atlas*, taf. 26, fig. 63. For fig. of bark, see *Goebel und Kunze*, pt. i., taf. xxxi., ff. 3, 4. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 67.

105. QUASSIA AMARA, *L.* (*Surinam Quassia.*)

a. Leaves and branchlets, preserved wet. Presented by Professor Bentley.

b. Wood.

Note.—The wood of this tree was formerly imported as Quassia, which is now derived from Picræna excelsa. *Pharmacographia*, p. 119. For micr. section of wood, see *Berg, Anat. Atlas*, taf. 26, fig. 62. For fig. of bark, see *Goebel und Kunze*, pt. i., taf. xxxi., ff. 3–6.

106. SAMADERA INDICA, *Gaertn.* (*Karinghota*, S. W. India, *Samadera-gass*, Ceylon.)

a. Bark.

Note.—The bark is remarkable for its intense bitterness, and for containing a bitter principle which gives a violet-red coloration with concentrated sulphuric acid. See *P. J.* [3], vol. v., pp. 541, 644, 654. The kernels of the fruit contain more of the bitter principle than the bark.

107. SIMARUBA AMARA, *Aubl.* (*Mountain Damson.*)

a. Root bark.

b. Ditto. Fine specimen.

Note.—Official in the secondary list of the United States Pharmacopœia. It possesses similar properties to those of Quassia. For microscopic structure of bark, see *P. J.* [3], vol. iii., p. 824; and *Berg, Anat. Atlas*, taf. 38. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 56.

108. SIMABA CEDRON, *Planchon.*

a. Seeds. Cedron seeds.

Note.—Used in South America for intermittent fevers, in rheumatism, and as an antidote to poison. See *P. J.* [1], vol. x., pp. 344, 560, and for fig. of fruit, p. 347; [1], vol. xi., p. 280; [1], vol. xii., p. 63; [3], vol. iii., p. 801.

ZYGOPHYLLACEÆ.

109. GUAIACUM OFFICINALE, *L.*

a. Section of stem. (*Lignum Vitæ.*)

b. Ditto, polished.

c. Ditto, from the Bahamas.

d. Shavings of the wood. Two specimens.

Note.—Guaiacum shavings are sometimes adulterated with shavings of boxwood. This admixture may be detected by nitric acid, chloride of lime, or other oxidizing agents, which will colour Guaiacum wood greenish blue, but not boxwood. See *P. J.* [1], vol. xii., p. 450.

e. Resin. "Gum guaiacum."

f. Ditto, "Tears."

g. Ditto, ditto, agglutinated.

h. Ditto, impure.

Note.—The Guaiacum in tears is supposed to be the produce of G. sanctum, *L.* For micr. section of wood, see *Berg, Anat. Atlas*, taf. 27. For constitution of resin see *P. J.* [1], vol. xi., p. 523; and [1], vol. i., 272, [2], vol. iii., p. 483, for products of decomposition of the resin; also see Guaiacol. For fig. of plant, see *Bentley and Trimen, Med. Plants.* tab. 41.

LINACEÆ.

110. LINUM CATHARTICUM, *L.* (*Purging Flax, Mountain Flax.*)

a. Herb.

Note.—Formerly official in the *Ph. E.* and *Ph. D.*, and still used in country districts as a domestic medicine. It is bitter and cathartic.

111. LINUM USITATISSIMUM, *L.* *P. J.* [3], vol. i., p. 663.

a. Seeds. (For micr. section, see *Berg, Anat. Atlas*, taf. 46.)

b. Ditto, larger variety, from Calcutta.

c. Ditto, white variety.

d. Ditto, Russian.

e. Ditto, English.

f. Ditto, crushed. See *P. J.* [3], vol. ii., p. 211.

g. Linseed cake.

h. Ditto, powdered.

i. Linseed oil.

Note.—Charlock seeds, or other acrid seeds, belonging to the Cruciferæ, are sometimes accidentally mixed with linseed, and hence the meal sometimes possesses an irritating property. For composition of linseed oil, see *P. J.* [1], vol. iv., p. 325; for its purification, [1], vol. xi., p. 470; for adulteration of the meal, [1], vol. ii., p. 728; and [2], vol. xi., p. 686. The small seed which comes from the shore of Baltic, is to be preferred for medicinal purposes to the large seed which comes from India. For fig. of the plant see *Bentley and Trimen, Med. Plants*, tab. 39.

OXALIDACEÆ.

112. OXALIS ACETOSELLA, *L.*

a. Herb.

Note.—It contains binoxalate of potash, and was formerly used as a refrigerant and antiscorbutic.

GERANIACEÆ.

113. GERANIUM MACULATUM, *L.* (*Cranesbill, Spotted Geranium.*)

a. Root. (*Alum root.*)

Note.—The root is official in the United States Pharmacopœia. It is a powerful astringent, free from bitterness. *P. J.* [2], vol. v., p. 20. For fig. of plant see *Bentley and Trimen, Med. Plants*, tab. 42.

114. PELARGONIUM SPECIES.

a. Essential oil. (*French Oil of Geranium.*)

Note.—This must not be confounded with the Turkish oil of geranium, which is obtained in India from a species of grass, the Andropogon Schœnanthus, *L.*, or Ginger Grass. It is this, and not the French Oil of Geranium, which is used in Turkey to adulterate otto of rose. *P. J.* [2], vol. ix., p. 290. The French oil of geranium from Paris firms is of a greenish colour; that from Nice is colourless.

CALYCIFLORÆ.

CELASTRACEÆ.

115. CATHA EDULIS, *Forsk.*, and C. SPINOSA, *Forsk.* (*Abyssinian Tea, Kât* or *Kaat.*)

a. Leaves and young branchlets. (*Subbare Kaat.*)

b. Do. do. (*Muktaree Kaat.*)

Note.—The leaves are chewed as a stimulant and exhilarant, producing effects like those of coffee. The Subbare Kaat is the more valuable of the two, being double the price of the Muktaree Kaat. They are so called from the district from which they are obtained. For figure, etc., see *P. J.* [1], vol. xii., p. 269; *Lindley's Vegetable Kingdom*, p. 587. Specimens *a* and *b* were presented by Dr. Vaughan.

116. CEANOTHUS AMERICANUS, *L.*

a. Root. (*Red Root.*)

b. Leaves. (*New Jersey Tea.*)

Note.—The root is used as an astringent in syphilis, etc. The leaves have been used as tea. See *Amer. Dispens.*, p. 199.

117. CELASTRUS PANICULATUS, *Willd.*

a. Semi-concrete oil.

Note.—The oil is used in Brazil as a powerful stimulant and for burning in lamps. In India an empyreumatic oil, known as Oleum Nigrum, is obtained from the seeds, and used in doses of 10–15 drops to produce free diaphoresis. *Ph. Ind.*, p. 56.

118. EUONYMUS ATROPURPUREUS, *Jacq.* (*Burning Bush, Spindle Tree, Wâhoo.*)

a. Root. Two specimens.

Note.—Used as a diuretic in dropsy in America. See *Wood and Bache*, p. 374. The name Wâhoo is also applied in the Southern States to Ulmus alata.

RHAMNACEÆ.

119. RHAMNUS AMYGDALINUS, *Desf.*

a. Fruit. (*Persian Berries.*)

See *Bentley, Man. Bot.*, p. 490, *P. J.* [3], vol. ii., p. 574.

120. RHAMNUS CATHARTICUS, *L.* (*Buckthorn.*)

a. Fruit. *Bentley and Trimen, Med. Plants*, tab. 64.

b. Ditto, unripe, from J. B. Batka.

c. Sap green. *Bentley, Man. Bot.*, p. 490.

Note.—The specimen *b* might easily be mistaken for Cubebs, but is distinguished readily by the inferior calyx, and by containing 4 seeds.

121. RHAMNUS CHLOROPHORUS, *Decaisne.*

a. Chinese green dye.

See *P. J.* [1], vol. xvi., p. 214; *P. J.* [2], vol. i., p. 228; also *Porter Smith, Chinese Materia Medica, art. Sap Green—Luh-kiau*, p. 193.

122. RHAMNUS FRANGULA, *L.* (*Black Alder, Alder Buckthorn.*)

a. Bark.

Note.—This bark has been lately brought forward in this country as an excellent purgative, free from the griping properties of Buckthorn berries. It contains a little prussic acid. The berries of R. Frangula differ from those of R. catharticus in having only three seeds, and the leaves are entire and feather-veined, not serrulate as in R. catharticus. See *P. J.* [1], vol. ii., p. 721, for form for decoction; [1], vol. ix., p. 537, for analysis; [3], vol. ii., p. 152; [3], vol. iv., p. 889. For micr. section, see *Berg, Anat. Atlas*, taf. 40. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 65. See also *P. J.* [3], vol. vii., p. 102.

123. RHAMNUS INFECTORIUS, *L.*

a. Fruit. (*Graines d'Avignon, French Berries.*)

Note.—These berries are used as well as those of R. amygdalinus, to dye morocco leather yellow.

124. ZIZYPHUS JUJUBA, *L.*

a. Fruit. (*Jujube Fruit.*)

b. Twig, with the fruit on it, preserved wet. Brought from Nîmes by Mr. D. Hanbury.

125. ZIZYPHUS ORTACANTHA, *D. C.*

a. Fruit.

ANACARDIACEÆ.

126. ANACARDIUM OCCIDENTALE, *L.* (*Cashew Nut Tree.*)

a. Fruit. (*Cashew Nuts.*) See for fig. *Guib. Hist. des Drog.*, vol. iii., p. 490.

b. Peduncle and fruit, preserved wet.

c. Gum. (*Cadjii Gum.*)

Note.—The bark and pericarp of the fruit contain an acrid vesicant liquid which forms a durable marking ink. See *P. J.* [1], vol. v., pp. 268–272. The gum possesses the same properties as gum arabic; but is also slightly astringent.—*Bentley, Man. Bot.*, p. 491. *Treas. Bot.*, p. 57.

127. IRVINGIA BARTERI, *Hook. f.*

a. Dika bread.

b. Fat obtained from ditto.

Note.—The Dika bread is used as food in the Gaboon, on the West Coast of Africa. It contains about 68 per cent. of a solid fat. This plant is placed in the Simarubaceæ by Bentley. See *Bentley, Man. Bot.*, p. 474.

See also *Journ. de Pharm.*, 1857, p. 275. *P. J.* [2], vol. iii., p. 445. *Linn. Trans.*, vol. xxiii., p. 167.

128. PISTACIA LENTISCUS, *L.*

a. Resin. (*Mastich.*)

b. Do. inferior. See *P. J.* [2], vol. ii., p. 282.

Note.—Mastic resembles in appearance Olibanum and Sandarac; from Olibanum it is distinguished by its different odour and glassy fracture, and from Sandarac by its tears not being cylindrical.

129. PISTACIA TEREBINTHUS, *L.*

a. Oleoresin. (*Chian Turpentine.*)

b. Ditto, from Professor Guibourt. See *Hist. des Drog.*, t. iii., p. 497. *Pharmacographia*, p. 146.

130. PISTACIA VERA, *L.*

a. Kernels. (*Pistachio Nuts.*) See *Bentley, Man. Bot.*, p. 492.

131. RHUS GLABRA, *L.* (*Smooth Sumach, Pennsylvanian Sumach.*)

a. Fruit.

Note.—The fruit is official in the secondary list of the United States Pharmacopœia. It is used to make cooling drinks. The acidity of the fruit resides in the pubescence, and is due to malic acid and bimalate of lime. See *Wood and Bache, Dispens.*, p. 710.

132. RHUS METOPIUM, *L.*

a. Gum. (*Hog Gum.*)

b. Ditto. Collected from the foot of a tree in the parish of Foreland, Jamaica.

c. Large specimen.

Note.—It is called Hog Gum because the wild hogs smear their wounds with the gum, by ripping the bark with their tusks, and then rubbing themselves against the tree. It possesses vulnerary properties. When taken internally it acts as a diuretic. See *P. J.* [1], vol. v., p. 60; vol. vii., p. 270.

133. RHUS TOXICODENDRON, *L.* (*Poison Oak.*)

a. Leaves.

Note.—Official in the secondary list of the U.S. Pharmacopœia, and formerly in those of London and Dublin. The plant possesses a volatile acrid principle which is lost in drying. The leaves have been used in palsy and cutaneous diseases, and by Homœopaths for rheumatism. Tincture of lobelia is said to allay the irritation caused by the emanations from the plant. The milky juice forms an excellent marking ink. *Per. Mat. Med.*, vol. ii., pt. ii., p. 377. For tincture see *P. J.* [2], vol. ix., p. 208.

134. SEMECARPUS ANACARDIUM, *L.*

a. Fruit. (*Marking Nuts, Malacca Beans.*)

Note.—The kernels are edible, but the nuts should never be put in the mouth, as the shell contains an extremely acrid oil. This oil forms a permanent marking ink, which is generally brown at first, but may be made to turn black immediately by the addition of ammonia. See *Treas. Bot.*, p. 1047. See *Hist. des Drog.*, t. iii., p. 492, 6ième édition.

135. SPONDIAS LUTEA, *L.* (*Hog Plum Tree.*)

a. Bark.

Note.—The bark is used in tanning. This specimen is from the International Exhibition of 1851, and was contributed by Mr. T. B. Duggin, of Berbice, B. Guiana. *P. J.* [2], vol. xi., p. 160.

AMYRIDACEÆ.

136. AMYRIS, SPECIES INCERTA.

a. Resin. (*Elemi in reed*). Two specimens from Professor Guibourt.

137. BALSAMODENDRON AFRICANUM, *Arnott*; HEUDELOTIA AFRICANA, *Guill & Perr.*

a. Gum-resin. (*African Bdellium.*)

b. Ditto, in tears. Presented by Allen & Co.

Note.—This Gum-resin is translucent, but has a dull fracture. The taste is slightly bitter. When heated, it gives off an odour like burnt india-rubber. See *Per. Mat. Med.*, vol. ii., pt. ii., p. 387 ; *Hist. des Drog.*, vol. iii., p. 513.

138. BALSAMODENDRON OPOBALSAMUM, *Kunth*; BALSAMODENDRON GILEADENSE, *Kunth*.

a. Portions of the young branches. (*Xylobalsamum.*)

b. Oleoresin. (*Balm of Gilead.*)

c. Ditto, solidified.

Note.—Specimen *a* was presented by Mr. D. Hanbury. Specimen *b* has the citron-like odour and taste ascribed by Pomet to true Balm of Gilead. See *Pomet, Hist. Drugs*, p. 204. Its consistence is like that of Chian turpentine. In appearance and taste it corresponds with a drop which has exuded on a specimen of the plant labelled "Schweinfurth, No. 2300," in the British Museum. Specimen *c* corresponds in odour and appearance with Pereira's specimen of "Pellucid Liquid Storax," No. 513*e*, in this Museum. See *Per. Mat. Med.*, vol. ii., pt. ii., p. 679. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 59.

139. BALSAMODENDRON SPECIES.

a. Gum-resin. A fine specimen. (*Turkey Myrrh.*)

b. Gum-resin of a paler colour. (*White Myrrh.*)

Note.—Specimen *b* is identical with the "true myrrh," of Dymock, and with the *kărăm* of the Bombay market. It is the finest myrrh of English commerce. See *P. J.* [3], vol. vi., p. 661.

c. Gum-resin, in large dark-coloured pieces, from Bombay.

Note.—This specimen resembles true myrrh in taste, but has a somewhat urinous odour. It is identical with the drug described by Dymock under the name of "Arabian Myrrh," or *Meetiga* of the Bombay market, a specimen of which from Professor Dymock is enclosed in the same bottle.

d. Gum-resin. (*East Indian Myrrh.*)

Note.—This specimen is the "Myrrh of third quality," described by Pereira. It consists of dark-coloured myrrh mixed with pieces of Indian Bdellium, opaque Bdellium, and other gums in less quantity. See *Per. Mat. Med.*, vol. ii., pt. ii., p. 383.

e. Gum-resin. (*Somali*, or *African Myrrh.*)

Note.—This specimen was presented by Dr. Vaughan. It is the "Turkey Myrrh" of commerce. See *P. J.* [1], vol. xii., p. 227, note.

139. BALSAMODENDRON SPECIES, continued.

f. Gum-resin. (*Arabian Myrrh.*)

Note.—This specimen was presented by Dr. Vaughan. It was collected to the eastward of Aden. It consists of irregular lumps, composed of agglomerated tears; it is more gummy, more brittle, and more polished externally than ordinary myrrh, and is without whitish marks in the interior. See *Pharmacographia*, p. 129. It is entirely different from the Arabian Myrrh described by Dymock.

g. Gum-resin. (*Opaque Bdellium.*)

Note.—This specimen of Bdellium was picked out of a sample of the Turkey Myrrh of commerce. It is opaque and has a bitter taste without acridity. It is identical with the *meena hărma*, or "opaque Bdellium," described by Dymock, and the *Bdellium opaque* of Guibourt. See *Hist. des Drog.*, vol. iii., p. 515.

h. Gum-resin. (*Indian Bdellium.*)

i. Ditto.

Note.—This kind of Bdellium softens in the hand, and has an acrid taste without the aroma of myrrh. The odour has a faint resemblance to that of cedar. The surface of the pieces frequently has hairs, or fragments of a papery bark attached to it. See *Per. Mat. Med.*, vol. ii., pt. ii., p. 387. Specimen *h* belonged to Dr. Pereira's collection. Specimen *i* was picked out of Turkey Myrrh in the year 1876.

j. Gum-resin, from Bengal. (*Googul.*)

Note.—This specimen somewhat resembles Indian Bdellium in appearance, but the odour is different and recalls that of Burgundy pitch or castor. The taste is bitter and only slightly acrid. It has a damp appearance, due to minute globules of oily matter which have hardened on its surface. This variety of Bdellium has been attributed to *Balsamodendron Mukul*, Hook. See *Hook, Journ. Bot.*, 1849, p. 258. Cooke, Report on Gum-resins in the India Museum, 1874, p. 72.

k. Gum-resin. (*Bissa Bôl.*)

Note.—This specimen has a peculiar odour, likened by Dymock to a lemon lollipop. The taste, however, resembles that of the spring mushroom, Agaricus Gambosus, *Fr.* It has much the appearance of true myrrh. Occasionally portions of a thick (not a papery) bark are found attached to the pieces. It is identical with the "perfumed myrrh," described by Dymock, and with the "*hăbăk hādee*" of the Bombay market, and the *hebbak hade* of the Somalis. See *P. J.* [3], vol. vi., p. 661; *Pharmacographia*, p. 129.

The terms Bissa Bôl and Googul appear to be applied in different parts of India to different gum-resins.

140. BOSWELLIA SPECIES.

a. Gum-resin, Olibanum in lumps.

b. Do. Lubân Māttee. The produce of B. Frereana, *Birdw.*

c. Do. Lubân Hunkur.

d. Do. Lubân Mākur.

e. Do. Lubân Berbera or Mustika.

f. Lubân Morbat or Shaharree. The produce of B. Carterii and B. Bhau Dajiana, *Birdw.*

For fig. of B. Carterii, see *Bentley and Trimen, Med. Plants*, tab. 58.

140. Boswellia species, continued.

g. African Olibanum. Dr. Pereira's Catalogue, No 288.

h. Do., from Dr. Maclagan, from an old drug store.

i. Olibanum of English commerce.

j. Lubân mâttee. A very fine specimen.

Note.—Specimens *b* to *f* are those used by Dr. Vaughan to illustrate a paper in *P. J.* [1], vol. xii., pp. 228, 229. *P. J.* [3], vol. i., p. 166; [1], vol. v., p. 541. *Pharmacographia*, pp. 120 and 131. For figures of the olibanum trees, see *Linn. Trans.*, xxvii., p. 111. Specimen *j* was presented by Mons. C. Chantré.

141. Bursera acuminata, *Willd.*

a. Resin. Carana resin. Presented by Mr. Winstanley. See *Bentley, Man. Bot.*, p. 494.

142. Canarium commune, *L.*

a. Resin. (*Manilla Elemi.*) 2 specimens.

b. Fruit. See *Bentley and Trimen, Med. Plants*, tab. 61.

143. Canarium edule, *Hook. f.*

a. Resin. (*African Elemi.*) Collected in the Angola district, Pungo Andongo, Africa, by Dr. Welwitsch.

144. Elaphrium elemiferum, *Royle.*

a. Resin. (*Mexican Elemi.*)

145. Elaphrium graveolens, *Kunth.*

a. Wood. (*Mexican lignaloes.*)

b. Essential oil from do.

Note.—This is not the oriental lignaloes. It has a strong odour like bergamot. *P. J.* [2], vol. x., p. 590. See Aquilaria Agallochum.

146. Icica icicariba, *Dec.*

a. Resin. (*Brazilian Elemi.*) P. 355.

147. Icica species.

a. Elemi wrapped in leaves. Presented by Messrs. Bell & Co.

b. Do. Fine specimen in mass.

c. Spurious elemi, said to be manufactured from Thus in Germany and Holland.

d. Elemi from British Guiana. (*Marucoa Yam.*)

e. Elemi from the Mauritius. Presented by Dr. Ure.

LEGUMINOSÆ.

Suborder I.—Papilionaceæ.

148. Abrus precatorius, *L.* (*Indian Liquorice.*)

a. Pods and seeds. See *Bentley and Trimen, Med. Plants*, tab. 77.

Note.—These seeds are used as a standard of weight in India, called Rati. The weight of the Koh-i-noor diamond was ascertained in this way. The roots are official in the Indian Pharmacopœia as a substitute for Liquorice root. See *Ind. Pharm.*, pp. 74 and 446; *Treas. Bot.*, p. 4; *Pharmacographia*, p. 164. *P. J.* [1], vol. xi., p. 160, No. 51.

149. ADENANTHERA PAVONINA, *L.*

a. Seeds. (*Barricarri Seeds.*)

Note.—These seeds are used as weights by jewellers in the East, each seed weighing uniformly four grains. Pounded with borax they form a kind of cement. *Treas. Bot.*, p. 18. They have a bright red colour, and are used in South America for necklaces. *Bentley, Man. Bot.*, p. 504.

150. ANDIRA INERMIS, *H. B. K.*

a. Bark. (*Cabbage-tree Bark.*)

Note.—The bark is anthelmintic and purgative, but also narcotic, and hence should be used with caution. *Treas. Bot.*, p. 62.

151. ARACHIS HYPOGÆA, *L.*

a. Legumes. (*Ground Nut, Monkey Nut, Pea Nut.*)

Note.—The seeds yield the Katchung, or Nut oil of commerce. They are edible, but occasionally produce unpleasant symptoms. *Treas. Bot.*, p. 84. For analysis, *P. J.* [3], vol. iv., p. 87. For fig., see *Annales des Sciences Naturelles*, 1853, vol. xix., p. 268. *B. & Tr., Med. Plants*, tab. 75.

152. ASTRAGALUS MICROCEPHALUS, *Willd.*

* *a.* Portion of the plant with incisions in the stem.

Note.—This specimen was presented by Mr. S. H. Maltass, of Smyrna, and is referred to in *Pharmacographia*, p. 152.

153. ASTRAGALUS SPECIES.

* *a.* A very large specimen of flaky tragacanth. See *Pharmacographia*. p. 154, note.

b. Fine white flaky tragacanth. (*Syrian Tragacanth.*)

Note.—This is known in commerce as Syrian tragacanth, but is produced in Persia. It is more translucent than ordinary flaky tragacanth, and without its yellowish tinge.

c. Gum tragacanth, selected. (*Smyrna Tragacanth.*)

d. Gum tragacanth, in sorts. Presented by Mr. D. Hanbury. (*Gum Dragon.*)

e. Vermicelli tragacanth, adulterated with Caramania-gum.

f. Tragacanth, in sorts, adulterated.

g. False tragacanth, unwashed.

h. Ditto, washed.

i. Gum Bassora. (*Gummi Toridonnense.*)

Note.—Specimens *f* and *g* were presented to Dr. Pereira by Prof. Guibourt. They appear to be identical with Caramania gum. See *Hist. des Drog.*, 6th ed., vol. iii., p. 449. Gum Bassora appears to be a mixture of Kuteera gum (see Sterculia urens) and pieces resembling Caramania gum. See *Hist. des Drog., l. c.*, p. 450. *Per. Mat. Med.*, vol. ii., pt. ii., p. 336. See *Bentley and Trimen, Med. Plants*, tab. 73.

153. ASTRAGALUS SPECIES, continued.

The following specimens illustrate a paper by Mr. S. H. Maltass, in the *P. J.*, vol. xv., p. 18. The numbers refer to those on p. 20 in the same volume.

Superior Qualities.

1. White picked Yalavatz gum tragacanth.
2. White picked Caissar tragacanth.
3. French assorted "leaf," sample of seven cases.
4. Broken leaf, picked by women, mixed with fine leaf.
5. Broken "leaf" of Caissar gum, mixed with fine leaf.
6. "Vermicelli" as picked out before mixing with "Sesame."
7. "Vermicelli" tragacanth, sample of one case.
8. "Sesame" tragacanth mixed with vermicelli gum.

Inferior Qualities.

9. Common "leaf" mixed with "English assortment."
10. English assorted "leaf," sample of four cases.
11. Common or sorts, sample of two cases.
12. Small refuse gum, thrown out, almost worthless.
13. Large refuse gum, almost worthless.

Gums used for the Adulteration of Tragacanth.

14. Moussul gum.
15. Caramania gum, 1st quality.
16. Ditto — 2nd quality.
17. Ditto — broken up and whitened with white lead.
18. Ditto — Ditto.
19. Ditto — Ditto.

Note.—Caramania gum No. 17 is used to mix with English assorted leaf in the proportion of 50 per cent. Specimen No. 18 is mixed with vermicelli tragacanth in the same proportion. Specimen No. 19 is mixed with sorts in the proportion of 100 per cent.

Caramania gum may be easily detected by its angular appearance. For Caramania gum see also *P. J.* [2], vol. vi., p. 658; for formation of tragacanth in the stem see *P. J.* [1], vol. xviii., p. 370; for chemistry of tragacanth, see *P. J.* [2], vol. i., p. 518.

154. BAPTISIA TINCTORIA, *R. Br.* (*Wild Indigo, Dyers' Weed, Horsefly Weed.*)

a. Root.

b. Ditto, fine specimen.

Note.—The root is used by Eclectic practitioners in the United States as an antiseptic in ulcerated sore throats and putrid fevers. *P. J.* [2], vol. v., p. 211.

155. BUTEA FRONDOSA, *Roxb.* (*Dhak*, or *Pulas Tree.*)

a. Flowers. (*Toolsie Flowers.*)

b. Gum. Presented by Mr. E. Solly.

Note.—The flowers yield a yellow dye. The exudation is official in the *Ind. Pharm.* It is known as butea gum, Bengal kino, dhak tree gum, and pulas kino. *Ind. Pharm.*, pp. 73, 79, 446. *Treas. Bot.*, p. 183. *Per. Mat. Med.*, vol. ii., pt. ii., p. 329. *Bentl. & Trim., Med. Plants*, tab. 79.

156. COLUTEA ARBORESCENS, *L.* (*Bladder Senna.*)

a. Leaves and flowers.

Note.—The leaves have been occasionally found mixed with senna on the Continent, but not in this country. The leaflets resemble those of Cassia obovata, but are equal at the base. They are purgative. *Per. Mat. Med.*, vol. ii., pt. ii., p. 356.

157. DIPTERYX ODORATA, *Willd.*

a. Fruit and seeds. (*Tonka Bean.*)

Note.—Used in sachet powder and perfumes, and to scent snuff. *Treas. Bot.*, p. 416. See Coumarine.

158. ERVUM LENS, *L.*; LENS ESCULENTA, *Moench.*

a. Seeds. (*European Lentils.*)

b. Ditto, split.

c. Egyptian, split.

Note.—The flour of the seeds is used in making Revalenta Arabica, etc. For a fig. of plant, etc., see *Bentl. & Trim., Med. Plants*, tab. 76.

159. GLYCYRRHIZA GLABRA, *L.* (*Liquorice Plant.*)

a. Root. See *Bentley and Trimen, Med. Plants*, tab. 74.

160. GLYCYRRHIZA ECHINATA, *L.*

a. Root.

Note.—The Russian liquorice root, stated by Hanbury to be the produce of G. glabra (G. glandulifera, *W. K.*), may be known by its bitterish taste and longitudinally exfoliated root bark. It is placed for comparison in the glass jar containing a specimen of the root of G. echinata, *L.*, from Kew. The specimen of English liquorice root (G. glabra) also includes a genuine specimen from Kew of G. glabra, *L.* For glycyrrhizin see *P. J.* [1], vol. vi., p. 490; for extract, *P. J.* [1], vol. x., p. 520; vol. xvi., p. 403; for a micr. sect. of root, *Berg, Anat. Atlas*, taf. 6.

161. INDIGOFERA TINCTORIA, *L.*

a. Best Bengal indigo.

b. Bad Bombay figs indigo.

Note.—*Per. Mat. Med.*, vol. ii., pt. 2, p. 330. *P. J.* [3], vol. ii., p. 493. See Indigotine. For fig. of plant, see *Bentl. & Trim., Med. Plants*, tab. 72.

162. MELILOTUS CŒRULEA, *L.*

a. Herb. Presented by Dr. J. Houlton.

Note.—The plant has a powerful odour, resembling that of fenugreek. It is said to possess styptic and healing properties. *Treas. Bot.*, p. 732. *P. J.* [1], vol. ii., p. 463. For fig. of the plant, *ibid.*, p. 128.

163. MUCUNA PRURIENS, *D. C.*

a. Legumes. Presented by Messrs. Pigeon & Son.

Note.—Official in the *Ind. Pharm.*, p. 73; formerly official in the *P. L.* Cowhage consists of the hairs covering the legumes. *Pharmacographia*, p. 165. *Bentley and Trimen, Med. Plants*, tab. 78.

164. MYROXYLON PEREIRÆ, *Klotzsch.*

a. Fruit. For fig., see *P. J.* [1], vol. v., p. 282.

b. Balsam obtained from the fruit. (*Balsamo Blanco.*)

c. Ditto, in an earthenware jar, enclosed in matting. See *ibid.*, p. 286.

d. Myroxocarpine.

Note.—This is a crystalline substance obtained from balsamo blanco by Dr. Stenhouse, and presented by him. *P. J.* [1], vol. x., p. 290.

e. Section of stem.

f. Bark. *Bentley and Trimen, Med. Plants*, No. 83.

g. Balsam of Peru.

h. Ditto, in small gourds. For fig., see *P. J.* [2], vol v., p. 243.

i. Ditto, ditto, open.

Note.—Two of Dr. Pereira's specimens of the balsam of Peru plant in fruit are in the Herbarium of the Pharm. Society. See *P. J.* [1], vol. x., pp. 230–280. *P. J.* [2], vol. v., pp. 241–315, for history of the drug; for chemistry of the bark, [2], vol. vi., p. 204; test of purity, [1], vol. xii., p. 549. Prof. Baillon thinks that both balsam of tolu and balsam of Peru are yielded by the same plant. *P. J.* [3], vol. iv., p. 382.

165. MYROXYLON TOLUIFERA, *H. B. K.*

a. Balsam of tolu.

b. Ditto, in small gourds.

c. An original tin. *Bentley and Trimen, Med. Plants*, No. 84.

Note.—For history of drug, see *P. J.* [2], vol. vi., p. 60; test of purity, *P. J.* [1], vol. xii., p. 550; *Pharmacographia*, p. 177.

166. PHYSOSTIGMA VENENOSUM, *Balf.* (*Calabar Bean.*)

a. Seeds.

b. Extract.

Note.—*P. J.* [2], vol. iv., p. 559; vi., pp. 167–261; *Pharmacographia*, p. 167; for physostigmine see *P. J.* [2], vol. v., p. 519. For fig. of plant see *Bentley and Trimen, Med. Plants*, tab. 80.

167. PTEROCARPUS ERINACEUS, *Poiret.*

a. Flowers, preserved wet. *P. J.*, xiv., 55.

b. African kino.

Note.—African kino is not now found in English commerce. *Pharmacographia*, p. 173. The tincture made from it is said not to gelatinize so readily as that of Indian kino.

168. PTEROCARPUS MARSUPIUM, *Roxb.*

a. Bark of the tree, from the Burmese Empire.

b. East Indian kino.

168. PTEROCARPUS MARSUPIUM, continued.

Note.—See Eucalyptus resinifera, Coccoloba uvifera, and Butea frondosa for other varieties of kino. *P. J.* [1], vol. i., p. 399; [3], vol. ii., p. 182; [3], vol. iv., p. 336; *Pharmacographia*, p. 170. Specimen *a* was presented by Dr. A. T. Thomson. For fig. of the plant, see *Bentley and Trimen, Med. Plants*, tab. 81.

169. PTEROCARPUS SANTALINUS, *L. f.*

a. Section of trunk polished.

b. Section of the heartwood only, polished.

c. Shavings. (*Red Sanders.*)

Note.—This drug, the Lign. santal rub. of drug lists, belongs to a different family from the yellow sandal wood. The resinoid colouring matter is soluble in alkalies, but not in water. *P. J.* [1], vol. vii., p. 288; *Pharmacographia*, p. 175. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 82.

170. SPARTIUM JUNCEUM, *L.* (*Spanish Broom.*)

a. Seed.

Note.—This plant differs from the common broom in having cylindrical, not angular, branches, and in blossoming in July; whereas S. Scoparius blossoms in May. The seeds are emetic and purgative. *Treas. Bot.*, p. 1076.

171. CYTISUS SCOPARIUS, *Link;* SAROTHAMNUS SCOPARIUS, *Wimmer.* (*Common Broom.*)

a. Tops. *Pharmacographia*, p. 148.

b. Seeds. See *Bentley and Trimen, Med. Plants*, tab. 70.

172. SOPHORA JAPONICA, *L.*

a. Flower-buds. (*Wai-fa.*)

Note.—Used in China as a yellow dye. The leaves are purgative, and are a cheap source of rutic acid. *P. J.* [1], vol. x., p. 308; xiv., p. 64; *Treas. Bot.*, p. 1073. See also Chinese Collection of Mat. Med.

173. TEPHROSIA APOLLINEA, *D. C.*

a. Leaflets and legumes.

Note.—The leaflets have occasionally been met with in Alexandrian senna, and more particularly in Tripoli senna, but are probably an accidental admixture. They are silky, emarginate, equal at base, and usually folded longitudinally. For fig., etc., *Per. Mat. Med.*, vol. ii., pt. ii., p. 354. Also *Bentley and Redwood, Mat. Med.*, p. 858.

174. TRIGONELLA FŒNUM-GRÆCUM, *L.* (*Fenugreek.*)

a. Seeds.

Note.—Used in making curry powder and cattle foods, etc. The fresh plant is used as an esculent in India. *Pharmacographia*, p. 150; *Treas. Bot.*, p. 1170. For fig. of plant, see *Bentl. & Trim., Med. Plants*, tab. 71.

SUB-ORDER II.—CÆSALPINEÆ.

175. CÆSALPINIA CORIARIA, *Willd.*

a. Legumes. (*Divi-divi.*)

Note.—The pericarps are said to contain 60 to 65 per cent. of tannin, and are used as an astringent in India (*Ind. Pharm.*, p. 79); and in this country for tanning. *P. J.* [1], vol. v., p. 443. *Bentley, Man. Bot.*, p. 501. For fig. see *Hist. des Drog.*, vol. iii., p. 398.

176. Cæsalpinia echinata, *Lam.*

a. Chips. (*Peach Wood, Lima Wood, Nicaragua Wood.*)

Note.—Used in dyeing red and black colours. *Hist. des Drog.*, vol. iii., p. 339.

177. Cæsalpinia species.

a. Deposit in the heartwood of the tree. (*Araroba*, or *Arariba.*)

b. Ditto powdered. (*Goa Powder.*)

Note.—This drug was imported from Bahia. It has also been received from Bombay, where it is known as "Goa Powder," or "Poh di Bahia," or "Chrysarobine." It contains 80 per cent. of Chrysophanic acid. See *P. J.* [2], vol. v., p. 345; [3], vol. v., pp. 721, 801, 816. *Med. Times & Gazette*, March, 1875, p. 250.

A specimen of the leaf of the tree is in the Herbarium of the Society.

178. Cassia Æthiopica, *Guib.*

a. Leaflets. (*Tripoli Senna.*)

Note.—Hanbury does not consider this a distinct species, but includes it under C. acutifolia, *Delile. Pharmacographia*, p. 190. According to Guibourt it is distinguished by having smaller, less acute leaflets, with a gland at the base of the petiole and between each pair of leaflets. *Per. Mat. Med.*, vol. ii., pt. ii., p. 355. For fig. of plant, see *Hist. des Drog.*, vol. iii., p. 361, fig. 663.

179. Cassia Brasiliana, *Lam.*; C. grandis, *L.*

a. Pods. (*Horse Cassia.*)

Note.—The pulp is bitter; it is used as a purgative in South America. It may be distinguished from C. fistula by the larger pods, covered with branching veins, and the very prominent sutures.

180. Cassia brevipes, *D. C.*

a. Leaflets.

Note.—This was offered in the London market in January, 1875, as "Fine senna." It probably came from Panama, certainly from Central America. It is not purgative, and may be distinguished by the leaflets having three or more principal veins. For fig., etc., see *P. J.* [3], vol. v., p. 624. For other substitutions, etc., see Solenostemma Argel, Tephrosia Apollinea, Globularia Alypum, Colutea arborescens.

181. Cassia elongata, *Lem.*; C. angustifolia, *Vahl.*

a. Leaflets. (*Tinnevelly Senna.*)

b. Ditto. Ditto "Elect."

c. Ditto. (*East Indian Senna.*) "Sorts."

d. Ditto. Ditto. "Elect."

e. Ditto. (*Somali*, or *African Senna.*)

f. Ditto. (*Aden*, or *Arabian Senna.*)

g. Legumes.

Note.—East Indian senna is an inferior quality of Tinnevelly senna, and may be recognised by containing stalks, pods, and discoloured leaf-

181. CASSIA ELONGATA, continued.

lets. *Pharmacographia*, p. 190–2; *P. J.* [1], vol. ix., p. 361. Specimens *e* and *f* are East Indian senna of second quality; they were presented by Dr. Vaughan, May 24, 1852. *P. J.* [1], vol. xii., p. 268. They are probably identical with the Mecca senna of Pereira (*Mat. Med.*, vol. ii., pt. ii., p. 355), and the *Séné Moka* of Guibourt. *Hist. des Drog.*, vol. iii., p. 366. *Bentley and Trimen, Med. Plants*, tab. 91.

182. CASSIA FISTULA, *L.* (*Purging Cassia.*)

a. Pods.

Note.—The fruit is an indehiscent or lomentaceous legume. West Indian pods are more esteemed than those from Madras. The seeds, as well as those of senna, contain albumen. *Per. Mat. Med.*, vol. ii., pt. ii., p. 362. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 87.

183. CASSIA LANCEOLATA, *Nect.*; C. ACUTIFOLIA, *Delile.*

a. Leaflets. (*Alexandrian Senna.*) "Sorts."

b. Ditto, freed from stalks and pods.

c. Ditto, freed from argel leaves. *B. & Tr., Med. Plants*, No. 90.

d. Stalks and pods separated from Alexandrian senna.

e. Small Alexandrian senna.

Note.—For fig. of leaves, etc., see *Per. Mat. Med.*, vol. ii., pt. ii., p. 354; for chem. exam., *P. J.* [1], vol. iv., p. 61; [3], vol. ii., pp. 221, 723; for botany, *P. J.* [1], vol. ix., p. 25; x., p. 543; *Pharmacographia*, p. 190.

184. CASSIA MARILANDICA, *L.*

a. Leaflets. (*American Senna.*)

Note.—The leaflets are used as a purgative in America, but are only about half as powerful as Alexandrian senna. *King's Am. Dispens.*, p. 193 (1872). It is met with in compressed cakes as prepared by the Shakers. *Per. Mat. Med.*, vol. ii., pt. ii., p. 352. It is official in the U. S. Pharmacopœia. See *Bentley and Trimen, Med. Plants*, tab. 88.

185. CASSIA MOSCHATA, *H. B. K.*

a. Fruit. (*Small American Cassia.*)

Note.—The pods are shorter and more slender than those of C. fistula, and the pulp is paler and more astringent. For fig. see *P. J.* [2], vol. v., p. 350. Used in New Granada as a purgative. Specimens of the plant, presented by Mr. D. Hanbury, are in the Herbarium of the Society.

186. CASSIA OBOVATA, *Collad.*

a. An entire leaf.

b. Leaflets. (*Jamaica*, or *Port Royal Senna.*)

Note.—The leaflets are broadest towards the apex, and the pods somewhat reniform, and have an interrupted line of folds or ridges along the centre, which are absent in those of C. lanceolata and C. elongata. *P. J.* [2], vol. vi., p. 447. See *Bentley and Trimen, Med. Plants*, No. 89.

c. Leaflets. (*Séné du Sénégal.*)

Note.—Specimen *c* was presented by Prof. Guibourt. This variety of senna does not often enter into commerce. *Per. Mat. Med.*, vol. ii., pt. ii., p. 355. For fig. of pod, etc., see *Hist. des Drog.*, vol. iii., p. 365.

187. CERATONIA SILIQUA, *L.* (*Kharoub.*)

a. Leaves and fruit. (*Carob beans, Locust beans, St. John's bread.*)

Note.—This specimen was presented by Mr. Squire. The pods have been recommended for improving the voice. They have been imported from Spain under the name of algarobo beans (see Prosopis pallida). *P. J.* [1], vol. iii., p. 79. The seed is said to have formed the original carat of jewellers. *Bentley, Man. Bot.*, p. 502. The pods are used in the manufacture of cattle food. *Treas. Bot.*, p. 254.

188. COPAIFERA MULTIJUGA, *Hayne.*

a. Oleoresin, from Angostura. Presented by Dr. Christison.

b. Ditto. (*Balsam of Copaiba.*)

c. Viscid resin. *Per. Mat. Med.*, vol. ii., pt. ii., pp, 367, 368.

d. Copaivic acid.

e. Volatile oil.

Note.—The specimen from Angostura is much darker coloured and thicker than specimen *b*, and is probably yielded by a different species. For fig. of several species, see *Per. Mat. Med.*, vol. ii., pt. ii., p. 365; for solution of, *P. J.* [1], vol. i., p. 655; for pills, *P. J.* [1], vol. iii., p. 66; [2], vol. vii., p. 326; for cohesion figures, *P. J.* [2], vol. v., p. 387; variety of, *P. J.* [1], vol. viii., p. 581. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 93.

189. COPAIFERA TRAPEZIFOLIA, *Hayne.*

a. Oleoresin.

b. Section of trunk.

Note.—The specimen *a* is labelled thus: "Taken by myself, as also the accompanying specimen of the wood bark and leaves of the same, cut down for the purpose, July, 1843, near the plantation of Santa Maria, in the district of Macahé. Thos. R. Goodbarn." Specimen *a* is the one alluded to in *P. J.* [1], vol. vi., p. 14.

190. DALBERGIA ARBOREA, *Willd.*; PONGAMIA GLABRA, *Vent.*

a. Fixed oil. (*Poonga Oil.*)

Note.—The oil is highly esteemed by the natives of India as a remedy in skin diseases. *Ind. Pharm.*, p. 79; *Journ. Agri. Hort. Soc. of India*, vol. x., pt. ii., p. 223, 1851; for legumes and seeds, see Collection of Indian Drugs. A specimen of the plant is in the Herbarium of the Society.

191. ERYTHROPHLŒUM GUINEENSE, *Don.* (*Sassy Bark Tree.*)

a. Legume and twigs.

b. Flowers, portion stem, and leaves preserved wet.

c. Bark.

Note.—The bark is used as an ordeal poison in West Africa. These specimens were presented by Mr. W. Procter, jun., to whom they were forwarded by Dr. S. F. McGill from Cape Palmas, Liberia. *Am. Journ. Pharm.*, October, 1851, pp. 301–311; July, 1852, pp. 195–202; *P. J.*, vol. xvi., pp. 233–373.

192. Guilandina Bonducella, *L.*; Cæsalpinia Bonducella, *Roxb. of Ind. Pharm.*

a. Legumes and seeds. (*Nicker Nuts, Bonduc Nuts.*) Presented by Dr. Christison.

Note.—The seeds are of a leaden colour, and in size and shape resemble marbles. Used in India as a bitter tonic and febrifuge. Official in the *Ind. Pharm.*, p. 68. The seeds of G. Bonduc are yellow. *Treas. Bot.*, p. 555; *Pharmacographia*, p. 185. *Bentley and Trimen, Med. Plants*, tab. 85.

193. Hæmatoxylum Campechianum, *L.* (*Logwood Tree.*)

a. Chips.

b. Section of the trunk polished.

Note.—For colouring matter see Hæmatoxylin, *P. J.* [3], vol. ii., p. 435; and for fig. of plant, *Bentley and Trimen, Med. Plants*, tab. 86.

194. Hymenæa Courbaril, *L.* (*Simiri*, or *Locust Tree.*)

a. Resin.

b. Ditto.

c. Ditto.

Note.—These three specimens were presented by Mr. Stutchbury, of Demarara. See *P. J.* [1], vol. xi., p. 159. Specimen *a* is as clear and pale as dammar. Specimen *b* is yellowish, and contains fragments of bark; it appears to correspond to the *ambre blanc du Brésil* of Guibourt. *Hist. des Drog.*, vol. iii., p. 460. Specimen *c* is pale brown, transparent, and stalactitic. *Bentley, Man. Bot.*, p. 502; *Lindl. Fl. Med.*, p. 266. For Copal varnish see *P. J.* [3], vol. iv., p. 627; *P. J.* [1], vol. x., p. 90.

195. Hymenæa Mossambicensis, *Kl.* (*Msandarusi.*)

a. Resin. (*African Copal, Anime.*)

Note.—This specimen was presented by Mons. C. Chantré. The granular surface, technically called "goose-skin," is caused by the pressure upon it of the sand in which it is found buried. The polished specimen shows insects imbedded in the resin. See *P. J.* [1], vol. xvi., pp. 367, 423; vol. x., p. 89; [2], vol. vii., p. 424; [3], vol. v., p. 490. *Journ. Royal Geograph. Soc.*, vol. xxix., p. 435.

196. Mora excelsa, *Benth.*

a. Bark.

Note.—The bark is astringent, and used for tanning. *Bentley, Man. Bot.*, p. 503; *Treas. Bot.*, p. 755. This specimen is from the International Exhibition of 1851. It was contributed by Mr. T. B. Duggin, River Berbice, British Guiana. See *P. J.* [1], vol. xi., p. 160.

197. Tamarindus Indica, *L.*

a. Entire fruit.

b. Fruit deprived of epicarp. (*East Indian Tamarinds.*)

c. Ditto, preserved in syrup. (*West Indian Tamarinds.*)

d. Egyptian tamarinds in flattened cakes.

e. Section of trunk.

Note.—Specimen *c* was presented by Mr. D. Hanbury. *Pharmacographia*, p. 197. *Treas. Bot.*, p. 1121. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 92.

Sub-order III.—Mimoseæ.

198. Acacia Arabica, *Lam.* (*Willa*, *Kikar*, or *Babul Tree.*)

a. Gum.

Note.—This specimen is labelled "obtained from the tree. Presented by Dr. Christison."

199. Acacia decurrens, *Willd.* (*Black* or *Green Wattle Tree.*)

a. Australian gum. Presented by Mr. Lloyd, of Ludgate Hill.

b. Gum from Sydney. (P. 152.) Imported per *Ocean Queen*, Nov. 28, 1844.

Note.—Specimen *a* consists of large pieces of a pale reddish colour and peculiarly dull surface. Specimen *b* is of a darker colour, and has the peculiar reddish violet tint which is said by Guibourt to be characteristic of Australian gum. *Hist. des Drog.*, vol. iii., p. 444; *P. J.* [1], vol. vii., p. 588.

200. Acacia gummifera, *Willd.*

a. Barbary gum. (P. 138.) (*Gomme de Barbarie*, Fr.)

b. Mogador gum.

c. Small ditto. (P. 139.)

Note.—Specimen *a* is said by Pereira to be imperfectly soluble in water. *Per. Mat. Med.*, vol. ii., pt. ii., p. 334.

201. Acacia horrida, *Willd.* (*Doornboom*, *Wittedoorn*, *Karrodoorn.*)

a. Cape gum, in large pieces. (P. 151, *bis.*)

b. Small ditto, from the district of Albany. (P. 151.)

Note.—Specimen *b* resembles the one in the collection of drugs from the Cape of Good Hope. *P. J.* [1], vol. x., p. 520.

202. Acacia Verek, *Guill. et Perr.* (*Verek Tree*, *Hashab.*)

a. White Turkey gum arabic.

Note.—The best gum arabic is characterized by its opacity, its brittleness and whiteness. Pereira states that it is known in Paris as *gomme Turique*, and the inferior qualities are known as *gomme Geddah*, so named from the ports from which they are shipped. *Per. Mat. Med.*, vol. ii., pt. ii., p. 334; *Hist. des Drog.*, vol. iii., p. 440; for fig. of plant, see p. 397. A specimen of gomme Turique from Guibourt is enclosed in specimen *a*. For fig. of plant, see *Bentl. & Trim., Med. Plants*, tab. 95.

b. Senegal gum.

Note.—This specimen is the *gomme du haut du fleuve* of French commerce, the *gomme de Galam* of Guibourt, and the *gomme de Salabreda* of Soubeiran.

c. Senegal gum.

Note.—This specimen is the *gomme du bas du fleuve* of French commerce, and the *gomme du Galam* of Soubeiran.

d. Ditto. (*Gomme vermiculée.*)

e. Ditto. (*Gomme pelliculée.*)

f. Ditto. (*Gomme lignirode.*)

202. Acacia Verek, continued.

g. Senegal gum. (*Gomme Kuteera.*)

Note.—The variety *du bas du fleuve* is the most esteemed in French commerce. Specimens *d* to *g* are gums which are found mixed with Senegal gum. *Gomme vermiculée* is white, transparent internally, and occurs in cylindrical curved pieces. *Gomme pelliculée* is of a reddish yellow tint, and has a sort of vegetable epidermis on various parts of its surface. It is not entirely soluble. *Gomme lignirode* is a very distinct gum, in large quite opaque pieces of a dull yellowish brown colour. It dissolves in water, leaving a residue of gnawed wood. It is known in French commerce as *marrons*. According to Guibourt, some other gums, viz., *gum Kuteera* (see Sterculia tragacantha), *gomme verte*, which is greenish at first but becomes yellowish white on exposure, and is difficultly soluble, *bdellium* and *gomme Gonaké* from Acacia Adansonii (A. vera, *Willd.*?), distinguished by its bitterness and dark colour, are also found in gum Senegal. Senegal gum is known from gum arabic by its clear interior, fewer cracks, and toughness. See *Hist. des Drog.*, iii., p. 440.

h. Sennaar gum. (*Sennari Gum.*)

Note.—This specimen is white, and looks like the best Turkey gum; but among it may be seen pieces with a greenish tint. It yields a very glairy mucilage. It is the kind referred to by Hanbury in *Pharmacographia*, p. 210, note 3. It probably is identical also with the *gomme verte* of Guibourt. In English commerce it is known as Sennari gum.

203. Acacia species.

a. Maculla best gum arabic. "So called by a native doctor at Bombay." (P. 145.)

Note.—This is the specimen alluded to in *Per. Mat. Med.*, vol. ii., pt. ii., p. 335 (P. 145). It is probably of African origin; for, according to Dr. Vaughan, African gum finds it way to Maculla. *P. J.* [1], vol. xii., p. 226. The specimen was presented to Dr. Pereira by Mr. Lawrence, Jan., 1834.

b. East Indian gum. (P. 146.)

Note.—This is called in India, Mocha and Barbary gum.

c. Surat inferior gum arabic. (P. 147.)

Note.—Specimens *b* and *c* are those alluded to in *Per. Mat. Med.*, vol. ii., pt. ii., p. 335.

d. Calcutta gum arabic.

e. East Indian gum arabic.

f. Bengal gum arabic.

Note.—The first three specimens came from Bombay. Specimen *e* seems identical with the *gomme lignirode* of Guibourt. See gum Senegal and Feronia elephantum.

g. Unnamed specimen, resembling East Indian gum.

h. Ditto, resembling Cape gum.

i. Purified gum. Presented by Mr. H. Picciotto. *P. J.* [1], vol. ix., p. 16.

j. Insoluble gum.

Note.—For adulteration of gum arabic, see *P. J.* [2], vol. v., p. 233.

204. ACACIA CATECHU, *Willd.*

a. Leaves and legumes. *Bentl. & Trim., Med. Plants*, tab. 94.

b. Pale dull catechu in square cakes. (P. 112.)

Note.—This specimen is described in *Per. Mat. Med.*, vol. ii., pt. ii., p. 341. It is the *Cachou terne et parallelopipède* of Guibourt. See *Hist. des Drog.*, vol. iii., p. 413.

c. Dark shiny Pegu massive catechu.

Note.—This is the black catechu of English commerce. It is enveloped in leaves of Dipterocarpus tuberculatus, Roxb., according to Hanbury. It is the *Cachou de Pegu en masses*, of Guibourt. *Hist. des Drog.*, vol. iii., p. 416; *Per. Mat. Med.*, l. c., p. 342, 3 *β*.

d. Brown catechu, in conical masses, from Siam. *Per. Mat. Med.*, l. c., 4. *a.*; *Journ. de Pharm. et de Chim.*, tomes xi. and xii., 1847.

e. Catechu, in flat cakes.

Note.—This is probably the kind described by Pereira, l. c., 4 *β*. It resembles areca catechu in size and appearance, but has no paddy husks upon it.

f. Black mucilaginous catechu. (P. 113.) *Per. Mat. Med.*, l. c., 4 *γ*.

Note.—This is the *Cachou noir mucilagineux* of Guibourt. *Journ. de Pharm. et Chim.*, l. c.

g. Dark brown siliceous catechu, in flattened circular or quadrangular cakes. *Per. Mat. Med.*, l. c., 4 *δ*.

Note.—This is the *Cachou brun siliceux* of Guibourt. *Hist. des Drog.*, vol. iii., p. 415.

h. Extract made from variety *g*, by Messrs. Herrings & Co.

i. Bad cutch.

j. Pale cutch. Presented by Mr. D. Hanbury, Dec., 1874.

Note.—This is the Kumaon catechu of the *Pharmacographia*, p. 214, and perhaps the same as the "pale or whitish catechu in irregular lumps" of Pereira (*Mat. Med.*, l. c., p. 343, 4 *ζ*), and the *Cachou blanc enfumé* of Guibourt (*Hist. des Drog.*, vol. iii., p. 414). It is as pale as Gambier (see *Uncaria Gambier*), and consists of almost pure catechin. Pereira's specimen was imported from Bombay under the name of *Katha suffaid*.

k. Succus acaciæ.

Note.—Of this specimen the history cannot be traced. It appears in Dr. Pereira's catalogue (No. 134) without any comment whatever. It is a round ball of catechu enclosed in a bladder, and is of the consistence and appearance of solazzi juice, which it slightly resembles in flavour, while it is also decidedly astringent.

205. ACACIA FARNESIANA, *L.*

a. Fruit. Presented by Prof. Guibourt.

Note.—From the flowers is made the *essence* and *pommade de fleurs de cassie* of French perfumers; and the bark yields a gum. The pods were imported into France at one time from the island of Mauritius under the name of *Balibabulah*. They are used there for tanning and to dye black. For fig., see *Hist. des Drog.*, vol. iii., p. 396.

206. ACACIA SCANDENS, *L.*

a. Seeds.

207. ADENANTHERA PAVONINA, *L.*

a. Seeds. (*Barricarri Seeds.*)

Note.—These smooth bright scarlet lenticular seeds are used for necklaces, etc. They weigh 4 grains each, with sufficient uniformity to be used as weights by jewellers in the East. *Treas. Bot.*, p. 18. *Hist. des Drog.*, vol. iii., p. 379.

208. ALBIZZIA ANTHELMINTICA, *Brong.*

a. Bark. Presented by Dr. Aquila Smith. (*Musena Bark.*)

Note.—The bark is used in Abyssinia under the name of *besenna* or *mesenna*, as a remedy for tapeworm. *Treas. Bot.*, p. 34. *P. J.* [2], vol. xi., p. 326.

209. PROSOPIS DULCIS, *H. et B.*

a. Gum. (*Goma Mesquitina* of Mexico.) Presented by Dr. Lindley.

Note.—The gum is used instead of gum arabic. A similar gum is produced in Texas by P. glandulosa, and is known as mesquité gum. *P. J.* [3], vol. iv., p. 289. The pods of P. dulcis are sweet, and are used for cattle under the name of *Algarobo*. See Ceratonia siliqua. *Treas. Bot.*, p. 254; *Bentley, Man. Bot.*, p. 504.

210. PROSOPIS PALLIDA, *H. B.*

a. Legumes. (*Algarobilla.*)

Note.—This specimen was presented by Dr. Ure, who supposed it to be the produce of Inga Marthæ. The legumes are used for tanning.

MORINGACEÆ.

211. MORINGA PTERYGOSPERMA, *Gaertn.* (*Horseradish Tree.*)

a. Fruit and seed.

Note.—The specimen of fruit belongs to the above species, but the seeds are those of M. aptera, *Decaisne*, for they are not winged. The oil of ben is obtained from the seeds of M. aptera. This oil does not readily turn rancid, and for that reason was formerly much in demand by watchmakers. *P. J.* [1], vol. v., p. 58; for fig. see *Hist. des Drog.*, vol. iii., p. 387.

The root has the odour and taste of horseradish, and possesses vesicant properties. *Ind. Pharm.*, p. 61. See *Pharmacographia*, p. 68.

ROSACEÆ.

TRIBE AMYGDALEÆ.

212. AMYGDALUS COMMUNIS, *var. a.* AMARA; PRUNUS AMYGDALUS, *Stokes.*

a. Drupes preserved wet.

b. Seeds. (*Barbary Bitter Almonds.*)

c. Ditto, powdered.

d. Fixed oil expressed from the seed.

e. Almond cake after expression of fixed oil.

212. AMYGDALUS COMMUNIS, continued.

f. Volatile oil distilled from the cake after expression.

Note.—Bitter almonds frequently occur mixed with all varieties of the sweet almonds, except the Jordan almonds.

Valencia almonds may generally be recognised by their greater comparative breadth and by their flatness; the Barbary by their being smaller and very variable in size and shape. *Pharmacographia*, pp. 216–223; *Per. Mat. Med.*, vol. ii., pt. ii., p. 243; for fig. of several varieties see *P. J.* [1], vol. vi., p. 222; for micr. structure of seed, *Berg, Anat. Atlas*, taf. 45; for almond paste, *P. J.* [1], vol. iv., p. 387.

213. AMYGDALUS COMMUNIS, *L.*, *var.* β DULCIS; PRUNUS AMYGDALUS, *Baillon.*

a. Drupes, preserved wet.

b. Endocarp and seed. (*Shell Almonds.*)

c. Seeds. (*Jordan Almonds.*)

d. Ditto. (*Valencia Almonds.*)

e. Ditto. (*Barbary Almonds.*)

f. Ditto, powdered.

For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 99.

214. CERASUS SPECIES.

a. Gum. (*Cherry-tree Gum, Gummi Nostras.*)

Note.—This gum is chiefly derived from Cerasus avium, *L.*, and Prunus domestica, *L.* It is only partly soluble in water. *Per. Mat. Med.*, vol. ii., pt. ii., p. 302. *Hist. des Drog.*, vol. iii., p. 348.

b. Sicilian gum.

Note.—This is produced also by various species of Cerasus and Prunus. *Hist. des Drog.*, vol. iii., p. 442.

215. CERASUS SEROTINA, *D. C.*

a. Bark. (*Wild Cherry Bark.*)

b. Ditto, from young branches.

Note.—Official in the United States Pharmacopœia. It is used as a sedative tonic in phthisis, etc.

It is the Prunus serotina, *Ehrh.*, of *Pharmacographia*, p. 224, and the Prunus Virginiana of commerce. It somewhat resembles elm bark in appearance but has a short not a fibrous fracture, and the taste resembles that of apple seeds. See *P. J.* [2], vol. v., p. 97; [3], vol. iv., p. 387; *Per. Mat. Med.*, vol. ii., pt. ii., p. 279. *Bentley and Trimen, Med. Plants*, tab. 97.

TRIBE ROSEÆ.

216. BRAYERA ANTHELMINTICA, *Kunth*; HAGENIA ABYSSINICA, *Willd.*

a. Flowers. (*Kousso.*)

b. Ditto, an original package.

Note.—These specimens appear to consist exclusively of the pistillate flowers. A dried specimen of the plant is in the Herbarium. See *Per. Mat. Med.*, vol. ii., pt. ii., p. 298; *Pharmacographia*, p. 228; for fig., *P. J.* [1], vol. x., p. 19. For fig. of flowers, etc., see *Bentley and Trimen, Med. Plants*, tab. 102.

217. GEUM URBANUM, *L.* (*Avens, Herb Bennet.*)

a. Root. (*Clove Root, Radix Caryophyllata.*)

Note.—This specimen was found mixed in large proportion with arnica as an adulterant. It is distinguished from arnica by its astringent taste, larger size, and by being a true vertical root, not a rhizome. The name Herb Bennet is probably a corruption of the French name for the plant "Benoîte." See *P. J.* [1], vol. iv., p. 422; [3], vol. iv., p. 810; *Hist. des Drog.*, vol. iii., p. 305. For fig. of the root see *Goebel und Kunze*, pt. ii., taf. xxv., fig. 2.

218. GILLENIA STIPULACEA, *Spreng.* (*American Ipecacuanha, Indian Physic.*)

a. Root.

Note.—The root is a mild emetic, and is official in the secondary list of the United States Pharmacopœia. See *Wood and Bache, Dispens.*, p. 416. *Per. Mat. Med.*, vol. ii., pt. ii., p. 282.

219. GILLENIA TRIFOLIATA, *Mönch.* (*Bowman's Root, Dropwort.*)

a. Root.

Note.—Uses and properties similar to those of G. stipulacea. The latter grows in the western, and G. trifoliata in the eastern, States. The roots are sometimes found intermixed with those of senega. For fig. of root, see *Goebel und Kunze*, taf. xiii. fig. 3.

220. POTENTILLA TORMENTILLA, *Schrank.*

a. Rhizome. (*Tormentil Root.*) *Bentley and Trimen, Med. Plants*, No. 101.

Note.—The rhizome much resembles that of Sanguinaria Canadensis, but is more pitted externally, and the transverse fracture is not dotted as in Sanguinaria, and the taste is astringent, not acrid. For fig. of these two roots, see *Goebel und Kunze*, pt. ii., taf. xxi., fig. 1 and 3.

221. QUILLAIA SAPONARIA, *Molin.*

a. Bark. (*Quillai Bark.*)

b. Ditto, fine specimen.

Note.—Quillai Bark is imported from Chili. It is used as a stimulant and detergent in washes for the hair. It contains a principle allied to saponin. *Hist. des Drog.*, vol. iii., p. 308; *Treas. Bot.*, p. 952; *Journ. de Pharm.*, t. xiv., p. 247; t. xix., p. 4.

222. ROSA CANINA, *L.* (*Dog Rose, Wild Rose.*)

a. Fruit. See *Bentley and Trimen, Med. Plants*, tab. 103.

Note.—The conserve was formerly known as Extractum Cynosbati. The root is still used as a remedy for hydrophobia in some parts of France. *Pharmacographia*, p. 238; *Hist. des Drog.*, vol. iii., p. 295. The fruit is a variety of æterio called a cynarrhodon.

223. ROSA CENTIFOLIA, *L.* (*Cabbage Rose, Provence Rose.*)

a. Flowers.

Note.—This is the common Cabbage Rose of the gardens. At Mitcham it is said to be cultivated under the name of the Provence rose. *Per. Mat. Med.*, vol. ii., pt. ii., p. 292; *Hist. des Drog.*, vol. iii., p. 296; *P. J.* [1], vol. x., p. 170. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 105.

224. Rosa Damascena, *Miller.* (*Damask Rose.*)

a. Otto of rose.

b. Ditto, distilled in England.

c. Tinned copper bottle.

Note.—Otto of Rose is largely adulterated with Turkish oil of geranium, or oil of gingergrass (Andropogon Nardus, *L.*), which, see. The purest otto is imported in bottles called "cappers," of which specimen *c* is an example. In Turkey these bottles are called "kunkoumas." The oil imported in gilt bottles is generally much adulterated. See *P. J.* [1], vol ii., p. 663, for Indian otto; *P. J.* [1], vol. xviii., pp. 429–504; [3], vol. ii., p. 1051; vol. iv., pp. 426, 630; *Pharmacographia*, p. 233; *Journ. Bot.*, 1875, p. 8.

225. Rosa Gallica, *L.* (*Rose de Provins.*)

a. Flowers. See *Bentley and Trimen, Med. Plants*, tab. 104.

Note.—The astringency of the flowers is due to quercitrin. *P. J.* [2], vol. v., p. 185. At Mitcham this species is cultivated under the name of the Damask Rose. *P. J.* [1], vol. x., p. 170. It is also largely cultivated at Provins, near Paris.

Tribe Pomeæ.

226. Cydonia vulgaris, *Pers.*; Pyrus Cydonia, *L.* (*Quince.*)

a. Seeds. See *Bentley and Trimen, Med. Plants*, tab. 106.

Note.—These seeds are readily distinguished from similar seeds of other fruits by the fact that they always adhere together in small groups. They are used for bandoline and as an emollient application to the skin, etc. *Per. Mat. Med.*, vol. ii., pt. ii., p. 303; *Pharmacographia*, p. 239.

LYTHRACEÆ.

227. Lawsonia inermis, *L.*; Lawsonia alba, *Lam.* (*Jamaica Mignonette, Egyptian Privet, Henna.*)

a. Leaves and young twigs.

Note.—The leaves and young twigs are used for staining the nails a reddish orange in Oriental countries. *Treas. Bot.*, p. 665; *P. J.* [2], vol. v., p. 78; *Bentley, Man. Bot.*, p. 511. The leaves are used for ulcerated mouth, and the fruit is said to be emmenagogue. *Ind. Pharm.*, p. 87.

228. Hydrangea arborescens, *L.* (*Common Hydrangea, Seven Barks.*)

a. Root.

Note.—Used as a remedy for gravel in the United States. *P. J.* [2] vol. v., p. 310; *American Dispens.*, p. 431.

CRASSULACEÆ.

229. Cotyledon Umbilicus, *L.*; Umbilicus Veneris, *Ray.* (*Navelwort, Wall Pennywort, Kidneywort.*)

a. Entire plant. Preserved wet.

Note.—The leaves are diuretic, and are used in epilepsy and as a domestic remedy for corns and warts. This plant must not be confounded with the marsh pennywort (Hydrocotyle vulgaris, *L.*), which grows in boggy places, and has a thinner leaf and a creeping habit. C. Umbilicus grows on rocky or sandy banks and walls. For fig. see *P. J.* [1], vol, viii., p. 527. C. orbiculata, *Haw*, is used for similar purposes at the Cape of Good Hope. *P. J.* [1], vol. xiii., p. 459; *Pappe's Fl. Cap.*, p. 17.

CUCURBITACEÆ.

230. Bryonia dioica, *Jacq.* (*White Bryony, Mandrake Root.*)

a. Root.

b. Ditto, preserved wet.

Note.—The root is sometimes used as an application to discoloured bruises. It must not be confounded with Black Bryony (Tamus communis, *L.*), an endogenous plant, which has dark, shining, heartshaped entire leaves, nor with the true mandrake (Atropa mandragora, *L.*). *Per. Mat. Med.*, vol. ii., pt. ii., p. 227. White Bryony root is said to have been substituted for Calumba. It may be distinguished by the action of Iodine upon the root. *Bent. and Red. Mat. Med.*, p. 294; *P. J.* [1], vol. xvii., p. 542; for fig., *Hist. des Drog.*, vol. iii., p. 258.

231. Citrullus Colocynthis, *Schrad.*

a. Fruit. (*Mogador Colocynth.*)

b. Ditto, decorticated. (*Turkey Colocynth.*)

c. Ditto, preserved wet.

d. Pulp of fruit.

e. Seeds, dark.

f. Ditto, pale.

Note.—The presence of seed in powdered colocynth pulp may be detected by the dark colour and the fixed oil which can be extracted by ether; the pulp containing none, while the seeds contain 17 per cent. *Pharmacographia*, p. 263. The pale seeds have lost their vitality; they occur in the fruit, mixed with the dark seeds. *Bentley, Man. Bot.*, p. 521; *Per. Mat. Med.*, vol. ii., pt. ii., p. 210; *Pharmacographia*, p. 263; for extract see *P. J.* [1], vol. xii., pp. 376, 423; Pil. Coloc. Co., *P. J.* [1], vol. xii., pp. 271, 323, 495. For Colocynthine, *P. J.* [1], vol. x., p. 239. *Bentley and Trimen, Med. Plants*, No. 114.

232. Cucurbita species.

a. Oil. (*Oleum Egusé.*)

Note.—The oil is used in West Africa as a dietetic article and as an application to certain skin diseases. *P. J.* [1], vol. xvi., p. 307.

233. Ecballium officinarum, *Rich.*; E. Elaterium, *A. Rich.*; Momordica Elaterium, *L.* (*Squirting Cucumber.*)

a. Root, preserved wet.

b. Leaves and fruit, ditto.

c. Elaterium.

d. Ditto. Prepared at Mitcham, in 1836, by Messrs. Potter & Moor.

e. Ditto. Prepared at Apothecaries' Hall in 1839.

f. Ditto. Maltese Elaterium.

Note.—The greenish colour of fresh Elaterium disappears after a time. The Maltese kind often contains starch. *P. J.* [1], vol. x., p. 168; *Per. Mat. Med.*, vol. ii., pt. ii., p. 218. *Bentl. & Trim., Med. Plants*, tab. 115.

234. Feuillea cordifolia, *L.* (*Antidote Cacoons, Sequa, Avilla.*)

a. Seeds. Presented by Mr. Dillon.

Note.—The seeds are purgative and emetic, and have an intensely bitter taste. They are used by the negroes in Jamaica as an antidote to poisons. *Treas. Bot.*, p. 491. The oil expressed from the seeds is used as a remedy for rheumatism. The tincture of the seeds is used to counteract the effects of eating poisonous fish. *P. J.* [1], vol. v., p. 33; [2], vol. iv., p. 198.

235. Lagenaria vulgaris, *Ser.* (*Bottle Gourd, Cabaco, Cocombro, Abobara do Carneiro.*)

a. Fruit.

Note.—The pulp possesses cathartic properties. The fruit is called the bottle gourd from its shape. See *Mart. Syst. Mat. Med. Bras.*, p. 81.

236. Luffa Ægyptiaca, *Dec.* (*Towel Gourd.*)

a. Fruit, deprived of the soft parts.

Note.—The ligneous network of the fruit, split open, is used as a flesh brush. *Bentley, Man. Bot.*, p. 522.

237. Luffap urgans, *Mart.*; Momordica Luffa, *L.* (*South American Colocynth, Buchu, Buchinha, Cabacinho.*)

a. Fruit and tincture.

Note.—The extract is used in Brazil as a substitute for colocynth, and acts effectually in a dose of three grains. *P. J.* [1], vol. v., p. 569; vol. iv., p. 466; *Bentley, Man. Bot.*, p. 522.

CACTACEÆ.

238. Opuntia coccinellifera, *L.* (*Indian Fig, Prickly Pear.*)

a. Gum. (*Gomme de Nopal.*)

Note.—This specimen came from Mexico, and was presented by Dr. Lindley. It is insoluble in water and contains crystals of oxalate of calcium. *Hist. des Drog.*, vol. iii., pp. 254, 453.

MYRTACEÆ.

Tribe Septospermæ.

239. Caryophyllus aromaticus, *L.*; Eugenia caryophyllata, *Thunb.*

a. Leaves and flower-buds, preserved wet.

b. Unripe fruit, ditto. (*Mother Cloves.*)

c. Flower-buds. (*Amboyna Cloves.*)

d. Ditto. (*Bencoolen Cloves.*)

e. Ditto. (*Bourbon Cloves.*)

f. Ditto. (*Malabar Cloves.*)

g. Ditto. (*Zanzibar Cloves.*)

Note.—Mother cloves contain large starch granules, by which their presence may be detected if present in powdered cloves. Clove stalks are imported into this country, and used for adulterating powdered cloves. They may be detected by containing thick-walled cells, which are not present in cloves. *Pharmacographia*, p. 255. For Caryophyllin, see *P. J.* [1], vol. x., p. 343; for percentage of oil, *P. J.* [1], vol., xi., p. 470. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 112.

240. EUCALYPTUS AMYGDALINA, *Labill.* (*Narrow-leaved Peppermint Tree.*)

a. Balsam. Presented by Mr. J. N. Bosisto, of Melbourne.

b. Gum.

c. Volatile oil. *P. J.* [3], vol. iii., pp. 23, 43.

Note.—The leaves and young branches yield 2 to 4 per cent. of volatile oil, which is used in soap manufactories to dilute otto of roses, neroli, and other expensive perfumes. It does not answer so well as the Mallee oil (E. oleosa) for dissolving amber, opal, and Kaurie gum. *P. J.* [3], vol. ii., p. 628. The gum is soluble in water, but the solution is turbid when cold. *P. J.* [3], vol. ii., p. 103.

241. EUCALYPTUS FABRORUM, *Schlecht.* (*Stringy Bark Tree.*)

a. Gum.

Note.—The gum is not readily soluble in water. This specimen was presented by Mr. Bosisto. *P. J.* [3], vol. ii., p. 103. This species is referred by Bentham to E. obliqua, *Hérit.*

242. EUCALYPTUS GLOBULA, *Labill.* (*Blue Gum Tree.*)

a. Gum.

b. Eucalyptol.

Note.—The gum is very astringent, and soluble in water, but the solution is turbid when cold. This specimen was obtained from blue gum trees cultivated in Ceylon. Presented by Mr. A. P. Balkwill, of Plymouth, August, 1873. Dried specimens of the plant are in the Herbarium. Eucalyptol is that portion of the volatile oil which boils regularly at 175° F. *P. J.* [3], vol. i., p. 78. For micr. structure of leaves, see *P. J.* [3], vol. iii., p. 990. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 109.

243. EUCALYPTUS MANNIFERA, *A. Cunn.*

a. Saccharine exudation. (*Australian Manna.*)

Note.—E. viminalis, *Labill*, yields a similar substance. See Melitose, *Gmelin, Chem.*, vol. xv., p. 292. Bentham, in the *Fl. Aust.*, refers A. mannifera, *A. Cunn*, to a form of E. viminalis with large fruit.

244. EUCALYPTUS RESINIFERA, *Lin.*

a. Bark.

b. Ditto, with gum attached.

c. Gum. (*Botany Bay Kino.*)

Note.—This gum may be recognised by its reddish tint and powdery surface. Its tincture is said to be more liable to deposit pectine than East Indian kino. Botany Bay kino is probably produced by several species of Eucalyptus. *Pharmacographia*, p. 174.

245. EUCALYPTUS ROSTRATA, *Schlecht.*

a. Gum. (*Red Gum.*)

Note.—The name red gum is also sometimes applied to the gum of E. resinifera.

For further information on the various species of Eucalyptus, see *P. J.* [3], vol. iv., pp. 494, 731, 872; also Raveret Wattel on L'Eucalyptus, *Bull. de la Soc. d'Acclimatation*, 1871; *Lancet*, April 20, 1872.

246. EUGENIA PIMENTA, *D. C.*; PIMENTA OFFICINALIS, *Lindl.* (*Allspice.*)

a. Fruit.

b. Volatile oil of the fruit.

Note.—In France, the name *Piment* is applied to the Capsicum and to Chenopodium Botrys, *L.*, allspice being distinguished as *Piment de la Jamaïque*. *Hist. des Drog.*, vol. iii., p. 275; *Treas. Bot.*, pp. 475, 889; *Pharmacographia*, p. 255. *P. J.* [2], vol. vii., p. 616. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 110, 111.

247. EUGENIA JAMBOS, *L.* (*Rose Apple.*)

a. Fruit, preserved wet.

Note.—The rose apple is also yielded by E. malaccensis. *Treas. Bot.*, p. 475.

248. MELALEUCA MINOR, *Smith*; M. LEUCADENDRON, *L.* (*Cajeput Tree.*)

a. Volatile oil, from the leaves. (*Cajeput Oil.*)

Note.—It occasionally contains traces of copper, as the oil readily acts on that metal when kept in copper vessels. It dissolves India-rubber. *P. J.* [3], vol. ii., p. 804; *Per. Mat. Med.*, vol. ii., pt. ii., p. 227; *Pharmacographia*, p. 247. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 108.

249. MELALEUCA ERICIFOLIA, *Smith.*

a. Volatile oil.

Note.—This oil agrees with that of M. minor, except in optical properties. *Pharmacographia*, p. 249.

250. METROSIDEROS TOMENTOSA, *Rich.* (*Fire Tree, Pohutu Kawa.*)

a. Bark.

Note.—It is called in New Zealand the fire tree, on account of the brilliant colour of its flowers. *Treas Bot.*, p. 740. The specimen of bark was presented by Dr. Forbes Watson.

TRIBE MYRTEÆ.

251. PUNICA GRANATUM, *L.* (*Pomegranate.*)

a. Fruit.

b. Flowers. (*Balaustine Flowers.*)

c. Root bark.

Note.—Box-tree bark is somewhat similar in appearance to the root bark, but is not affected by ferric salts. *Per. Mat. Med.*, vol. ii., pt. II., p. 240; *Pharmacographia*, p. 257; *P. J.* [2], vol. iii., p. 429. The curious fruit of this tree appears to be formed by an outer row of carpels being brought above the lower row during the growth of the fruit. See *Martius' Flor. Bras.*, fasc. xviii., pt. i., taf. 8, 9. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 113.

LECYTHIDACEÆ.

252. LECYTHIS ZABUCAJO, *Aubl.*; L. USITATA, *Miers.*

a. Seeds. (*Sapucaya Nuts.*)

Note.—The seeds, incorrectly called nuts, come from Para. They are edible, and an oil is obtained from them. *Treas. Bot.*, p. 667; *Hist. des Drog.*, vol. iii., p. 271. *P. J.* [3], vol. v., p. 726.

MELASTOMACEÆ.

253. MEMECYLON GRANDIS, *Retz.*

a. Bark.

Note.—This specimen was presented by Dr. De Vry.

HALORAGACEÆ.

254. TRAPA BISPINOSA, *Roxb.* (*Water Chestnut, Singhara Nut.*)

a. Fruit.

Note.—The seeds are edible. For fig. of the starch see *P. J.* [3], vol. i., p. 125. For fig. of the fruit, etc., see *Treas. Bot.*, p. 1161.

COMBRETACEÆ.

255. TERMINALIA BELERICA, *Roxb.*

a. Drupes. (*Bastard Myrabolans, Bedda Nuts.*)

256. TERMINALIA CATAPPA, *L.*

a. Fruit.

Note.—The kernels, which are called in India "Country Almonds," yield a bland oil, similar to that of almonds, but containing more stearine. See *Ind. Pharm.*, p. 89.

257. TERMINALIA CHEBULA, *Retz.*

a. Drupes. (*Chebulic Myrabolans.*)

b. Ditto, immature, from Rohilkund. (*Black Myrabolans.*)

258. TERMINALIA CITRINA, *Roxb.*

a. Drupes.

Note.—The fruits of the above species are imported into this country in large quantities for calico printing and tanning, and are ground in mills specially constructed for the purpose, chiefly in the north of England. The fruits of T. chebula are purgative without griping. The unripe fruits, or black myrabolans, are called *Hurritokee* in India; specimen 258 *b*, is one of those exhibited at the International Exhibition of 1851. The fruits are used as an astringent in diarrhœa. Those of T. Belerica are intoxicating, and even narcotic if taken in quantity. *Bentley, Man. Bot.*, p. 531. *Lindley's Fl. Med.*, p. 633. For fig. of fruits, see *Hist. des Drog.*, vol. iii., pp. 283–285.

RHIZOPHORACEÆ.

259. RHIZOPHORA MANGLE, *L.* (*Black Mangrove Tree.*)

a. Bark.

Note.—The bark is astringent, and is used for dyeing and tanning. *Treas. Bot.*, p. 975; *P. J.* [1], vol. vi., p. 11.

260. RHIZOPHORA RACEMOSA, *Meyer.*

a. Bark.

Note.—This specimen is from the International Exhibition of 1851, and was contributed by Mr. J. S. Stutchbury, of Demerara. It is said to be a valuable remedy in cases of chylous urine. *P. J.* [1], vol xi., p. 160. Trees of several other families are called mangroves. See *Treas. Bot.*, p. 717.

CORNACEÆ.

261. CORNUS FLORIDA, *L.* (*American Dogwood.*)

a. Bark. See *Bentley and Trimen, Med. Plants*, No. 136.

Note.—Official in the U. S. P. It is used like cinchona bark. *Wood and Bache, Dispens.*, p. 329; *Treas. Bot.*, p. 333.

UMBELLIFERÆ.

262. ÆTHUSA CYNAPIUM, *L.* (*Fools' Parsley.*)

a. Umbels and fruit. For micr. section, see *Berg, Anat. Atlas*, taf. 41.

Note.—This plant much resembles hemlock; it may be distinguished by having three long pendulous bracts beneath each partial umbel, no general involucre, and no spots on the stem. For fig. of fruit, see *P. J.* [1], vol. ii., p. 341. The ridges of the fruit are not crenate, and there are vittæ between the ridges. See Conium maculatum; *Pharmacographia*, p. 269; *Treas. Bot.*, p. 26. *Bentley and Trimen, Med. Plants*, tab. 125.

263. ANETHUM GRAVEOLENS, *L.*; PEUCEDANUM GRAVEOLENS, *Benth.*

a. Fruit. (*Dill Seed.*)

b. Volatile oil.

Note.—Dill is known in India under the name of *suvà* or *sóyah*. It is the anise of Matthew xxiii. 23. *Pharmacographia*, p. 292. For micr. section of fruit, see *Berg, Anat. Atlas*, taf. 43. It yields 2·8 per cent. of volatile oil. See *Bentley and Trimen, Med. Plants*, tab. 132.

264. APIUM PETROSELINUM, *L.* (*Parsley.*)

a. Root, preserved wet. Presented by Mr. Squire.

b. Fruit. For micr. section, see *Berg, Anat. Atlas*, taf. 42.

c. Volatile oil.

Note.—The seeds possess diuretic properties. *Treas. Bot.*, p. 79. For Apiol, see *P. J.* [2], vol. iv., p. 269.

265. ARCHANGELICA OFFICINALIS, *Hoffm.*

a. Root, preserved wet. Presented by Mr. Squire.

b. Fruit.

c. Volatile oil.

Note.—The root is used in some parts of the country for toothache, like pellitory root. It forms an ingredient in the cholera powder of herbalists, being considered anti-pestilential. The fruits are said to be used to flavour gin. The green stalks are sold as an aromatic candy. *P. J.* [1], vol. ii., p. 206; *Treas. Bot.*, p. 66. For micr. section of root, see *Berg, Anat. Atlas*, taf. 14. For fig. of root, see *Goebel und Kunze*, pt. ii., taf. xxvi., fig. 1.

266. CARUM CARVI, *L.* (*Caraway.*)

a. Fruit. For micr. section, see *Berg, Anat. Atlas*, taf. 42.

b. Ditto, powdered.

c. Ditto. (*Mogador Caraways.*) *B. & Tr., Med. Pl.*, tab. 121.

d. Volatile oil.

Note.—The fruits yield 4·9 per cent. of oil. The Mogador caraways were presented by Mr. D. Hanbury; they are paler and longer than other varieties. *Pharmacographia*, p. 271; *P. J.* [3], vol. iii., p. 623.

267. Cicuta virosa, *L.* (*Water Hemlock, Cowbane.*)

a. Root.

b. Fruit. For micr. section, see *Berg, Anat. Atlas*, taf. xlii., fig. 100.

Note.—The fruits are globular, and the leaflets lanceolate and sharply serrate, and the plant may thus be distinguished from hemlock and water dropwort. The root of Cicuta virosa is præmorse, that of Œnanthe crocata has five or more tubercules. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 118, 119.

268. Conium maculatum, *L.* (*Hemlock.*)

a. Fruit. For micr. sect., see *Berg, Anat. Atlas*, taf. xlii., fig. 104.

b. Leaves. See *Bentley and Trimen, Med. Plants*, tab. 118.

c. Stem, leaves, flowers, and fruit.

d. Root, preserved wet. Presented by Mr. Squire.

Note.—There is an exotic plant, Chærophyllum cicutarium, which closely resembles Conium, in having a smooth spotted stem and similar leaves; but it has not the odour of Conium, and the fruit is cylindrical, and longer than that of hemlock. Conium fruits resemble in size and shape those of Russian anise; but the latter usually have the stalks attached, and are covered with minute hairs. Conium fruits have no vittæ. Rough Chervil (Chærophyllum temulum, *Linn.*) has a rough spotted stem, with swollen joints. See Æthusa Cynapium and Œnanthe crocata. *Pharmacographia*, p. 266; *P. J.* [1], vol. v., p. 40; [2], vol. ix., pp. 53, 471; [2], vol. viii., pp. 413, 452, 572, 601, 710; [3], vol. i., pp. 348, 584, 843. For Conia and Conhydrine, *P. J.* [1], vol. xvii., p. 214. For the extract, *P. J.* [1], vol. x., p. 267.

269. Coriandrum sativum, *L.* (*Col, Coliander, Coriander.*)

a. Fruit.

b. Volatile oil.

Note.—The fruits yield a half per cent. of volatile oil. The fresh plant has an odour like that of bugs. *P. J.* [1], vol. xii., p. 396; *Pharmacographia*, p. 293. See *Bentley and Trimen, Med. Plants*, tab. 133.

270. Cuminum Cyminum, *L.*

a. Fruit. (*Cummin Seed.*) *Bentl. & Tr., Med. Plants*, tab. 134.

Note.—Cummin fruits somewhat resemble in size and shape those of fennel, but usually have the ridges finer, more numerous, and covered with minute bristles. Cummin fruits yield about one half per cent. of volatile oil. *Pharmacographia*, p. 295. For fig. see *Hist. des Drog.*, vol. iii., p. 227. For micr. section, *Berg, Anat. Atlas*, taf. xlii., fig. 107.

271. Daucus Carota, *L.*

a. Fruit. (*Carrot Seed.*)

Note.—For micr. section of fruit see *Berg, Anat. Atlas*, taf. xliii., fig. 111. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 135.

272. Dorema Ammoniacum, *Don.*

a. Flowering stem, with the gum resin and a few seeds attached. See *Bentley and Trimen, Med. Plants*, tab. 129, 130.

Note.—This interesting specimen was brought from near Ghorian in Persia, by Sir J. MacNeill, in 1839, and presented to Dr. Lindley, from whom Dr. Pereira received it. A letter concerning the specimen is enclosed in the jar with it. *P. J.* [1], vol. i., p. 578.

272. DOREMA AMMONIACUM, continued.

b. Gum resin; ammoniacum in lump.

Note.—This specimen is from the same source as specimen *a*.

c. Ammoniacum in lump, showing the impression of matting.

d. Ditto, showing impression of canvas.

e. Ammoniacum in tears. Two specimens.

Note.—Ammoniacum in tears somewhat resembles olibanum externally, but has a smooth surface outside and an opaque fracture; while olibanum is powdery externally, and has a translucent fracture and different odour. Lump ammoniacum resembles galbanum; but, unlike the latter, it cannot be indented by the finger nail. *Pharmacographia*, p. 288. *P. J.* [3], vol. vi., p. 321.

African ammoniacum is very similar in appearance, but has an odour resembling that of apples. See Ferula tingitana, *P. J.* [3], vol. iii., p. 761.

273. EURYANGIUM SUMBUL, *Kauffman.*

a. Root. (*Sumbul Root, Musk Root.*)

Note.—Sumbul appears to be a generic name in India for perfumed roots. *P. J.* [1], vol. vii., p. 546. Of Indian Sumbul there is no specimen in the museum. *P. J.* [1], vol. v., p. 46; vol. xi., p. 358; [3], vol. vi., p. 43. *Pharmacographia*, p. 278. A specimen of the plant is in the Herbarium of the Society. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 131.

274. ERYNGIUM CAMPESTRE, *L.*

a. Root. (*Eringo Root.*)

Note.—Formerly official in the *Ph. L.*, and the roots were sold in a candied state.

275. FŒNICULUM DULCE, *D. C.* (*Roman Fennel, Sweet Fennel.*)

a. Fruit. See *Hist. des Drog.*, vol. iii., p. 231.

b. Fruit. (*Saxon Fennel.*) *Bentl. & Trim., Med. Plants*, No. 123.

276. FŒNICULUM PANMORIUM, *D. C.* (*Indian Fennel.*)

a. Fruit. (*Panmuhuri.*)

277. FŒNICULUM VULGARE, *Gaertn.*

a. Fruit. (*Wild Fennel, Bitter Fennel.*)

Note.—The most esteemed sort of fennel seeds, or more properly fruits, are longer than other varieties, and are obtuse at the ends. The smaller variety, known in commerce as short fennel seeds, are not so sweet, and are tapering at the ends, and much resemble cummin in size and shape. The Indian fennel seeds are somewhat obtuse at the ends, and generally quite straight. Wild fennel seeds are short, dark, and obtuse at the ends. The above species are generally supposed to be varieties of Fœniculum vulgare. *Pharmacographia*, p. 274; *Wood and Bache, Dispens.*, p. 398.

278. FERULA GALBANIFLUA, *Boiss. et Buhse.*

a. Gum resin; Galbanum in lump.

b. Ditto; Galbanum in tears. *Bentley and Trimen, Med. Plants*, No. 128.

Note.—Galbanum may be distinguished from other gum resins by its faintly alliaceous, somewhat musky, odour, and by being easily indented by the finger nail, especially where the tears have a bluish tint. Galbanum is also produced by F. rubricaulis, *Boiss. Pharmacographia*, p. 285.

279. FERULA ORIENTALIS, *L.*

a. Root. (*Fasogh*, or *Feshook.*)

Note.—This root has been twice sent from Morocco, as that of the plant yielding African ammoniacum. This specimen was presented by Dr. A. Leared. Another specimen is now (1876) growing in the Royal Botanical Gardens, Regent's Park, London.

280. FERULA TINGITANA, *L.*

a. Gum resin. (*African Ammoniacum.*)

Note.—This gum resin is called *Feshook* in Mogador, and is said by Lindley to be yielded by the above-mentioned plant. *Pharmacographia*, p. 289. See Dorema ammoniacum. The root sent over from Morocco as that of the Feshook plant produces Ferula orientalis, *L.*, when grown in this country. *P. J.* [3], vol. vi., p. 142.

The taste and odour of the Museum specimen of African Ammoniacum correspond more nearly with those of the root of F. Tingitana.

281. HERACLEUM SPHONDYLIUM, *L.*

a. Fruit.

Note.—This fruit shows the usual shape of vittæ with remarkable distinctness.

282. HYDROCOTYLE ASIATICA, *L.*

a. Herb. See *Bentley and Trimen, Med. Plants*, tab. 117.

Note.—The leaves are official in the *Ind. Pharm.* They are used either in powder or in the form of poultice, as an application to syphilitic ulcers. *Ind. Pharm.*, p. 107; *Pharmacographia*, p. 264.

283. NARTHEX ASSAFŒTIDA, *Falconer;* FERULA NARTHEX, *Boiss.*

a. Root.

b. Gum resin, in lumps. Two specimens.

c. Ditto, in tears. Two specimens.

Note.—The darker specimens of *b* and *c* belonged to Dr. Pereira, and are those from which his description of the drug was taken. *Per. Mat. Med.*, vol. ii., pt. ii., p. 177. Scorodosma fœtidum, *Bunge*, is also supposed to yield some of the assafœtida of commerce. *Pharmacographia*, p. 284. Pure assafœtida is known under the name of *hing* in Bombay, the impure drug being called *hingra*. The root, specimen *a*, was gathered in Beloochistan, in 1850, by Dr. J. E. Stocks, see *P. J.* [1], vol. xiv., p. 460. For oil of assafœtida, see *P. J.* [1], vol. i., p. 605; tincture, *P. J.* [3], vol. iv., p. 168; syrup, *P. J.* [3], vol. ii., p. 630; glycerole, *P. J.* [3], vol. iii., p. 186. *Bentley and Trimen, Med. Plants*, tab. 126, 127.

284. ŒNANTHE CROCATA, *L.* (*Hemlock, Water Dropwort.*)

a. Fruit.

Note.—The fruit is much longer than that of conium, and is more cylindrical; it has also two long persistent styles. It is often confounded with Cicuta virosa, which see for distinctive characters. *R. J.* [1], vol. xii., p. 591. See *Bentley and Trimen, Med. Plants*, tab. 121.

285. OPOPANAX CHIRONIUM, *Koch.*

a. Gum resin; Opopanax in lump.

b. Ditto; Opopanax in tears.

Note.—The lump opopanax has a slight resemblance externally to myrrh, but the odour is very different, and has been compared to that of bruised ivy leaves. *Pharmacographia*, p. 291; *Per. Mat. Med.*, vol. ii., p. 191. Guibourt is inclined to refer Opopanax to Heracleum Panaces, *L. Hist. des Drog.*, vol. iii., p. 250.

286. PIMPINELLA ANISUM, *L.*

a. Fruit. (*Alicant Aniseed.*)

b. Ditto. (*German Aniseed.*)

c. Ditto. (*Russian Aniseed.*)

Note.—Russian aniseed is much smaller than the other varieties, being about the size of hemlock fruit, from which it may be distinguished at sight by the persistent fruit stalks and the mericarps remaining united. The Alicant variety is the best. *Per. Mat. Med.*, vol. ii., pt. ii., p. 162; *Pharmacographia*, p. 277. *Bentley and Trimen, Med. Plants*, tab. 122.

287. PTYCHOTIS AJOWAN, *D. C.* (*True Bishop's Weed.*)

a. Fruits. (*Ajowan Seeds, Semen Ajavæ.*)

Note.—The fruits are official in the *Ind. Pharm.*, under the name of Carum Ajowan, *Benth*, and are used as a carminative. The fruits are covered with minute tubercles, by which, and by their thyme-like odour, they may be distinguished from the seeds of Apium graveolens, A. involucratum, and A. petroselinum, which in size and shape they much resemble. *Ind. Pharm.*, p. 99; *Pharmacographia*, p. 271, art. Ammi Copticum; *P. J.* [1], vol. xiv., p. 272. For fig., see *P. J.* [3], vol. i., p. 1007. *Bentley and Trimen, Med. Plants*, tab. 120.

288. SAGAPENUM.

a. Gum resin; Sagapenum in lump.

b. Ditto; Ditto in tears.

c. Ditto; Ditto somewhat agglutinated.

Note.—The botanical source of the drug is unknown. In mediæval times it was called *serapinum*. It smells like assafœtida, but less strongly, and differs in the tears not becoming pink when broken and exposed to the air. *Per. Mat. Med.*, vol. ii., pt. ii., p. 183; *Pharmacographia*, p. 291.

289. SELINUM PALUSTRE, *L.*; PEUCEDANUM MONTANUM, *Koch.*

a. Root.

Note.—The root is used like ginger in Russia. In Courland it is used for epilepsy. *Lindley's Fl. Med.*, p. 49. *P. J.* [2], vol, i., p. 234.

290. THAPSIA GARGANICA, *var.* γ. SILPHIUM, *D. C.*

a. Root.

Note.—This specimen was presented by Dr. A. Leared, and was received by him from Mogador. The small specimen in the same bottle was brought from Cyrenaica by Vice-Consul Henderson, of Bengazi. See *P. J.* [3], vol. iv., p. 598. A leaf of the plant is in the Herbarium of the Society. It is distinguished from the typical plant by the leaves being hairy, and by their having revolute margins. *De Candolle Prodromus*, vol. iv., p. 202.

ARALIACEÆ.

291. ARALIA SPINOSA, *L.* (*Angelica Tree, Toothache Tree, Prickly Elder.*)

a. Bark. (*Aralia Bark.*)

b. Root.

Note.—Official in the secondary list of the U. S. P. It is used as a stimulant and diaphoretic. *Amer. Dispens.*, p. 125.

292. ARALIA NUDICAULIS, *L.* (*American Sarsaparilla, Wild* or *False Sarsaparilla, Small Spikenard.*)

a. Root. Two specimens.

Note.—Official in secondary list of the U. S. P. It is used as a diaphoretic and alterative, like sarsaparilla. *Amer. Dispens.*, p. 124.

293. PANAX GINSENG, *Mey.*

a. Root. (*Ginseng Root.*)

Note.—This specimen was brought from China by Mr. R. Fortune. *P. J.* [2], vol. iii., p. 332. By the Chinese this root is valued at its weight in gold; and most wonderful restorative properties are ascribed to it. *Dr. Porter Smith's Mat. Med. China*, p. 103.

294. PANAX QUINQUEFOLIUM, *L.*

a. Root. (*American Ginseng.*)

Note.—This root is occasionally found accidentally mixed with senega and with serpentary roots. *Amer. Dispens.*, p. 596. *Goebel und Kunze*, pt. ii., taf. v. fig. 1., *a*, *b*, *c*, *e*.

COROLLIFLORÆ.

CAPRIFOLIACEÆ.

295. SAMBUCUS NIGRA, *L.*

a. Section of trunk.

b. Bark.

c. Ditto, separated from flower stalks.

d. Volatile oil, from the flowers.

e. Ditto, dissolved in spirit of wine.

Note.—The bark is purgative. As sold on the Continent the flowers usually have the stalk attached; but in this country, except in some of the provinces, without them. *Treas. Bot.*, p. 1013. The leaves are used to colour oleum viride and ung. sambuci viride, and the juice of the berries to colour artificial wines. For detection of elder juice in wine, see *P. J.* [3], vol. i., p. 843. For volatile oil, *Gmel. Chem.*, vol. xiv. (1860), p. 368. See *Bentley and Trimen, Med. Plants*, tab. 137, 138. An allied species, S. Canadensis, L., is official in the U. S. P.

RUBIACEÆ.

296. CEPHAELIS IPECACUANHA, *A. Rich.* (*Poaya verdadeira, vel de Botica*, Brazil.)

a. Root. Brown annulated ipecacuanha.

b. Ditto. Blackish grey ditto. From Prof. Guibourt.

c. Ditto. Brown non-annulated. See *Per. Mat. Med.*, vol. ii., pt. ii., p. 58, fig. 8b.

d. Ditto. Red annulated ditto.

e. Ditto. Reddish grey ditto. From Prof. Guibourt.

f. Grey annulated ditto.

g. Ditto, with the rings not well developed.

296. CEPHAELIS IPECACUANHA, continued.

Note.—The above specimens are those described in *Per. Mat. Med.*, vol. ii., pt. ii., p. 58. See *Bentley and Trimen, Med. Plants*, tab. 145.

h. Brown ipecacuanha root.

i. Carthagena or New Granada ipecacuanha, 1873.

Note.—Specimen *i* appears to be identical with the grey annulated ipecacuanha of Pereira. It is larger and less annulated than the ordinary kind. *Pharmacographia*, p. 331, 334. The term *poaya* is applied to many emetic roots in Brazil. For micr. sect. of root, see *Berg, Anat. Atlas*, taf. vii. For fig. of root, see *Martius, Specim. Mat. Med. Brasil.*, tab. 8.

COLLECTION OF TYPICAL CINCHONA BARKS.

297. (1) CINCHONA CALISAYA, *Weddell.* (*Calisaya Bark.*)

a. Bark. Flat Calisaya.

b. Ditto. Quilled Calisaya, from South America.

c. Ditto. Ditto, cultivated in India.

d. Ditto. Ditto, cultivated in Java.

e. Ditto. Ditto, var. Ledgeriana.

Note.—The flat Calisaya may be recognised by being deprived of the periderm or external layer, and by having digital furrows, *i.e.*, longitudinal shallow depressions, such as would be made by drawing the finger along the surface of putty or dough. The fibres are short, and under a lens many of them are seen to be translucent. There are several varieties of flat Calisaya, distinguished by tint, as orange, pale, and dark Calisaya. The Bolivian quilled Calisaya bark is usually in larger quills than that of C. Condaminea, and the periderm peels off readily, leaving the marks of its fissures visible in the portion underneath. Indian quilled calisaya is usually in smaller quills, and closely resembles in appearance the bark of C. Condaminea; it generally has, however, a few distinct transverse cracks encircling the quills.

(2) CINCHONA LANCIFOLIA, *Mutis.*

a. Large quilled pieces. (*Columbian Bark.*)

Note.—This bark is distinguished by its very fibrous fracture, and by occurring always in more or less curved or quilled pieces of tolerable thickness, having externally the remains of a whitish silvery periderm. Varieties of this bark are known under the names of Caqueta bark and Carthagena bark. Soft Columbian bark, according to Hanbury, is produced by C. lancifolia, var. oblonga, *How.* See transl. *Wedd. Notes on Quinq.*, p. 28. Some of it, however, is produced by a comparatively worthless bark, C. lucumæfolia, *Pav.* Columbian bark is largely used in the manufacture of quinine. From a memorandum on a specimen of this bark in Dr. Pereira's collection, it seems to have been first noticed in English commerce in 1829.

(3) CINCHONA OFFICINALIS, *Hook.* (*Pale Bark.*)

a. Quills, from South America.

b. Ditto, from India.

c. Ditto, from Java.

d. Ditto, from Ceylon.

Note.—Pale bark always occurs in quills; the quills from South America are usually more covered with lichens than those from India. The

297. (4) CINCHONA OFFICINALIS, continued.

periderm does not readily peel off. Several other species yield barks similar in appearance: viz., C. macrocalyx, *Pav.*, C. Humboldtiana, *Lamb.*, C. Peruviana, *How.*, C. nitida, *R. et P.*, C. micrantha, *R. et P.*, C. Pahudiana, *How.*, C. Hasskarliana, *How.* The first five come chiefly from Peru, the last two are hybrids cultivated in India and Java.

(5) CINCHONA SUCCIRUBRA, *Pav.*

a. Red bark, in flat pieces, from South America.

b. Ditto, in quills, from India.

c. Ditto, in small quills.

d. Ditto, in very slender quills.

Note.—Specimen *d* was presented by Mr. Southall. As analysed by Dr. De Vrij it contained—

Cinchonine	1·125
Paricine	1·110
Amorphous Alkaloids	0·565
	2·800

Its geographical source is unknown.

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298. *The following specimens consist of a series of* CINCHONA BARKS AND THEIR ALKALOIDS, *presented by* MESSRS. HOWARD & SONS. *To many of these specimens remarks by* Mr. J. E. HOWARD *are appended. These remarks are placed between inverted commas. The initials* J. E. H. *indicate notes inserted by* Mr. HOWARD *when revising this portion of the Catalogue.*

(1) CINCHONA AMYGDALIFOLIA, *Wedd.*

a. Bark, in flat pieces and in quills.

Note.—This bark is not now imported, but used to come occasionally into commerce from Peru and Bolivia. It has a white deeply fissured outer layer, easily peeling off, and leaving a silvery coat underneath. It was considered of little value, and was not distinguished by any special name in English commerce. "In Bolivia it is called Quepo cascarilla, and in Peru, Cascarilla echenique." See *Wedd. Ann. Sc. Nat.*, 1869, p. 37. *Hist. Nat. Quinq.*, p. 46., tab. vi.; *Per. Mat. Med.*, vol. ii., pt. ii., p. 75.

(2) CINCHONA AUSTRALIS, *Wedd.* (*Cochabamba Bark.*)

a. Small flat pieces without periderm.

Note.—This is an inferior bark occurring mixed with Calisaya. It comes from Southern Bolivia, and is still occasionally met with in English commerce. In Bolivia it is called Cascarilla de la Cordillera, or de Piray, and Cascarilla de Santa-Cruz. See *Wedd. Ann. Sc. Nat.*, vol. x., p. 7; and *Hist. Nat. Quinq.*, pt. viii. In English commerce this bark is known as "Cochabamba bark."

It occurs in small flat pieces without periderm, much thinner than Calisaya, finely fibrous, externally marked with fine longitudinal wrinkles, and having a more astringent taste than Calisaya.

(3) CINCHONA CALISAYA, *Wedd.* (*Calisaya Bark.*)

Var. a. VERA, *Wedd.*

a. Yellow Calisaya, in flat pieces, without periderm.

298. (3) CINCHONA CALISAYA, continued.

b. Ditto, in quills, with the periderm partly exfoliated.

c. Ditto, in quills, with periderm.

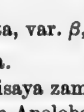
d. Ditto, ditto, with very rough periderm.

Note.—The above specimens are called Calisaya amarilla, dorada, or anaranjada (yellow, golden, or orange-coloured Calisaya), in Bolivia. Specimen *c* is the "China Regia convoluta of Bergen." For fig. see *Goebel und Kunze*, taf. vii., fig. 5, 6. Specimen *d* was probably "obtained from near the root." For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 141.

e. Pale Calisaya, in flat pieces.

f. Ditto, ditto. For fig., see *Goebel und Kunze*, pt. i., taf. viii., figs. 1–4.

g. Ditto, in large very thin quills. For fig., see *ibid.*, taf. vii. figs. 5, 6.

Note.—Specimen *e* resembles C. cordifolia externally, but differs in fracture; specimen *f* is the "old monopoly bark of J. T. Pinto & Co.," and is marked with their brand 

. Specimen *g* is "more like" the bark of var. γ, "morada."

h. Dark Calisaya, in large flat pieces, with but little periderm.

Note.—Compare specimen *h* with C. ovata, var. β, Erythroderma.

i. Woody variety, from Carabaya.

Note.—Specimen *h* is called in Peru, Calisaya zamba, negra, or macha, *i.e.*, black, or male Calisaya. It grows in Apolobamba and Carabaya, in Peru. *Per. Mat. Med.*, vol. ii., pt. ii., p. 88. Specimen *i* is marked thus, "unknown to Weddell." It has a coarser fibre than the other varieties.

j. In large quills, with periderm.

Note.—This bark is called Cascarilla zamba morada. It is the "Calisaya morada of Weddell," and is a "very fine bark." Where exfoliated it has a purplish tinge.

k. Large quills, with periderm.

Note.—See *P. J.* [2], vol. viii., pp. 14, 80.

Var. β. JOSEPHIANA, *Wedd.*

a. Flat pieces, with periderm.

b. Bark from the root.

Note.—These specimens are the Ichu Cascarilla, or Cascarilla del pajonal (meadow cinchona), of the natives; so called because the tree prefers open ground, or meadows on the mountains, and is not found in the forests. Specimen *a* is marked "Calisaya of uncertain kind, bark from the stock." This bark always occurs in short more or less twisted pieces.

Var. γ. MORADA, *Planch.*

a. Quills, with periderm. (*Fine Calisaya.*)

b. Ditto, ditto. (*Calisaya Verde.*)

c. Ditto, without periderm.

d. Thin flat pieces, without periderm.

298. (3) CINCHONA CALISAYA, continued.

e. Thick and flat or slightly curved pieces.

Note.—Var. γ, Morada, is the C. Boliviana of Wedd., the Cascarilla morada of Bolivia, and the Cascarilla verde morada of Peru. Specimen *d* is known by the name of "Charquesillo" (charque meaning strips of sun-dried flesh). Specimen *e* is called "tabla." It is a "very fine bark." It "differs from the Calisaya morada of Weddell." See specimen *d* of var. *a*, Vera. According to Weddell Calisaya bark may be distinguished from C. scrobiculata, *H. and B.*, and from C. ovata, var. rufinervis, by the fibres being easily detached from a transverse fracture instead of being flexible and adherent as in the two latter barks. *Per. Mat. Med.*, vol. ii., pt. ii., p. 88. In C. scrobiculata the fibres form radial and less interrupted rows. In C. Calisaya, var. γ morada (C. Boliviana, Wedd.) the flat pieces possess laticiferous vessels, while the flat Calisaya does not; they are present, however, in the quills of both species, and the morada variety can then only be distinguished by its relative thinness. *Pharmacographia*, p. 320; *P. J.* [2], vol. viii., p. 14.

(4) CINCHONA CORDIFOLIA, *Wedd.* (*Hard Carthagena Bark.*)

a. Large quills.

b. Flat pieces.

Note.—This bark is the hard Carthagena bark of Pereira, or hard Columbian bark of commerce, and the China flava dura of Bergen. In Peru and Bolivia it is known as "Cascarilla mula;" and in Bogota as "Quina amarilla." The quills are usually large, heavy, and without periderm; sometimes of a tea green tint, and wrinkled longitudinally, but generally much resembling in colour those of C. lancifolia, from which they differ in having a very short, not fibrous, fracture. The flat pieces are thin, hard, somewhat curved, and of a tea green or maroon tint, with the remains of a white periderm, and small flat pale brown warts. The taste is earthy and bitter. Maracaibo bark (C. Tucujensis) was formerly included by Pereira and Planchon under this species. *Hist. des Drog.*, vol. iii., p. 177. This bark is well figured in *Del. et Bouch. Quinolog.*, pl. x. Carabaya bark somewhat resembles the flat variety of C. cordifolia, but it has a darker exterior, and the fibres are much finer, and the warts, are smaller and darker in colour.

(5) CINCHONA ELLIPTICA, *Wedd.* (*Carabaya Bark.*)

a. Flat pieces.

b. Quills.

Note.—This bark is now scarcely imported. It formerly came from Islay, where it was known as "Quina carmin." It much resembles the bark of C. cordifolia in aspect, but its taste is more astringent. It contains 3·4 per cent. of alkaloids, consisting of cinchonine, quinidine, and quinine. *Per. Mat. Med.*, vol. ii., pt. ii., p. 95. For fig. of bark see *Del. et Bouch., Quinolog.* pl. ii.

(6) CINCHONA HETEROPHYLLA, *Pav.*

a. Quills.

Note.—This bark comes over occasionally mixed with quill Calisaya, and is known as "Cascarilla negrilla." It is much darker in colour and less cracked than any other quilled bark. See *Hist. des Drog.*, vol. iii., p. 181. It "contains the quinidine of Pasteur."

298. (7) CINCHONA LANCEOLATA, *R. et P.* (*West Coast Carthagena Bark, partly.*)

a. Quills and thick curved pieces.

Note.—This is a variety of Carthagena bark which "comes *viâ* the Pacific." It is described by Pereira under the name of fibrous or spongy Carthagena. *Per. Mat. Med.*, 3rd edition, vol. ii., pt. ii., p. 1645; see Ex. of Pavon's specimens, *P. J.* [1], vol. xi., p. 560. *Del. et Bouch. Quinolog.*, p. 35, and pl. xiii. It is very much like the bark of C. lancifolia, but the fibres are looser, and the bitter taste not developed immediately. According to Howard it contains more quinine and less cinchonine than the bark of C. lancifolia. His analysis gives—

Quinine	1·17
Cinchonine	0·05

It is the "Cascarilla lampiña" of Ruiz. In the vernacular it is known as "Cascarillo bobo, or Amarillo de muña." See *Transl. Weddell's Notes*, p. 24.

(8) C. LANCIFOLIA, *Mutis.* (*New Granada Bark.*)

a. Small flat pieces.

Note.—This specimen is the kind alluded to by Howard as the Calisaya of Santa Fé. *P. J.* [1], vol. xi., p. 560. "This kind of bark comes not unfrequently in connection with the bark of C. Palton, and is used for extracting Quinine" (J. E. H.). For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 142.

b. Varieties from New Granada, in large curved pieces, and in quills, without periderm.

c. Red variety, in thick curved pieces, with a portion of periderm remaining. It "contains cinchonidine as now defined." Red Carthagena bark.

d. Reddish and inferior variety, in small quills, without periderm.

e. Large quills, with the periderm remaining, and with oblique grooves on the bark caused by some twining plant, a character stated by Pereira to be almost peculiar to this bark. *Per. Mat. Med.*, vol. ii., pt. ii., p. 111. This is the "Coquetta bark of commerce," a name restricted to the orange varieties of C. lancifolia. C. Palton, C. lanceolata, C. rosulenta, and C. lucumæfolia much resemble C. lancifolia, and are all fibrous barks with a silvery periderm.

(9) CINCHONA LUCUMÆFOLIA, *Pav.* (*Carthagena Bark, partly.*)

a. Quills with thick white periderm. (*White Crown Bark.*)

b. Flat pieces. "A kind of soft bark. C. lucumæfolia, *Pav.*"

c. Ditto. "C. lucumæfolia, var."

Note.—This bark is very similar in appearance to that of C. lancifolia, but is usually lighter, more loosely fibrous, and of a duller or more brownish yellow tint. The quills have a very thick, white, silvery and

298. (9) CINCHONA LUCUMÆFOLIA, continued.

longitudinally cracked soft periderm; they form the White Crown bark of Pereira. See *Mat. Med.*, 3rd edition, vol. ii., pt. ii., p. 1638. According to Howard it yields—

Quinine	0·68
Cinchonidine	0·63
Cinchonine	0·31
	1·62

(10) CINCHONA MICRANTHA, *R. et P.*

Var. α. ROTUNDIFOLIA, *Wedd.*

a. Very large quills.

Note.—This is the "Cascarilla motosolo of Carabaya, and the Quepo Cascarilla of Bolivia" (the latter name is also applied to the bark of C. amygdalifolia *Wedd*). It is a very scarce and peculiar bark.

b. Flat pieces.

Note.—This is the Bolivian sort, and contains quinine.

Var. β. OBLONGIFOLIA, *Wedd.*

a. Quills.

Note.—This is the specimen described in *P. J.* [1], vol. xiii., p. 672. No. 5. It is "a kind of Cascarilla provinciana." Analysed by Howard it contained—

Quinidine and uncrystallized quinine ..	1·43
Cinchonine	1·29
	2·72

b. Flat pieces. (*Coarse Grey Bark, Peruvian Calisaya.*)

Note.—This is the "Peruvian sort." See *P. J.* [1], vol. xii., p. 174, No. 17; also, *Per. Mat. Med.*, vol. ii., pt. ii., p. 99; *Wedd, Nat. Hist. Quinq.*, p. 53, tab. xiv., xv.

c. Quills.

Note.—This specimen is said by Howard to be identical with one in the British Museum, in Ruiz and Pavon's collection, labelled 1a, Esp., No. 5, Cascarilla Pata de Gallinazo, and with one of Pöppig's in this museum. See *P. J.* [1], vol. xiii., p. 672, No. 6. Analysed by Howard, this specimen yielded—

Quinidine and uncrystallizable quinine ...	1·00
Cinchonidine	1·09
	2·09

The bark of C. micrantha may be known by its rusty coat, with a thin silvery layer underneath it, thus resembling the bark of C. chahuarguera, from which, however, it differs in having very few transverse cracks. The taste is earthy at first, and then bitter, with a peculiar sweetness. The Bolivian sort is richer in quinine than the Peruvian. *Per. Mat. Med.*, vol. ii., pt. ii., p. 92. "A tree of the Bolivian sort is growing in Mr. Howard's conservatory. It is now (1875) 8 feet in height, and differs much in the purple under side of the leaf, and the red veins from the Peruvian sort." (J. E. H.) For fig. of the quills, see *Del. et Bouch. Quinolog.*, pl. v.

298. (11) CINCHONA MUTISII, *Lamb.*

Var. a. MICROPHYLLA, *Wedd.*

a. Long quills, with periderm.

Note.—This specimen "contains quinidine." See *P. J.* [1], vol. xii., p. 174, No. 13. The quills resemble those of C. micrantha, but have simply an astringent taste, and a smooth not a dusty coat, and "readily split longitudinally." (J. E. H.)

Var. β. CRISPA, *Wedd.*

a. Small quills.

Note.—This specimen "contains quinine." See *P. J.* [1], vol. xii., p. 174, No. 9. The bark of C. Mutisii is rarely met with in English commerce. According to Weddell it contains only aricine, 0·23 per cent. See *Trans. Wedd. Notes*, p. 33.

(12) CINCHONA OFFICINALIS, *L.* (*Pale Bark.*)

Var. a. URITUSINGA, *Pav.* *P. J.* [2], vol. viii., p. 15.

a. Slender quills. See *P. J.* [1], vol. xi., p. 494.

b. Larger quills. See *P. J.* [1], vol. xiii., p. 671, No. 3.

c. Crown bark from Java, 1871.

d. East Indian bark, 1872.

Note.—Specimen *a* consists of "fine old Loxa" quills, "found in the London Docks in 1850," and supposed to have remained there for 25–30 years previously, and therefore possibly some of the original Crown bark. It is tied up with bast, as it was then the custom to do with select specimens of bark. Specimen *b* "seems to be the colorado de Loxa of Pavon. It is remarkable for its rough surface and the quantity of red colouring matter it contains." It differs from the bark of var. γ, Bonplandiana, in being of a dark grey colour, and in not being warty, although marked with innumerable fissures. The East Indian and Java barks may be recognised by their dark grey colour and branching cracks with thick edges. For. fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 143.

Var. β. CONDAMINEA, *How.*; *var. β.* CHAHUARGUERA, *R. et P.* (*Huamalies Bark, Rusty Crown Bark.*)

a. Slender quills. See *P. J.* [1], vol. xiv., p. 63, No. 10.

b. Larger quills. See *P. J.* [1], vol. xiii., p. 671, No. 4.

Note.—Specimen *a* is the rusty Crown bark, or Huamalies bark, of Pereira. Vol. ii., pt. ii., p. 100. (The Huamalies barks of Guibourt and Bergen are not identical with that of Pereira. See *P. J.* [1], vol. xiv., p. 63.) Analysed by Howard, this specimen yielded—

Quinine (crystallized as sulphate) ...	0·43
Quinidine and uncrystallizable quinine ...	0·90
	1·33

Specimen *b* is "the knotty sort of Jussieu." The small brown dots visible in the younger quills have in this variety developed into large warts. Analysed by Howard, this specimen yielded—

Quinidine	1·67
Uncrystallized quinine	0·63
Cinchonine	0·68
	2·98

298. (12) CINCHONA OFFICINALIS, continued.

This variety (Chahuarguera, *Pav.*) is that which had the reputation of curing the Countess of Chinchon. It may be distinguished from other pale barks by its rusty brown aspect and minute brown dots or warts, which latter are often in the larger quills split like a coffee berry.

Var. γ. BONPLANDIANA, *f.* COLORATA, *How.* (*Var.* COLORATA, *Pav.*)

a. Small quills. See *P. J.* [1], vol. xiii., p. 671, No. 2.

b. Ditto. (*East Indian Crown Bark.*)

Note.—Specimen *a* "agrees in appearance with the colorada del Rey of Ruiz and Pavon." Analysed by Howard, it yielded—

Quinidine and uncrystallized quinine ...	1·57
Cinchonine	0·37
	1·94

This variety of East Indian bark is easily recognised by its broad bright brown stripes, on a dark ground, caused by longitudinal cracks with thick edges, exposing the interior. It is of excellent quality, yielding 7–8 per cent. of alkaloids. See *P. J.* [2], vol. viii., p. 593, No. 4, 5.

Var. δ. BONPLANDIANA, *f.* LUTEA, *How.* (*H. O. Crown bark, partly.*) See Howard, *Quinol. E. I. Plantat.*, p. 89 and pl. xi.

a. Quills. *P. J.* [1], vol. viii., p. 671, No. 1.

Note.—This "appears to be the same as the amarilla del Rey of R. et P. in the British Museum." "It is the bark described under the heading of *a* in *Per. Mat. Med.*, 3rd ed., vol. ii., pt. ii., p. 1639; and the C. lutea and amarilla del Rey of Pavon." This bark is of a dark grey colour, with very numerous transverse cracks, interspersed among which are numerous small raised warts of the same colour as the bark. The Crown bark from Java somewhat resembles this bark in appearance.

Var. ε. CRISPA, *How.* (*C. Crispa, Tafalla, of Howard's Quinologia.*)

a. Slender quills. *P. J.* [1], vol. xiv., p. 61, No. 9.

Note.—This specimen is the "silvery Crown bark" of Pereira, and has been clearly identified with specimens taken by Seemann from C. officinalis, *a.* Vera, *Wedd.* See *Per. Mat. Med.*, vol. ii., pt. ii., p. 1609, note 3. It is the true Loxa bark of Humboldt, and the cascarilla fina de Loxa of Ruiz and Pavon. It is also the quina, or crespilla carrasquena of old authors, and the quina fina de Loja of modern trade. *P. J.* [2], vol. viii., p. 16. Analysed by Howard, it yielded—

Quinidine and uncrystallizable quinine ...	0·40
Cinchonine	0·03
	0·43

East Indian bark obtained from this species yielded only 0·629 per cent. of alkaloids. See *P. J.* [2], vol. viii., p. 593. The specimen in this collection is remarkable for the thick edges of the numerous ramifying fissures, which form a sort of raised network on the bark. It closely resembles in size and colour the East Indian Uritusinga bark.

(13) CINCHONA OVATA, *Wedd.*

Var. a. VULGARIS, *Planch.*

a. Flat pieces.

Note.—This specimen much resembles Calisaya in appearance, but is not so bitter, and has the remains of a silvery periderm.

298. (13) CINCHONA OVATA, continued.

b. Long quills. (*Cascarilla pallida.*)

Note.—This specimen resembles in appearance the quills of C. Mutisii and C. pubescens; but the periderm when exfoliated in C. ovata shows a dark surface underneath, and the bark of C. pubescens has a much coarser grain than any other cinchona bark. It does not split readily like the bark of C. Mutisii.

c. Large quills.

Note.—"This specimen resembles C. ovata of Weddell, but not of Pavon or Howard."

Var. β. ERYTHRODERMA, *Wedd.*

a. Flat pieces.

Note.—This bark is "very scarce and peculiar." It somewhat resembles Calisaya bark, but is much darker externally. "Cascarilla zamba morada," of Carabaya. The taste is very bitter and astringent. It is a poor bark. See *Per. Mat. Med.*, vol. ii., pt. ii., p. 92.

(14) CINCHONA PALTON, *Pav.* (*West coast Carthagena Bark.*)

a. Thick curved pieces.

Note.—This bark is one of the fibrous barks, resembling in general appearance that of C. lancifolia, but is usually more loosely fibrous, has a redder tinge than that bark; and is also often pitted with numerous depressions, about the size of swan shot, upon its surface. It is much used in the manufacture of quinine. See *Pharmacographia*, p. 318. According to Howard, Palton bark yields—

Cinchonidine	1·34
Quinine	0·71
	2·05

"The proportion of quinine is sometimes much larger than that here given." (J. E. H.)

(15) CINCHONA PERUVIANA, *How.* (*Fine Grey Bark.*)

a. Quills.

Note.—For a description of this bark see *Per. Mat. Med.*, 3rd edition, vol. ii., pt. ii., p. 1633; and for fig. *Goebel und Kunze*, taf. vii., fig. 1–4. It is nearly allied to the bark of C. nitida and micrantha, and with them forms the Lima or Huanuco bark, which is now chiefly used on the Continent.

(16) CINCHONA PITAYENSIS, *Wedd.* (*Pitaya Bark.*)

a. Large quills.

Note.—This specimen is "fine Pitaya bark, probably some of the first imported." See Howard, *Quinol. E. I. Plantat.*, p. 89, and pl. xii.

b. Large quills; from the Pitaya district.

c. Flat pieces, with a portion of the periderm remaining.

Note.—Specimen *c* is the Pitaya roja, or red Pitaya bark. Pitaya bark is readily distinguishable from other barks by occurring in very large heavy quills of a dull brown colour, with a thick, corky, dirty white periderm. It does not taste bitter for some time, but is then persistently so. It is a very valuable bark, and is the chief source of quinidine. See *P. J.* [1], vol. xiv., p. 166; [2], vol. vi., p. 48. For fig. of bark see *Del. et Bouch. Quin.*, pl. xii. and p. 34.

298. (17) CINCHONA PUBESCENS, *Vahl.* (*Arica*, or *Cusco Bark.*)

Var. a. PELLETERIANA, *Wedd.*

a. Flat pieces, without periderm.

Note.—This bark is called in Carabaya, cascarilla amarilla, and in Cuzco, carua carua. It is now a "scarce" bark "1873." It is from this bark that aricine is obtained. See *P. J.* [1], vol. ix., p. 268. Pelletier's specimen in this museum is not this variety, but typical C. pubescens, *fide* J. E. H.

Var. β. PURPUREA, *Wedd.* (*White Calisaya Bark.*)

a. Long, rather large quills.

Note.—These quills are very hard, and have a thin dirty white epidermis, which is longitudinally wrinkled but not transversely cracked, and has a few scattered warts. "This species needs better definition." The quills are well figured in *Wedd. Nat. Hist. Quinq.*, tab. 29., f. 19–23.

b. In flat or slightly curved pieces.

Note.—This specimen was imported into Liverpool in May, 1852. It bears the Pinta brand. It resembles the bark of C. ovata externally, but has a much coarser grain. The taste resembles that of pale bark, and the bitterness is quickly developed but is not very persistent. According to Howard's analysis it yielded,—

Quinidine, chiefly crystallized	0·91
Cinchonine	0·43
	1·34

In Huanuco this bark is called Cascarilla bobo de hojas moradas.

c. In quills. "C. pubescens?"

Note.—This specimen is the one referred to in *P. J.* [1], vol. xiii., p. 672, No. 7. It "resembles a specimen in this museum named Huamalies by Batka," and also a "specimen in the British Museum, labelled Sp. nova de Jaen de Loxa." It is "not the Huamalies bark of Pereira." (J. E. H.) See *C. officinalis, var. β*, and the collection of barks examined by Batka.

d. Thin quills.

Note.—This specimen is labelled "Marcapata bark? C. purpurea." In appearance it resembles fig. 1, 2, on pl. x., *Goebel und Kunze*, but is not so much cracked as the Huamalies bark there represented.

(18) CINCHONA ROSULENTA, *Howard.*

a. Curved or quilled pieces.

Note.—"This is a cinchonidine bark which now (1873) comes abundantly into commerce. It is the red bark of the district." The cinchonidine here spoken of by Howard is called Quinidine in *Pharmacographia*, p. 321. This bark is the Quinquina Carthajène rosé d'Ocaña of *Del. et Bouch. Quin.* p. 37, and is figured on pl. xvii. It resembles the bark of lancifolia, but is usually in larger and flatter pieces, and is deeply but irregularly fissured longitudinally. It is hard and fibrous, but has a darker red colour than the bark of C. lancifolia. The bitter taste is soon developed, but is without astringency.

298. (19) CINCHONA SCROBICULATA, *Wedd.* (*Red Cusco Bark.*)

Var. α. GENUINA.

a. Flat pieces.

b. Long quills.

Note.—This bark is the Cascarilla colorada del Cuzco and the Cascarilla colorada de Santa Anna, of Peru. The quills came mixed with quilled Calisaya bark, which they much resemble; they are usually, however, thinner and more involute than those of Calisaya, and have a redder fracture. They are "identical with the Loxa rouge marrons of Guibourt." "The flat bark was also imported as Calisaya." (J. E. H.)

Var. β. DELONDRIANA, *Wedd.* (*Spurious Calisaya.*)

a. Flat pieces.

Note.—This bark most resembles flat Calisaya bark, but has not such distinct digital furrows, is less compact, and has a redder tint than that bark. *P. J.* [1], vol. xiv., p. 82; [1], vol ix., p. 268. For fig. of this bark see *Wedd. Nat. Hist. Quinq.*, tab. 28, f. 5–8.

(20) CINCHONA SUCCIRUBRA, *Pav.* (*Red Bark.*)

a. Flat pieces, "grown in the shade."

b. Large quilled pieces, "grown in sunshine."

c. Small quills, from Ceylon, 1873.

d. Inferior red bark, 1873, "Rouge pale."

Note.—This is the "Cascarilla colorada" of the natives, and specimen *c* is much paler than ordinary red bark, and is difficult to distinguish from Calisaya quill. Its taste is astringent and extremely bitter. Red bark may be recognised by its red colour and the presence of numerous warts on its surface. For fig. of plant, see *Bentl. & Trim., Med. Plants*, tab. 140.

(21) CINCHONA TUCUJENSIS, *Karsten.* (*Maracaibo Bark.*)

a. Flat pieces.

Note.—This bark occurs in thin more or less twisted pieces, with a coarse fibre and a surface which resembles that of C. cordifolia in being rough, but the surface is not so purple as in that bark, and the taste is not earthy, but somewhat aromatic. *See P. J.* [1], vol. x., p. 348; [1], vol. xiv., p. 167.

FALSE CINCHONA BARKS.

(22) BUENA BOGOTENSIS, *Karsten.* (*False Red Bark.*)

a. Thick quilled pieces.

b. Smaller ditto.

Note.—This bark is "the Cinchona oblongifolia of Mutis," but "not the Cascarilla magnifolia of Lamb." It answers well to the description given under Quinquina nova in *Hist. des Drog.* iii., p. 183. It was "mistaken by Humboldt and others for true red bark." See *Howard, Nueva Quin.* art. Cinchona magnifolia, p. 5. The outer surface is usually smooth, of a dark purplish brown colour, and has transverse cracks, evidently caused by desiccation. The pieces are thick and heavy; the taste is astringent, but scarcely bitter. For fig. of bark see *Del. et Bouch. Quin.*, pl. xxiii., the two left-hand figures.

298. (23) BUENA HEXANDRA, *Pohl.*

a. Portion of quilled bark, with periderm.

Note.—This is the bark described under the name of Nova colorada de Brasil by Guibourt. See *Hist. des Drog.*, t. iii., p. 183. It has a dark inner surface, and the periderm is thick and deeply furrowed; the taste is nauseous and astringent.

(24) CASCARILLA CARUA, *Wedd.* (*False Red Bark.*)

a. Thick curved pieces.

Note.—This bark is known in Peru and Bolivia under the name of Cargua-cargua grande. It is similar in appearance to the bark of Buena Bogotensis, but has a paler and more fibrous inner surface. Neither that bark nor this one contains any alkaloid.

(25) CASCARILLA GLOBIFERA, *Pav.*

a. One quilled piece.

Note.—This bark somewhat resembles that of C. micrantha externally, but its inner surface is very fibrous. It is labelled Uñas de gato. See *P. J.* [1], vol. xii., p. 176, no. 32; also p. 341.

(26) CONDAMINEA TINCTORIA, *D. C.* (*Paraguatan Bark.*)

a. Large quilled pieces.

Note.—This bark is remarkable for the peculiar deep pink colour of its substance. The periderm is thin and easily removed. In Peru it is known as "socchi." See *Hist. des Drog.* vol. iii., p. 184; *P. J.* [1], vol. xii., p. 341.

(27) CROTON SPECIES.

a. Thin, wide flat pieces.

Note.—This bark is covered with large woody blunt prickles, which, together with its peculiar taste, appear to ally it rather to the bark of a Zanthoxylum than a Croton.

(28) GOMPHOSIA CHLORANTHA, *Wedd.*

a. Quills.

Note.—This bark much resembles Calisaya quill, and was at one time sold for it. It may be distinguished by the periderm being readily separated into layers, which are of a purplish tinge. It "contains no alkaloid." A mounted microscopical slide of a section of the bark accompanies this specimen. See *P. J.* [1], vol. xiv., p. 318. It comes from Carabaya.

(29) LAPLACEA QUINODERMA, *Wedd.*

a. Flat or slightly curved pieces. *See P. J.*

Note. This bark at one time came mixed with flat Calisaya. It differs very much from it in appearance, being of a blackish red colour, and having very persistent tough fibres. Its native name is Vichullo vei Chulquisa. It is labelled "scarce" and "interesting under the microscope."

(30) STENOSTOMUM ACUTATUM, *D. C.* (*Pitoya Bark.*)

a. Long quills.

Note.—This bark was known in England as Pitoya bark, and from it a principle named pitoyine was obtained, a specimen of which is attached to this bark. By Guibourt it is described as Quinquina bicolore. The quills are very long, quite smooth, and brown externally, and black on the inner surface. It cannot possibly be confounded with any cinchona bark. See *Hist. des Drog.*, t. iii., p. 190.

298. (31) Species et Genus incerta.

a. Thick quilled bark.

Note.—This specimen "comes from New Granada," and in appearance looks like a very coarse piece of C. lancifolia bark. It is labelled "Contains alkaloid, allied to the Cinchonas."

ALKALOIDS AND THEIR SALTS.

(32) Cinchonine.
(33) Cinchonine Sulphate.
(34) Quinine Acetate.
(35) Citrate.
(36) Hydrochloride.
(37) Phosphate.
(38) Sulphate.
(39) Disulphate.
(40) Quinoidine.

Note.—Remarks on these alkaloids will be found under their respective heads in the Chemical Collection.

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299. *Cinchona Barks collected under the superintendence of* H. von Bergen (*author of* Versuch einer Monographie der China, 1826), *for the purpose of illustrating the barks described and figured in his work.*

(1) China rubra. (*Red Bark.*)

Note.—This specimen consists of flat pieces, belonging apparently to different species; it consists partly of the bark of C. succirubra, *Pav.*, and partly of that of C. lancifolia, *Mutis.*

(2) China Huanuco. (*Silver, or Grey Bark.*)

Note.—This specimen is in quills, and appears to correspond exactly with the C. Peruviana, *How.*, of Howard's collection.

(3) China regia. (*Calisaya, or Yellow Bark.*)

Note.—This specimen is mostly in quills, and is the bark of C. Calisaya, *Wedd.*

(4) China flava dura. (*Hard Carthagena Bark.*)

Note.—This specimen is in quills, and consists of the bark of C. cordifolia, *Mutis.*

(5) China flava fibrosa. (*Woody Carthagena Bark.*)

Note.—This specimen is in quilled pieces, and consists apparently of a mixture of the bark of C. cordifolia, *Mutis*, and C. lancifolia, *Mutis.*

(6) China Huamalies. (*Rusty Bark*).

Note.—This specimen is in quills, and appears to be identical with the C. officinalis, *var.* β, chahuarguera, *R. et P.*, of Howard's collection.

(7) China Loxa. (*Loxa, or Crown Bark*).

Note.—This specimen is in quills, and is a fine specimen of the bark of C. officinalis.

299. (8) China Jaen. (*Ash Bark.*)

Note.—This specimen consists of arched and twisted quills. It corresponds to the figures in *Goebel und Kunze, Waar.*, taf. x., fig. 6–9. It is the bark of C. subcordata, and does not occur in Howard's collection. See *Hist. des Drog.*, t. iii., p. 178. *Per. Mat. Med.*, [3] vol. ii., pt. ii., p. 1636.

(9) China pseudo-Loxa.

Note.—This specimen is in quills, and corresponds in external appearance with Howard's specimen of C. officinalis, *var.* δ, crispa, from Peru.

(10) China rubiginosa.

Note.—This specimen is in flat pieces. One piece evidently belongs to C. pubescens, *var.* Pelleteriana, but the other two seem to correspond with the bark C. Tucujensis in Howard's collection.

(11) China bicolorata.

Note.—This specimen is in quills, and is identical with the specimen in Howard's collection labelled Stenostomum acutatum. "The last two specimens were collected by H. von Bergen, but are not described in his work." (Note from Dr. Pereira's catalogue.) For fig., see *Goebel und Kunze*, pt. i., taf. xii., fig. 6, 7.

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300. *Collection of* Cinchona Barks, *made under the superintendence of* Dr. Julius Martiny (*author of* Encyclopædia der Medicinisci pharmaceutischen naturalien und Rohwaarenkunde, 1843). *It includes barks of (at that date) recent introduction, most of which have been described by him in the work above quoted.*

(1) China Cusco vera.

Note.—This specimen consists of fragments of quills, which appear to be those of C. pubescens, *var.* purpurea.

(2) China rubiginosa nova.

a. Flat pieces.

Note.—This specimen appears to be the bark of C. lanceolata, *R. et P.*

b. Quills.

c. Flat pieces.

Note.—Specimens *b* and *c* are referred by Mr. J. E. Howard to C. nitida, *R. et P.*

(3) China alba, *Humboldt.*

Note.—This specimen is in flat fragments. In its granular structure it corresponds to the white bark of Howard's collection, but differs slightly in the external surface not being so rough, and in the internal surface being of a purplish tint. It is accurately figured in *Goebel und Kunze*, pt. i., taf. xiv., figs. 9–11.

(4) China regia spuria, "*from Bordeaux.*"

Note.—This bark is in quills, and consists chiefly of the bark of C. micrantha, *R. et P.*, with one quill of C. Calisaya, *Wedd.* The bark of C. micrantha is readily recognised by its peculiar taste, which recalls that of Prunus Virginiana.

300. (5) China pseudo-regia.

Note.—This specimen is in flat pieces, which correspond closely to those of C. elliptica, *Wedd.*, in Howard's collection.

(6) China Caribæa spuria.

Note.—This appears to be the bark described under the name of Exostemma caribæum, *Ræm. et Schult., in Hist. des Drog.*, 6me éd., t. iii., p. 189.

(7) China de Para pallida. (*False Red Bark.*)

(8) China de Rio Janeiro, "*from* Dr. Pohl, *of Vienna.*"

(9) China de Rio Janeiro, "*from Liverpool.*"

Note.—Specimen 7 is in thick quills; specimen 8 similar, but partly exfoliated; specimen 9 was imported from Para, and consists of one flat piece. All three appear to be identical, and are probably the bark described by Guibourt under the name of Quinquina nova colorada, in *Hist. des Drog.*, t. iii., p. 183.

(10) China Sanctæ Luciæ, seu Piton.

Note.—This is the bark described in *Hist. des Drog.*, t. iii., p. 189.

(11) Cortex adstringens Brasiliensis spurius, "*No.* xii., *Martiny.*"

Note.—This specimen is probably the kind figured in *Goebel und Kunze*, pt. i., taf. xxx., figs. 6–9.

(12) Cortex adstringens Brasiliensis spurius, "*No.* vii., *Martiny.*"

Note.—This specimen has a taste faintly resembling that of sassafras, and has a very rough inner surface, somewhat like that of Drimys Winteri, but has a greenish brown colour. It does not correspond with the figure in *Goebel und Kunze*, pt. i., taf. xxx., fig. 6–9.

(13) China Jaen pallida.

Note.—This specimen consists of quills, which appear to correspond to C. pubescens, *var.* Pelleteriana, of Howard's collection.

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301. Cinchona Barks *collected by* Poeppig *in South America, and presented to* Dr. Pereira *by* Dr. J. Martiny.

(1) Cascarilla negrilla fina.

Note.—This specimen somewhat resembles that of Calisaya. It has a peculiar taste, faintly recalling that of bitter almonds. It is attributed by Poeppig to C. glandulifera.

(2) Cascarilla boba.

Note.—This bark is in quills, and is evidently that of C. pubescens, *var.* purpurea, *P. et P.* It resembles in taste and physical characters the specimens of that bark in Howard's collection. It is to this species that Poeppig attributes it.

(3) Cascarilla pata de gallinazo.

Note.—This specimen appears to correspond with the specimens of C. Peruviana, *How.*, in Howard's collection.

301. (4) CASCARILLA PROVINCIANA.

Note.—This specimen is in quills. It is attributed by Poeppig to a variety of C. glandulifera. It has a very bitter taste, and is very pale internally, much more so than that of C. Péruviana, which in other respects it much resembles.

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302. *The following Barks were collected under the superintendence of* M. PELLETIER, *discoverer of Quinine.*

(1) QUINQUINA NOVA.

Note.—This bark is labelled in Dr. Pereira's handwriting, "C. oblongifolia of *Mutis*, not of *Lambert*." It is therefore the kind described in *Hist. des Drog.*, t. iii., p. 182.

(2) QUINQUINA D'ARICA.

Note.—This bark is labelled "C. pubescens or C. cordifolia?" but it does not exactly correspond to either. "It is probably a form of C. pubescens, *Vahl.*" (J. E. H.)

(3) QUINQUINA DE LOXA.

Note.—This specimen consists of slender quills of the bark of C. officinalis, *L.*

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303. *Collection of Cinchona Barks made under the superintendence of* GUIBOURT, *author of the* Histoire abrégée des Drogues simples. *It includes nearly all the barks described by him. The numbers attached to each kind are those under which they are described in the above work. The initials* J. P. *indicate that the number to which they are attached is the number of the specimen in* Dr. PEREIRA'S *catalogue.*

(1) QUINQUINA GRIS BRUN DE LOXA. Two specimens, No. 327.

a. Quills. 28 *J. P.*

b. Quills. 29 *J. P.*

Note.—These specimens consist of the bark of C. officinalis. Specimen *b* is the one alluded to as Colorada del Rey, No. 29, *Ph. Soc.*, in *P. J.* [1], vol. xi., p. 497.

(2) QUINQUINA GRIS BRUN DE LOXA. Fibrous variety, No. 330.

Note.—This bark corresponds in appearance and taste to Howard's specimens of C. micrantha.

(3) QUINQUINA FIN DE LIMA. No. 330.

Note.—This bark is in quills, and is similar to Howard's specimens of C. Peruviana.

(4) QUINQUINA GROS DE LIMA. No. 331.

Note.—This bark has the external appearance of C. officinalis, but is larger and thicker than any specimen of that species in this museum.

(5) QUINQUINA BLANC. No. 331.

Note.—This bark is similar to the bark of C. Peruviana in Howard's collection, but is in rather coarser quills.

(6) QUINQUINA GRIS, IMITANT LE JAUNE ROYAL.

Note.—This specimen also seems referable to C. Peruviana, *How.*

303. (7) QUINQUINA DIT HAVANE. No. 336.

Note.—This bark is in quills; it appears to correspond to the C. Chahuarguera of Howard's collection, both in appearance and in its peculiar rose-like taste.

(8) QUINQUINA DIT HAVANE, variété.

Note.—This bark is in slender quills, and from the coarseness of its fibre and its feeble bitterness, appears to belong to C. pubescens, *var.* purpurea, to which the Quinquina dit Havane is referred in *Hist. des Drog.*, 6me éd., vol. iii., p. 169, note 2.

(9) QUINQUINA FERRUGINEUX.

Note.—In this bottle is a memorandum to the effect that Guibourt considers that "this bark does not differ essentially from the Q. dit Havane, and that its rusty colour is the result of age." Its taste, however, resembles that of Q. dit Havane, (No. 8) with which it seems to be identical.

(10) QUINQUINA CALISAYA.

Note.—This bark is in quills, and is evidently the bark of C. Calisaya.

(11) QUINQUINA NOUVEAU CALISAYA, 4me variété.

Note.—According to Guibourt, this bark is that of C. Pitayensis, which in appearance it strongly resembles. It differs, however, from all other specimens of that bark in this museum in its finer and harder inner surface, and in *quickly* developing a very bitter taste. See *Journ. de Pharm.*, vol. xvi., p. 240.

(12) QUINQUINA JAUNE ORANGÉ. No. 338.

Note.—This bark is in flat pieces, and seems to be that of C. scrobiculata.

(13) QUINQUINA CALISAYA LÉGER, OU JAUNE ORANGÉ. No. 338.

Note.—This bark is labelled by Pereira, "C. scrobiculata."

(14) QUINQUINA ROUGE NON VERRUQUEUX. No. 339.

Note.—This bark is in flat pieces and quills. It is attributed by Planchon to C. succirubra, *Pav.*

(15) QUINQUINA ROUGE MONDE, DIT QUINQUINA ORANGÉ. No. 339.

Note.—This bark is reddish, resinous-looking, hard, in quills which have lost their periderm, but otherwise appear identical with the Q. rouge non verruqueux. It is referred by Mr. J. E. Howard to C. nitida, *R. et P.*

(16) QUINQUINA ROUGE VERRUQUEUX. No. 340.

Note.—This specimen consists of flat pieces and quills. It is identical with the true red bark of commerce (C. succirubra, *Pav.*).

(17) QUINQUINA ROUGE DE SANTA FÉ. Two specimens. No. 341.

Note.—These specimens appear to belong to C. Peruviana, *How.*

(18) QUINQUINA ROUGE ORANGÉ PLAT. No. 342.

Note.—This is probably a variety of C. succirubra, *Pav.*

(19) QUINQUINA ROUGE BLANC. No. 343.

Note.—This bark is in thin flat pieces, which appear to resemble the next specimen more than any other.

303. (20) QUINQUINA BLANC DE LOXA. No. 343.

Note.—This bark is in quills, and is attributed by Planchon to C. decurrentifolia, *Pav.* See *Hist. des Drog.*, t. iii., p. 194. This bark does not occur in Howard's collection. By Weddell it is attributed to C. pubescens, *Vahl.*, which it closely resembles, but is thinner and rather more bitter.

(21) QUINQUINA DE CUZCO.

Note.—This specimen consists of four varieties, of which *a* and *c* belong apparently to C. pubescens, *Vahl.*, while *b* and *d* seem to be the bark of C. scrobiculata, *Wedd.*

(22) QUINQUINA CARTHAGÈNE BRUN. No. 346.

Note.—This bark is in flat, somewhat arched, pieces, and seems to belong to C. cordifolia, *Mutis.*

(23) QUINQUINA CARTHAGÈNE JAUNE. Two specimens. No. 347.

Note.—This appears to be the bark of C. cordifolia, *Mutis*, also.

(24) QUINQUINA CARTHAGÈNE JAUNE ROUGE. No. 348.

Note.—This is probably the bark of C. pubescens, *Vahl.*, but is rather more fibrous than usual.

(25) QUINQUINA CARTHAGÈNE SPONGIEUX.

Note.—This is in slender quills, and corresponds exactly in taste and fracture to the quills of inferior bark of C. lancifolia, *Mutis*, in Howard's collection.

(26) QUINQUINA DE COLOMBIE, OU D'ANTIOQUE. No. 16.

Note.—There is a reference on the label of this bottle to the *Journ. de Pharm.*, t. xvi., p. 240, and a memorandum to the following effect enclosed in it:—"Guibourt says that the Q. de la Colombie ou d'Antioque does not differ from the *Nouveau* Calisaya except in its age. He says it probably lay hid for a considerable time in some magazine, from which it was at last taken for the purposes of commerce. He also says that the Quinquina Colombie fibreux appears to be a very fibrous variety of the above, and resembles the eighth kind analysed by M. Vauquelin under the name of C. pubescens mentioned in the *Journ. de Pharm.*, t. xvi., p. 229. On the other hand, the most fibrous pieces answer to the Quinquina Carthagène spongieux of the *Hist. des Drog.*, No. 349; and to the Quina naranjade, or the Quinquina orangé of Mutis, *Journ. de Pharm.*, t. xvi., p. 225. From these circumstances it would seem that the barks, No. 15, 16, 17, belong to the same tree growing in different situations, and are the same as the Quinquina carthagène spongieux and the Quinquina carthagène spongieux autre."

This bark corresponds exactly with the C. Pitayensis of Howard's collection, but its bitterness is not so quickly developed as in the bark of "Nouveau Calisaya."

(27) QUINQUINA ROUGE DE LIMA. No. 341.

Note.—This bark is evidently that of C. Peruviana, *How.*, to which it is referred in the *Hist. des Drog.*, t. iii., p. 193. A memorandum is enclosed with this specimen, and runs thus:—"Guibourt designates by the name of Quinquina rouge de Lima a bark several chests of which he found at a druggist's under the name of Quinquina de Lima. He thinks this cinchona is formed of the young barks of the Quinquina

303. (27) QUINQUINA ROUGE DE LIMA, continued.

rouge de Santa Fé, and for this reason he calls both by the name of Quinquina rouge de Lima. He says this bark holds the middle place between the Lima ordinaire and the rouge vrai; and that it is a support to his opinion, namely, that the true red bark and the officinal grey cinchonas (Loxa and Lima) are produced by simple varieties of the same botanical species. He has found amongst this Cinchona a light and very fibrous bark which exactly answers to the Quinquina gris fibreux royal d'Espagne."

(28) QUINQUINA DIT HAVANE, ETC.

Note.—This specimen consists of four varieties found in the same chest: *a* is labelled Q. havane; *b* and *c*, Quinquina ferrugineux; and *d*, Quinquina de Loxa. The first three appear to be the bark of C. pubescens, *var.* purpurea, *R. et P.*, and the fourth is C. officinalis, *L.*

FALSE CINCHONA BARKS.

(29) EXOSTEMMA DE PEROU.

Note.—This is a thin bark, somewhat resembling oak bark externally, and often green on the inner surface. It has a very bitter nauseous taste.

(30) EXOSTEMMA CARIBÆUM, *R. et Sch.*

Note.—This bark is thin, and has a yellowish dull outer surface, not smooth and shining as in the E. de Perou. See *Hist. des Drog.*, t. iii., p. 189.

(31) QUINQUINA PITON. (*Exostemma floribundum, R. et Sch.*)

Note.—This specimen exactly corresponds to Martiny's specimen of Quinquina Piton, ou de Sainte Lucie. See *Hist. des Drog.*, t. iii., p. 189.

(32) QUINQUINA BICOLORE.

Note.—This specimen is exactly the same as Howard's specimen labelled Stenostomum acutatum.

(33) EXOSTEMMA DU BRÉSIL.

Note.—This bark resembles that of Exostemma Caribæum, *R. et Sch.* The taste is nauseous, and very bitter.

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304. *Collection of Barks sent to* PEREIRA *by* GUIBOURT *to illustrate the descriptions given in the 4th edition of the* Histoire des Drogues simples, t. iii., pp. 95–176. *To this edition the numbers following the French names of the barks refer. The name "Planchon," placed after a specific name, is intended to signify that the identification is given on his authority in the 6th edition of the* Hist. des Drog., t. iii., pp. 143–194.

(1) QUINQUINA DE LOXA INFÉRIEUR. (No. ii., p. 103.)

Note.—This is the bark of C. Humboldtiana, *Lamb.*, *Planchon*, p. 175.

304. (2) QUINQUINA DE LOXA ROUGE MARRON. (No. ii., p. 104.)

Note.—This is the bark of C. scrobiculata, *Wedd.*, *Planchon*, p. 160.

(3) QUINQUINA DE LOXA JAUNE FIBREUX. (No. x., p. 106.)

Note.—This is the bark of C. officinalis, *L.*, *var.* amarilla del Rey, *Planchon*, p. 149, note 2.

(4) QUINQUINA DE JAEN OU DE LOXA LIGNEUX ET ROUGEÂTRE. (No. ix., p. 114.)

Note.—This bark appears to be that of C. conglomerata, *Pav.* See *Hist. des Drog.*, t. iii., p. 176, 6me éd. It resembles in some respects the specimen of Amarilla del Rey in Howard's collection.

(5) QUINQUINA ROUGE, BLANCHISSANT À L'AIR. (No. x., p. 119.)

Note.—This bark resembles Howard's specimen of C. Peruviana, *How.*

(6) QUINQUINA JAUNE ORANGÉ. (No. xx.. p. 139, 14a.)

a. Quills.

b. Quills.

c. Flat pieces found among Calisaya bark. (No. xx., p. 140.)

Note.—Specimen *a* resembles quilled red bark (C. succirubra, *Pav.*). Specimens *b* and *c* belong probably to C. scrobiculata, *Wedd.* Specimen *c* is also called Calisaya léger, in common with other inferior barks found mixed with Calisaya.

(7) QUINQUINA DE COLOMBIE LIGNEUX. (No. xxii., p. 142.)

Note.—This is marked "M., Sorts, J. E. H." It is a variety of C. lancifolia, *Mutis.*

(8) QUINQUINA ORANGÉ DE MUTIS. (No. xxiii., p. 142.)

Note.—This bark is a variety of C. lancifolia, *Mutis.* It is identical with the Quinquina jaune orangé de Mutis of *Hist. des Drog.*, 6me éd., t. iii., p. 156.

(9) QUINQUINA DE LOXA CENDRÉ.

a. Quills. (*C. subcordata*, *Planchon*, p. 178.)

b. Quilled and flat pieces. (*C. macrocalyx*, *Planchon*, p. 150.)

Note.—Specimen *b* somewhat resembles the bark of C. officinalis, *L.*, in appearance, but has distinct warts scattered over the periderm. This specimen has also been identified by Howard, who has marked it "Cascarilla con hojas redondas," which is a name given by the Indians to C. macrocalyx, *Pav.*

(10) QUINQUINA GRIS PALE ANCIEN. (No. xxxvi., p. 152.)

a. Quills.

b. Quills. Found in Q. Lima gris fin, in 1839.

Note.—These specimens have been identified by Howard as belonging to C. pubescens, *Vahl.*

304. (11) QUINQUINA BLANC DE LOXA. (No. xxxvii., p. 153.)

a. Quills. (*C. decurrentifolia, Pav., Planchon*, p. 179, note 1.)

Note.—This bark closely resembles Howard's specimens of C. Mutisii, *Lamb.*

(12) QUINQUINA BLANC FIBREUX DE JAEN. (No. xxxviii., p. 153.)

Note.—This specimen consists of pieces which differ in taste and structure. One piece evidently belongs to C. lancifolia, *Mutis*, and another to C. pubescens, *Vahl.* It is labelled in Howard's writing, "Cascarilla con hojas de Zambo," which is the vernacular name for Cinchona palalba, *Pav.* To this species the rest of the pieces may perhaps belong.

FALSE CINCHONA BARKS.

(13) QUINQUINA NOVA COLORADA. (No. xlviii., p. 164.)

a. Quills.

Note.—This is the bark alluded to on p. 164, as found in commerce in 1825. The periderm is like the Rio de Janeiro bark (Buena Bogotensis, *Karst.*). But when the periderm is removed, the surface beneath is seen to be wrinkled longitudinally, not fissured transversely.

b. Quills. From Rio de Janeiro.

Note.—This agrees exactly with Howard's specimen of Buena Bogotensis, *Karst.* See p. 166, l. c.

(14) ECORCE DE PARAGUATAN. (No. liii., p. 167.)

a. In short, thick, twisted pieces.

Note.—This bark is identical with Howard's specimen of Condaminea tinctoria, to which species it is referred in *Hist. des Drog.*, 6me éd., t. iii., p. 184, but it is thicker and older, and has lost its periderm.

(15) QUINQUINA BLANC DE MUTIS. (No. liv., p. 167.)

a. In short flat pieces.

Note.—This bark is referred by Planchon to Cascarilla macrocarpa of Weddell. This specimen differs from Howard's in having the periderm removed.

(16) COSTUS AMER. (No. lviii., p. 170.)

Note.—There is no other specimen in the Museum of this bark. It is in pale brown fragments, which have a slight resemblance to Cusparia bark.

(17) QUINQUINA CARAIBE. (No. lxii., p. 173.)

Note.—This agrees well with the other specimen from Guibourt. It is the bark of Exostemma Caribæum, *R. et Sch.* See *Hist. des Drog.*, 6me éd., t. iii., p. 189.

(18) EXOSTEMMA DU PEROU. (No. lxiii., p. 174.)

Note.—This is exactly similar to the other specimen from Guibourt.

(19) MALANEA RACEMOSA, *L'Herminier*. (No. lxv., p. 175.)

Note.—This is a thin bark, and is like that of Stenostomum acutatum in Howard's collection, but is not dark internally like that bark. It seems to me to be identical with a specimen of the bark of Stenostomum mentioned below.

304. (20) STENOSTOMUM LUCIDUM, *Gærtn.*

Note.—This is a specimen which Guibourt has labelled thus—"Said to have been recently imported from Porto Rico. It is the bark of a Stenostomum."

(21) ESENBECKIA FEBRIFUGA, *Mart.*

Note.—This bark is labelled thus—"Received from Germany named as above." It appears to be the bark of an Exostemma. It closely resembles the Exostemma de Brésil.

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305. *Barks collected by* Dr. PEREIRA *in English commerce.*

(1) LOXA, OR CROWN BARK, in the bundle. (C. officinalis, *L.*)

Note.—This is an original bundle. See *Per. Mat. Med.*, vol. ii., pt. ii., p. 103.

(2) FINEST, OR PICKED LOXA of English commerce. (C. officinalis, *L.*)

Note.—This is in slenderer quills than the last.

(3) SILVER CROWN BARK. (C. crispa, *Tafalla.*)

Note.—This is in slender quills, and corresponds exactly in appearance with Howard's specimen of Silver Crown bark.

(4) LEOPARD CROWN BARK. (C. officinalis, *L.*)

Note.—This bark is so called from its spotted appearance, caused by numerous lichens.

(5) RUSTY CROWN BARK. (C. officinalis, *var.* Chahuarguera, *Pav.*)

Note.—In taste this bark corresponds exactly with Howard's specimen of Rusty Crown bark, but in appearance more nearly resembles his specimen of C. micrantha, *R. et P.*

(6) GREY, OR SILVER BARK. (C. Peruviana, *How.*)

Note.—This specimen is in fine quills, and corresponds well with Howard's specimen of the same bark.

(7) ASH CINCHONA. (C. subcordata, *Pav.*)

Note.—This specimen has the peculiar arched quills so characteristic of this bark.

(8) CINCHONA SPECIES.

Note.—This specimen consists of various pieces of pale bark, showing warts, lichens, etc.

(9) YELLOW BARK. (C. Calisaya, *Wedd.*)

a. Quills.

b. Quills. (C. Calisaya, *var.* morada, *Planch.*)

Note.—Specimen *b* is marked in pencil by Pereira, "C. Boliviana [?]," and by Howard, C. "micrantha [?]." It much resembles in appearance the quills of C. scrobiculata in Howard's collection.

(10) CARTHAGENA BARK of English commerce.

Note.—This specimen consists of a mixture of the barks of C. lancifolia, *Mutis*, and C. cordifolia, *Wedd.*, with a few pieces apparently belonging to C. decurrentifolia, *Pav.*

305. (11) New spurious yellow bark, or Orange cinchona of Santa Fé.

Note.—This specimen agrees well with Howard's specimens of the red variety of C. lancifolia. It appeared in English commerce in April, 1829.

(12) Coquetta bark.

Note.—This specimen is the typical bark of C. lancifolia, *Mutis*. It was obtained from Messrs. Isaacs & Samuel, and contains 2¼ per cent. of quinine.

(13) Cusco bark, of English commerce.

Note.—This is the bark of C. scrobiculata, *Wedd.* It is sometimes called Red Cusco bark, to distinguish it from the bark of C. pubescens, *Vahl.*, which is called Cusco or Arica bark.

(14) Red bark of English commerce. (C. succirubra, *Pav.*)

Note.—This specimen consists of fine flat pieces.

(15) Cinchona bicolor. Pitoya bark of English commerce.

Note.—This specimen is identical with Howard's specimen of Stenostomum acutatum.

(16) Cinchona nova. "Found at a drug mill."

Note.—This bark corresponds exactly with Howard's specimens of Buena Bogotensis. It is "Mutis's red cinchona of Santa Fé."

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306. *Collection of* Barks, *presented by* Dr. Lindley.

(1) Cascarilla colorada. (*C. pitayensis.*)

a. One large thick quill. (*Red Pitaya Bark.*)

Note.—This bark is from the Cinchona forests of Pitaya, province of Popayan, Columbia. It is very bitter, and seems to contain abundance of alkaloids, as the inner surface of the bark sparkles with minute crystals. This, as well as the "Nouveau Calisaya" in Guibourt's collection, differs from C. Pitayensis in giving *at once* a very bitter taste.

(2) Cinchona species. (*C. heterophylla and C. micrantha ?*)

a. Thin flattened quills.

Note.—This specimen appears to consist of two kinds, which resemble the barks of C. heterophylla and C. micrantha in Howard's collection. It was gathered on mountains near Loxa.

(3) Cinchona. (*C. Mutisii.*)

a. Quills.

Note.—This specimen is from mountains near Loxa.

(4) Cinchona ovata, *R. et P.*

a. Small quills.

b. Large quills.

Note.—These specimens are also from mountains near Loxa. They correspond to the C. ovata, *R. et P.*, in Howard's collection.

(5) Cascarilla fina de Uritusinga.

a. Thin curved and twisted flattish pieces.

Note.—This bark appears to have come from near the root of young plants. It is ticketed, "This is the best and only kind exported." In taste and appearance it corresponds rather with the bark of C. pubescens, *Vahl.*, than with that of C. officinalis, *var.* Uritusinga; hence there must be some mistake, or perhaps the wrong label has been enclosed with it.

306. (6) CINCHONA SPECIES.

a. Large quills.

Note.—This bark corresponds with specimens of C. pubescens, *Vahl.*, in Howard's collection, but is rather more warty than usual.

(7) CINCHONA SPECIES.

a. Thick quills.

Note.—This specimen is not a true Cinchona bark, but corresponds exactly with Howard's specimens of False red Bark, labelled Buena Bogotensis, *Karst.* It is from the woods of Fusagasuga, Bogota, Columbia.

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307. *Collection of* BARKS *examined by* BATKA, *with labels in his handwriting enclosed with the specimens. These labels are indicated by inverted commas.*

(1) CINCHONA LANCIFOLIA, *Mutis.* "*China fibrosa, and rubiginosa of Bergen, Ba.*"

a. Large quilled, pieces, with periderm, of the red variety.

Note.—This specimen does not correspond with Bergen's specimens of China rubiginosa in this Museum.

(2) CINCHONA NITIDA, *R. et P.* "*Huanuco bark of my description, Ba.*"

a. Quills.

Note.—This bark is one of the grey or Huanuco barks of English commerce. It does not occur in Howard's collection.

(3) CINCHONA SCROBICULATA, *Wedd.* "*Containing Pelletier's aricine, Ba.*"

a. Flat pieces.

Note.—This is also labelled in pencil, "Quinquina d'Arica ou de Cusco." A mistake of some kind has evidently occurred here, probably from the bark of C. scrobiculata, *Wedd.*, being known as red Cusco bark, and that of C. pubescens, as Cusco bark, since aricine is obtained from the latter, and not from C. scrobiculata, *Wedd.*

(4) LARGE CROWN BARK. "*Huamalies, of my description, Ba.*"

a. Large quills.

Note.—This specimen is also labelled, "Two species, Dr. Reichel." It does not correspond exactly with any others in the museum. Some of the quills are bitter, and in taste resemble the bark of C. micrantha, *R. et P.*; others are astringent, with very little bitterness. In other respects they resemble the bark of C. officinalis, *L.* One smaller quill, however, has a short fracture and a very thick silvery layer, and belongs to C. Mutisii, *Lamb.*

(5) CROWN BARK FROM VALPARAISO. "*Cinchona nova, of my description, Ba.*"

a. Large quills.

Note.—This bark is a very fibrous red bark, with a periderm extremely cracked, which exfoliates, showing the marks of all the cracks on the surface beneath.

307. (6) YELLOW BARK FROM PARA. "*Para bark, containing Winkler's paricine.*"

a. Large quills.

Note.—This bark is identical with Martiny's specimen of China de Para pallida. Externally it resembles his China de Rio Janeiro, but the inner surface is more fibrous. The label is apparently in Batka's writing, but is not signed by him as in the other labels.

(7) RED BARK FROM PARA. "*Buena hexandra, of my description, Ba.*"

a. Large quills.

Note.—This specimen corresponds exactly with Martiny's specimen of China de Rio de Janeiro. Hanbury states that Paricine was obtained by Winkler from Buena hexandra. *Pharmacographia*, p. 321.

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308. *The following specimens were presented to illustrate papers in the Pharmaceutical Journal, etc.:—*

(1) RED BARK FROM SOUTH AMERICA. (*C. succirubra, Pav.*)

a. Portions of small branches.

b. Bark from the small branches.

c. Bark from the large branches.

d. Bark from the trunk.

e. Heartwood.

f. Section of small trunk.

g. Section of the root.

Note.—These specimens were collected near the village of Cibambe, in the province of Alausi, in South America, in September, 1855. They illustrate a paper on the botanical source of red bark, by Mr. J. E. Howard, in the *P. J.* [1], vol. xvi., p. 207.

(2) RED BARK from India. (*C. succirubra, Pav.*)

a. Quills.

Note.—This specimen is from the third harvest of renewed bark from the same tree seven years old, and was gathered at the Government plantations in the Neilgherries, India, in March, 1868. According to Howard, it contains 6·15 per cent. of salts of quinine.

b. Section of small trunk showing where the bark has been three times renewed.

c. Section showing junction of old and new bark.

d. Two sections of a trunk, showing where the tree was previously barked.

e. Renewed bark of C. succirubra from the Neilgherries, 1875.

This specimen was presented by Mr. D. Howard. It contains 0·2 per cent. of Quinidine, an alkaloid which is not present in the natural bark. See *P. J.* [3], vol. v., p. 1025.

Note.—Specimens *a*, *b*, and *c* are in the same glass jar. The above specimens illustrate a paper in *P. J.* [2], vol. x., pp. 317–320.

308. (3) PALE BARK. (*C. officinalis, L.*)

a. "Bark from an old parcel in the London Docks, described by Howard in *P. J.* [1], vol. xi., p. 494, *var. c.*" A good specimen of the *var. a* occurs in Howard's collection.

b. "Bark sent by Don Riofrio, from the mountains of Uritusinga Loja" (formerly spelt *Loxa*).

c. "Bark of C. officinalis grown in Ceylon, probably under moss."

d. Section of small stem of C. officinalis, *L.*, received from India in 1871.

e. *Var.* colorada del Rey, from Ootacamund.

f. *Var.* crispa, from Ootacamund.

g. Root bark of C. officinalis from the Neilgherries, 1874.

This specimen contains 0·8 per cent. of quinidine.

h. Renewed bark of C. officinalis, 1875.

This specimen contains 0·2 per cent. of quinidine. The natural bark of the same plantation yielded only 0·4 per cent. See *P. J.* [3], vol. v., p. 1025.

Note.—These barks illustrate a paper in *P. J.* [3], vol. ii., p. 361. See also *P. J.* [1], vol. xi., p. 497, No. 31.

(4) PALE BARK from India. (*C. officinalis, L.*)

a. Quills, from Ootacamund, Madras Presidency.

This specimen has the peculiar coarse rugged appearance characteristic of the bark produced by the variety of C. officinalis which is called crispa at Ootacamund. (C. officinalis var. crispa is quite a different plant from C. crispa, *Tafalla*, which has hairy warts on the leaves.) Analysed by Howard, this specimen was found to contain—

Quinine	4·70
Cinchonidine	0·90
Quinidine	0·30
Cinchonine	0·50
	6·40

b. Quills.

Analysed by Howard, this specimen was found to contain—

Quinine	4·10
Cinchonidine	1·30
Quinidine	0·10
Cinchonine	0·20
	5·70

c. Quills.

This specimen was found by Howard to contain—

Quinine	3·20
Cinchonidine	1·00
Quinidine	trace
Cinchonine	0·10
	4·30

308. (4) PALE BARK from India, continued.

d. Root bark.

Note.—This specimen contains about 6 per cent. of mixed alkaloids, largely quinine.

These specimens illustrate a paper in *P. J.* [3], vol. v., p. 1005.

(5) YELLOW BARK. (*C. Calisaya, Wedd.*)

a. Quills infected by mycelium.

Note.—This is the specimen alluded to in *P. J.* [3], vol. ii., p. 362. It is from the under part of the stem of a calisaya tree grown in Java.

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309. *This case of specimens is from the first large sale at Amsterdam of* JAVA BARKS. *It was presented by* Dr. J. E. DE VRIJ *to* Mr. HOWARD, *and by him presented to the Museum of the Pharmaceutical Society. See* P. J. [3], vol. ii., p. 945.

(1) CINCHONA CALISAYA, *Wedd.*

(2) CINCHONA HASSKARRLIANA, *Miq.*

(3) CINCHONA PAHUDIANA, *How.*

(4) CINCHONA OFFICINALIS, *L.*

(5) CINCHONA SUCCIRUBRA, *Pav.*

Note.—These specimens have been analysed, and their analysis accompanies each specimen, and will also be found in the *P. J., loc. cit.* No. 4 contained the largest amount of alkaloids.

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310. *Collection of specimens illustrating a paper on* JAVA BARKS *by* HOWARD *in the* P. J. [3], vol. iv., p. 21. *These barks are from the second large sale at Amsterdam of* JAVA BARKS *in May*, 1873.

A. CALISAYA BARK.

a. Bark of C. micrantha, f. calisayoides. (*Grey bark.*)

b. Looks like bark of C. Hasskarliana, rather than Calisaya.

c. Much like Weddell's "morada," but more exactly the "morada fina" of Hasskarl. (C. cuneura of Miquel.)

d. Bark of C. Pahudiana.

e. Bark of C. Hasskarliana.

B. CALISAYA BARK.

a. Probably Calisaya; resembles bark of C. nitida.

b. Compare with bark of C. Hasskarliana.

C. CALISAYA BARK.

a. All bark of C. Hasskarrliana.

D. CALISAYA BARK.

a. Calisaya, but rather peculiar. "I think equal to *E.*" (J. E. H.)

E. CALISAYA BARK.

a. Bark of Calisaya Zamba.

310. *H.* Cinchona Hasskarliana, *Miq.*

a. Apparently very characteristic bark, intermediate between Calisaya and Pahudiana; probably a true hybrid.

S. Cinchona succirubra, *Pav.*

a. Very inferior looking. "I (J. E. Howard) have a botanical specimen from Java which I think erroneously marked C. succirubra, *Pav.*, and more like C. pubescens, *Vahl.* Possibly this bark may belong to the sort."

O. Cinchona officinalis, *L.*

a. Bark of *var.* Bonplandiana (Colorada del Rey).

b. Bark of *var.* Uritusinga.

M. Cinchona caloptera, *Miq.*

a. Contains little except cinchonine.

P. Cinchona Pahudiana, *How.*

a. A characteristic sample of this bark.

Note.—Specimen *D* is very similar in appearance to the fine quills of C. succirubra, now (1875) in the London market.

T. Cinchona Calisaya, *Wedd.*

a. Flat pieces and quills (*morada* and *negrilla*). Presented by Mr. J. E. Howard.

b. Very large flat pieces (*tabla*) and long quills (*canutos*). Presented by Mr. W. H. Peat, of Mincing Lane.

Note.—These specimens are placed here because alluded to in the same paper, *P. J.* [3], vol. iv., p. 22. They were imported from Eastern Bolivia by Don P. Rada.

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311. Cephalanthus occidentalis, *L.* (*Button Bush.*)

a. Bark.

Note.—The bark is tonic and laxative, and has been used in North America in the form of decoction and infusion, for periodical fevers. *Wood and Bache Dispens.*, p. 1491.

312. Coffea Arabica, *L.*

a. Stem with fruit, preserved wet.

b. Fruit, preserved wet.

c. Seedling plant, preserved wet. Presented by Mr. G. J. B. Nobrega.

d. Leaves. (*Coffee Tea.*)

e. Seeds. Four specimens.

f. Ceylon coffee.

g. Mocha ditto.

h. Caffrarian ditto.

i. Guatemala ditto.

j. Roasted coffee seeds.

312. COFFEA ARABICA, continued.

k. Sugar in prismatic crystals obtained from coffee.

Note.—Mocha coffee "berries" are small and dark yellow; Java and East India, larger and pale yellow; the Ceylon and West India kinds have a bluish or greenish-grey tint. *Per. Mat. Med.*, vol. ii., pt. ii., p. 68.

Chicory may be detected by its readily colouring cold water, and sinking speedily in it. Under the microscope chicory is known by the numerous pitted and spiral vessels of its tissue, and coffee by the absence of these vessels, and the peculiar obliquely marked elongated cells found in its outer coat. For fig. of these, see *Lancet*, January 6th, 1851, p. 22, fig. 2. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 144.

313. GARDENIA SPECIES.

a. Fruit.

Note.—The fruits of G. grandiflora, lucida, and radicans are used in China to dye yellow. Specimens of the fruits of the two latter species are in the collection of Chinese drugs.

314. GENIPA AMERICANA, *L.* (*Lana Tree.*)

a. Lana dye.

Note.—This is a bluish black dye prepared from the juice of the fruit. The fruit is edible, and is known as the Genipap. See *Bentley's Man. Bot.*, p. 547.

315. OLDENLANDIA UMBELLATA, *Hortul.*

a. Root. (*Chay Root.*)

Note.—The bark of the root contains a red dye. This specimen was presented by Messrs. Davy, MacMurdo & Co., and was imported from Madras. See *Drury's U. Plants Ind.*, p. 240.

316. UNCARIA GAMBIR, *Roxb.*

a. Small circular moulded gambier. Two specimens Presented by Dr. Christison.

b. Ditto, of a paler colour.

c. Terra japonica, in cubes, from Singapore.

d. Gambier, in parallelopipeds.

e. Cylindrical gambier.

f. Small cubical amylaceous gambier. Presented by Prof. Guibourt.

Note.—The above specimens are those described by Pereira in his *Mat. Med.*, vol. ii., pt. 2, p. 154. Specimen *b* may perhaps be the "Amylaceous Lozenge Gambier," there described, but it differs in having a starlike mark on each lozenge. Specimens *a* are called in Dr. Pereira's catalogue, "White or China Gambier." Specimens *e* and *f* are inferior, and contain starch. Sago starch is the kind usually found in gambier. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 139.

RUBIACEÆ.

317. RUBIA TINCTORUM, *L.* (*Madder.*)

a. Root. For fig., see *Goebel und Kunze*, pt. ii., taf. xiv., fig. 3.

b. Ditto, powdered. (*Crop Madder.*)

317. RUBIA TINCTORUM, continued.

c. Root, powdered. (*Ombro.*)

d. Ditto, ditto. (*Gamene.*)

Note.—Specimens *b*, *c*, and *d* are three qualities of Dutch madder, of which *b* is the best. Dutch, French, and Zealand madder are imported in powder; but Levant, Turkey, and Smyrna madder are imported whole. See *Bentley, Man. Bot.*, p. 549. For adulterations and their detection, see *Cooley's Cyclop.*, 5th ed., p. 726.

318. RUBIA MUNJISTA, *Roxb.*; RUBIA CORDIFOLIA, *L.*

a. Root. (*Bengal Madder, Munjeet.*)

b. Ditto, powdered.

Note.—The root of this species is used as a dye in Bengal. Its decoction is said to possess deobstruent properties. See *Ind. Pharm.*, p. 118.

VALERIANACEÆ.

319. NARDOSTACHYS JATAMANSI, *D.C.* (*Spikenard.*)

a. Root. "Sumbul-al-teeb." *Royle, Mat. Med.*, p. 480.

Note.—This root has an odour like patchouli. It is supposed to be the spikenard of Scripture. In appearance it much resembles the root of Allium victoriale. In India it is considered of great value in epilepsy and hysteria. The tincture is made in the proportion of 5 oz. of the root to 2 pints of proof spirit. *Ind. Pharm.*, p. 120. For fig., see *Hist. des Drog.*, t. iii., pp. 79–82.

320. VALERIANA OFFICINALIS, *L.* (*Lesser Valerian.*)

a. Root, preserved wet.

b. Herb and root, ditto.

c. Root. For micr. section, see *Berg., Anat. Atlas*, taf. xvi., fig. 41.

Note.—This root somewhat resembles serpentary root, but may be distinguished by its odour and by the rootlets being larger and less brittle. For fig., see *Goebel und Kunze*, pt. ii., taf. xxxvi., fig. 1. See *Pharmacographia*, p. 337; *Bentley and Trimen, Med. Plants*, tab. 146.

Valeriana Phu is known as the greater valerian. For fig. of root, see *Goebel und Kunze*, pt. ii., taf. xxxvi., fig. 2.

COMPOSITÆ.

SUB-ORDER TUBULIFLORÆ.

321. ANACYCLUS PYRETHRUM, *D.C.*

a. Root. (*Pellitory of Spain.*) *Bentley and Trimen, Med. Plants*, tab. 151, 152.

Note.—This root somewhat resembles dandelion root, but may be distinguished by its thin cortical portion and large white radiate meditullium, with numerous resinous dots. The root of A. officinarum, *Hayne*, is used instead of pellitory in Russia, Germany, and Scandinavia. It is only half the thickness of true pellitory root. *Pharmacographia*, p. 343. For fig. of the root of A. officinarum, see *Goebel und Kunze*, pt. ii., taf. xxx., fig. 1. For micr. section of the root of A. Pyrethrum, see *Berg, Anat. Atlas*, taf. ix., fig. 28.

322. ANTHEMIS NOBILIS, *L.* (*Roman Chamomile.*)

a. Flowerheads. (*Single Chamomiles.*)

b. Ditto. (*Double Chamomiles.*)

Note.—The single chamomiles of commerce are always more or less double, but may be recognised by the florets being narrower than those of the wholly double variety. The true single or wild chamomiles are known in commerce as Scotch chamomiles. German chamomiles are the flowerheads of Matricaria Chamomilla, *L.*; they are distinguished from true chamomiles by having a *hollow* conical receptacle and no paleæ. The flowering stem of chamomile bears only one flower; that of Matricaria Chamomilla bears several. The double flowers of Pyrethrum Parthenium, *Smith*, are very like those of the chamomile, but may be distinguished by having a nearly flat receptacle. See *P. J.* [2], vol. i., p. 447, for fig., etc. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 154, 155.

323. AUCKLANDIA COSTUS, *Falc;* APLOTAXIS AURICULATA, *D.C.*

a. Root. (*Putchuk* or *Koot Root.*)

Note.—This root is the Costus of the ancients. It has an odour which at first is somewhat urinous, but afterwards resembles that of orris root. It is chiefly used as a perfume. See *Ind. Pharm.*, p. 127. For fig. of root, etc., see *Hist. des Drog.*, t. iii., p. 33.

324. ARNICA MONTANA, *L.*

a. Flowers. See *Bentley and Trimen, Med. Plants*, tab. 158.

b. Rhizome. For fig., see *Goebel und Kunze*, pt. ii., taf. xxv., fig. 1.

c. Adulterated specimen.

Note.—Arnica "root" may be distinguished from serpentary and spigelia roots, etc., by having the rootlets attached only on the under side, and rather distant from each other; also by its peculiar odour. It has been found adulterated largely with the root of Geum urbanum, or avens root, which may be distinguished by its pale purple meditullium, by the rootlets proceeding from all sides of the root, and by its astringent, not acrid, taste. See *P. J.* [3], vol. iv., p. 810. See *Geum urbanum*, p. 42.

325. ARTEMISIA ABSINTHIUM, *L.* (*Wormwood.*)

a. Herb.

Note.—This plant is distinguished from Mugwort (A. vulgaris, *L.*) by the leaves being white on both sides. In Mugwort they are dark green on the upper side. For fig. of plant, see *B. & Tr., Med. Plants*, tab. 156.

326. ARTEMISIA MARITIMA, *var. a* STECHMANNIANA, *Besser.*

a. Unexpanded flowerheads. (*Wormseed, Semen Contra, Santonica, Semen Cinæ.*)

Note.—Until lately this drug was attributed to A. Cina. *Pharmacographia*, p. 346; *Hist. des Drog.*, t. iii., p. 44. See *Bentley and Trimen, Med. Plants*, tab. 157.

327. ARTEMISIA GLOMERATA, *Ledeb.*

a. Herb.

b. Flowerheads. (*Barbary Wormseed.*)

Note.—For fig. of flower, etc., see *Hist. des Drog.*, t. iii., p. 44. Barbary wormseed has generally more of the flower-stalk mixed with it than the Russian, and the flowerheads are minutely hairy.

328. CARTHAMUS TINCTORIUS, *L.*

a. Florets. (*Safflower, Bastard Saffron.*) Two specimens.

b. Ditto. (*Cake Saffron.*)

Note.—Cake saffron is made of the florets pressed together with mucilage. Carthamus florets may be known from saffron by having syngenesious anthers, and by consisting of corollas, not of styles. Pink saucers are coloured by this drug. *Bentley, Man. Bot.*, p. 556; *Drury, U. Plants India*, p. 116; *Per. Mat. Med.*, vol. ii., pt. ii., p. 28. For Carthamin, see *P. J.* [1], vol. vi., p. 384.

329. ERIGERON CANADENSE, *L.* (*Canada Fleabane.*)

a. Volatile Oil. (*Oil of Canada Erigeron.*)

Note.—The plant is also known under the name of Colt's-tail, Prideweed, and Scabious. The oil is official in the *U. S. Pharm.*; it is used as a local application to hæmorrhoids, and as an astringent to small wounds, etc., or internally in hæmorrhages. *Bentley, Man. Bot.*, p. 556. For dose, etc., see *Wood and Bache, Dispens.*, p. 372. The plant is naturalized in this country, and grows wild about London. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 149.

330. EUPATORIUM GLUTINOSUM, *Lam.*

a. Leaves.

Note.—This specimen was presented by Dr. Lindley, and came from Quito, where it is known as "Matico." The label from Dr. Lindley states, that it is excellent for staunching blood and healing wounds. The drug is very similar in appearance to Matico leaves (Artanthe elongata), but the leaves are more hairy underneath. For other kinds of Matico see *Treas. Bot.*, p. 725; and *P. J.* [2], vol. v., p. 290.

331. EUPATORIUM PERFOLIATUM, *L.* (*Boneset, Thoroughwort.*)

a. Flowering tops.

Note.—Official in the *U. S. Pharm.* The hot infusion causes free vomiting, followed by profuse diaphoresis, and then an aperient action. The cold infusion is tonic and aperient only. *Wood and Bache, Dispens.*, p. 376. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 147.

332. HELIANTHUS ANNUUS, *L.* (*Sunflower.*)

a. Seeds.

Note.—The seeds yield an oil which is diuretic. See *Amer. Dispens.*, p. 416. The pith contains nitrate of potash. The oil has also been used to make a kind of soap, called Sunflower Soap. *Bentley, Man.*, p. 556.

333. INULA HELENIUM, *L.* (*Elecampane.*)

a. Root.

b. Root, powdered.

Note.—The root has a peculiar violet-like odour, by which it may readily be distinguished. It is official in the secondary list of the *U. S. Pharm.* It is an aromatic tonic. In this country it is used chiefly as an ingredient in Diapente and other veterinary powders. Inulin replaces starch in the root of this plant, and other Compositæ. *Pharmacographia*, p. 340; *Wood and Bache*, p. 466. *Bentley and Trimen, Med. Plants*, tab. 150.

334. MIKANIA GUACO, *H. et B.*

a. Root.

Note.—Guaco is a generic name given in South America to any supposed antidote for snake bites, *P. J.* [1], vol. xiii., p. 412. The most esteemed Guaco on the Orinoco is the root of an Aristolochia (see Aristolochia Milhomens). The Mikaniæ are sometimes distinguished as Guaco del monte, or Guaco del rastrojo. See note under Cinchona succirubra, p. 23, in *Howard's Nuev. Quin.* A Guaco root has been used as a remedy for gout. *P. J.* [2], vol. iii., p. 288.

335. PYRETHRUM PARTHENIUM, *Lin.* (*Feverfew, Featherfoil.*)

a. Herb.

b. Double flowers.

Note.—These flowers have been found mixed with chamomile flowers, and are remarkable for the presence of paleæ, which are absent in the single flower; they are distinguished from chamomile flowers by having a nearly flat receptacle. *P. J.* [2], vol. i., p. 447 for figs., &c.

336. PYRETHRUM ROSEUM, *Bieb.*

a. Flowers.

b. Florets. (*Persian Insect Powder.*)

Note.—This drug is known in the Caucasus under the name of Guirila, *P. J.* [1], vol. xviii., p. 523. This specimen was presented by M. Zacherl, of Tiflis, in Georgia. *P. J.* [2], vol. iv., p. 292. See also *P. J.* [2], vol. v., p. 172; [3], vol. ii., p. 530; vol. v., p. 503. Persian insect powder consists of the florets of the disk collected before the seed is fully formed.

337. SENECIO AUREUS, *L., var.* GRACILIS. (*Ragwort, False Valerian, Golden Senecio, Squaw Weed, Female Regulator, Unkum.*)

a. Herb.

Note.—The herb is used in North America for dysmenorrhœa; it seems to act as a stimulant.tonic to the glandular system generally. *Wood and Bache, Dispens.*, p. 768. The root is known as *Life Root.*

338. SOLIDAGO ODORA, *Ait.* (*Sweet-scented Goldenrod, Blue Mountain Tea.*)

a. Volatile Oil.

Note.—The leaves and tops are official in the secondary list of the *U. S. Pharm.* The oil is used as a diuretic, and is administered in the form of essence for suppression of urine in children, and also as a carminative, to check vomiting, etc. *Wood and Bache, Dispens.*, p. 1599; *P. J.* [3], vol. iii., p. 603.

339. CERADIA FURCATA, *Lindl.*; OTHONNA FURCATA, *Benth.* (*Coral Plant.*)

a. Stem and branches.

b. Resin.

Note.—These specimens are "from the coast of Africa, opposite Ichaboe." The resin tastes like cedar wood, and has a fragrant odour when burned. See *P. J.* [1], vol. v., p. 366; and for analysis of the resin, *P. J.* [1], vol. vi., p. 186.

340. CHUQUIRAGUA INSIGNIS, *H. B.*

a. Leaves and young shoots.

Note.—This specimen is labelled, "Highly prized by the Indians, who use a decoction at the commencement of any kind of fevers." It came from Columbia. See *P. J.* [2], vol. xi., p. 66.

341. CICHORIUM INTYBUS, *L.* (*Chicory.*)

a. Root, roasted.

b. Root, roasted, ground.

Note.—For detection of Chicory in powder, see note under Coffee.

342. LACTUCA VIROSA, *L.* (*Wild Lettuce.*)

a. Herb. See *Bentley and Trimen, Med. Plants*, tab. 160.

b. Inspissated juice. (*Lactucarium.*)

Note.—This plant may be distinguished from other Compositæ by its narrow capitulum. It rarely occurs in the west of England, but is not uncommon in the south-eastern counties. *P. J.* [3], vol. i., p. 883. For Lactucarium, see *P. J.* [1], vol. vii., p. 74; *Pharmacographia*, p. 354. For Syrup of Lactucarium, *P. J.* [1], vol. iv., p. 432.

343. LIATRIS SPICATA, *Willd.* (*Button Snakeroot, Gay Feather, Devil's Bit.*)

a. Root.

Note—The root is used in North America for gonorrhœa and kidney diseases, etc. It possesses diuretic properties. *Wood and Bache, Dispens.*, p. 481. In this country Scabiosa succisa, *L.*, is known as Devil's Bit.

344. TARAXACUM DENS-LEONIS, *Desf.* (*Dandelion.*)

a. Root, preserved wet. Two specimens.

b. Ditto, dried.

c. Mannite, obtained from the root. Presented by T. and H. Smith. *P. J.* [1], vol. viii., p. 480.

Note.—The root should not be kept more than a year, as it soon becomes worm-eaten. The roots contain more taraxacin and less inulin and caoutchouc in the spring than in the autumn. *P. J.* [3], vol. i., p. 882. The yield of extract is least in April and greatest in October. *P. J.* [1], vol. x., p. 446; and *P. J.* [2], vol. i., 402. The root of the Rough Hawkbit (Apargia hispida, *Willd.*) is sometimes mixed with Dandelion root. It is pale externally, with a wrinkled surface, and does not break easily. The leaves also are hairy and the flower-stalk branched. *P. J.* [1], vol. xi., p. 107. For extract and liquor see *P. J.* [2], vol. i., p. 401. For adult, &c., see *P. J.* [1], vol. xvi., p. 304, with figs. For. fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 159.

LOBELIACEÆ.

345. LOBELIA DECURRENS, *Cav.*

a. Herb. Presented by Mr. D. Hanbury.

Note.—This specimen is from near Arequipa in Peru. It is used by the Indians in doses of 1 to 3 grains in nervous fever, and as an emetic. See *P. J.* [1], vol. xiii., p. 14.

346. LOBELIA INFLATA, *L.*

a. Herb.

b. Ditto, commercial specimen.

c. Seed. See *P. J.* [1], vol. xi., p. 119.

Note.—Specimen *b* is a portion of a rectangular cake, as compressed by the Shakers of the United States. The herb, and more especially the seeds, of Lobelia inflata are largely used by the Eclectics in America and by herbalists in this country as an emetic and expectorant. The flat capsules readily distinguish it from other drugs similar in appearance. See *Bentley and Redwood, Mat. Med.*, 1874, pp. 676–680. For active principles see *P. J.* vol. x., pp. 270, 456. Caustic alkalies decompose Lobelina. *Wood and Bache*, p. 519. See *Bentley and Trimen, Med. Plants*, tab. 162.

347. LOBELIA SYPHILITICA, *L.*

a. Herb.

Note.—This plant possesses diuretic and antisyphilitic properties. See *Amer. Dispens.*, p. 494.

ERICACEÆ.

348. ARCTOSTAPHYLOS UVA-URSI, *Spreng.* (*Bearberry, Upland Cranberry.*)

a. Leaves.

Note.—The leaves of Vaccinium Vitis Idæa are sometimes mixed with Bearberry leaves, but are distinguished by having crenated revolute margins and by being dotted underneath. Bearberry leaves are obovate; Box leaves are oval, and have the epidermis loose and separable on the underside of the leaf. See *Bentley and Redwood, Mat. Med.*, p. 675. *Pharmacographia*, p. 359. See *Bentley and Trimen, Med. Plants*, tab. 163.

349. GAULTHERIA PROCUMBENS, *L.* (*Wintergreen, Partridge Berry, Checkerberry, Deerberry, Boxberry, Teaberry, Mountain Tea.*)

a. Leaves.

b. Volatile oil. (*Oil of Wintergreen.*)

Note.—The leaves are used as an astringent in mucous discharges. The volatile oil is remarkable for being a natural salicylate of methyl. The same compound occurs in the bark of Betula lenta, *L.* and the leaves, etc., of Andromeda Leschenaultii. See *Amer. Dispens.*, p. 377. In American commerce the oil has been found adulterated with chloroform and oil of sassafras. For detection of these, see *P. J.* [3], vol iv., p. 431. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 164.

PYROLACEÆ.

350. CHIMAPHILA UMBELLATA, *Pursh.*; CHIMAPHILA CORYMBOSA, *Pursh.* (*Pipsissewa, Wintergreen, Prince's Pine, Ground Holly.*)

a. Leaves and shoots.

Note.—The leaves were official in the *Ph. L.* of 1836 and 1851, and are still official in the United States Pharmacopœia. They possess diuretic and tonic properties. *Amer. Dispens.*, p. 214. See *Bentley and Trimen, Med. Plants*, tab. 165.

AQUIFOLIACEÆ.

351. Ilex Paraguayensis, *St. Hil.*

a. Leaves, first quality. (*Maté* or *Paraguay Tea.*)

b. Leaves and twigs in powder, second quality.

c. Ditto.

Note.—Specimens *a* and *b* were presented by Mr. George Fielding, who states that maté is used in Brazil in the powdered state as specimens *b* and *c*, and in Paraguay the leaves as specimen *a*. It is remarkable for containing theine. Maté is used medicinally as a diuretic and diaphoretic, but its chief use is as a refreshing beverage like tea. *Treas. Bot.*, p. 618; *Bentley, Man. Bot.*, p. 564.

352. Prinos verticillatus, *L.* (*Black Alder, Winter Berry.*)

a. Bark.

b. Leaves and berries.

Note.—The bark is official in the secondary list of the United States Pharmacopœia. It is used as an alterative tonic and astringent in jaundice, diarrhœa, and other diseases attended with great weakness, also as a lotion for gangrene. The berries are tonic and emetic. *Wood and Bache*, p. 677. In this country, Rhamnus Frangula is known as Black Alder.

SAPOTACEÆ.

353. Isonandra gutta, *Hook.*

a. Gutta percha.

Note.—This specimen came from Singapore, and was presented by Dr. Royle. See *P. J.* [1], vol. v., p. 510; [1], vol. vi., p. 377; [1], vol. vii., p. 180; [1], vol. x. p. 546; [1], vol. xi., p. 575; *Bentley and Redwood, Mat. Med.*, Appendix, p. 1074. For solution of, see *P. J.* [1], vol. xvi., p. 142; [2], vol. iii., p. 44. For other varieties, *P. J.* [2], vol. vi., p. 490. For decay of, *P. J.* [1], vol. ii., p. 178. See *Bentley and Trimen, Med. Plants*, tab. 167.

354. Argania Sideroxylon, *R. et Sch.*

a. Fruit.

Note.—This specimen is from Morocco, and was presented by Dr. Hooker. The fruit is a drupe of the size of a plum, and contains a smooth stone of the size of an acorn, marked with three longitudinal lines. The kernels yield a sweet oil which is used in Morocco as a substitute for olive oil. See *Journ. Bot.*, 1854, p. 97, and for fig. of fruit pl. iv.; *P. J.* [3], vol. iii., p. 623.

STYRACEÆ.

355. Styrax Benzoin, *Dry.*

a. Fruit. Presented by Mr. D. Hanbury.

b. Balsamic resin, in the tear. (*Siam Benzoin.*)

Note.—Specimen *b* is from Siam, and was presented to Dr. Pereira by Mr. Noakes in March, 1836.

c. "Yellow Benzoin, in the tear."

Note.—This specimen is the kind alluded to by Pereira in vol. ii., pt. i., p. 684. See *Bentley and Trimen, Med. Plants*, tab. 169.

355. STYRAX BENZOIN, continued.

d. Siam Benzoin, in the lump.

e. Ditto, inferior quality.

Note.—Specimen *d* consists of large tears, agglomerated together, and specimen *e* of minute tears or fragments.

Siam Benzoin as imported is never enveloped in calico like the Sumatra Benzoin; the tears are more loosely agglomerated, and have often a semifused or varnished appearance.

f. Siam Benzoin, in the lump. "Translucent Benzoin," *Dr. P.*, 352.

Note.—This specimen is from Dr. Royle, and differs from ordinary Siam Benzoin in the tears being translucent or almost transparent. See *Per. Mat. Med.*, vol. ii., pt. i., p. 684.

g. Sumatra Benzoin, in the lump.

h. Ditto, inferior quality, Calcutta Benzoin, *Dr. P.*, 351.

i. Ditto, "Europe head."

j. Ditto, ditto, "superfine."

k. Ditto, "second sort."

l. Ditto, "Indian head."

m. Ditto, inferior, or foot.

Note.—Specimens *i* to *m* were brought from Sumatra by Mr. Marsden, author of the "History of Sumatra," and were given by his widow to Mr. Jacob Bell, by whom they were presented to this Society.

n. Bad Benzoin, *Dr. P.*, 353.

356. STYRAX OFFICINALE, *L.*

a. Bark.

Note.—This specimen was collected on May 17th, 1854, by Mr. D. Hanbury on "mountains near Toulon, where the Styrax officinale grows spontaneously in abundance." See *P. J.* [1], vol. xiv., p. 11. Mr. Hanbury's observations tend to show that Liquid Storax and Storax Bark are not the produce of this tree, and that owing to the tree being cut periodically, it does not attain a sufficient size to produce the fragrant resin which it yields in the East. See *Pharmacographia*, pp. 241–246.

APOCYNACEÆ.

357. ALSTONIA SCHOLARIS, *R. B.* (*Devil Tree, Palimara of Bombay.*)

a. Bark.

Note.—This specimen was presented by the curator of the India Museum, June 1st, 1869. It is official in the *Ind. Pharm.* It possesses tonic and antiperiodic properties. The bark is of a dirty white colour, spongy, and very bitter. *P. J.* [1], vol. xii., p. 422; *Pharmacographia*, p. 378. For Tincture and Infusion, etc., see *Ind. Pharm.*, pp. 137, 455. See *Bentley and Trimen, Med. Plants*, tab. 173.

358. ALSTONIA CONSTRICTA, *F. Müll.* (*Australian Fever Bark.*)

a. Bark.

Note.—This specimen was presented by Dr. J. Bancroft, of Brisbane. The bark is occasionally sent over to this country, and has been offered in the London market as Bebeeru bark. It contains no alkaloid. See *Pharmacographia*, p. 378, note 1, and p. 379. The bark is yellow and fibrous internally, and rough and corky externally.

359. ALYXIA STELLATA, *R. et S.*

a. Bark. Presented by Mr. D. Hanbury.

Note.—This bark resembles Canella in colour, but is in smaller quills, is fibrous, and has an odour like Tonka bean. It contains benzoic acid. It has been used in Germany for chronic diarrhœa and nervous complaints. See *Lindl. Flor. Med.*, p. 532. For fig. see *Goebel und Kunze*, pt. i., t. xxvi., fig. 7-13.

360. APOCYNUM ANDROSÆMIFOLIUM *L.* (*Bitter-root, Dog's-bane, Milk-weed.*)

a. Root.

Note.—The root is used in America as an emetic and tonic in chronic hepatic affections. It is official in the secondary list of the *U.S. Pharm.* under the name of Dogbane. *Amer. Dispens.*, p. 114.

361. APOCYNUM CANNABINUM, *L.* (*Indian Hemp.*)

a. Root.

Note.—The root is emetic, diaphoretic, and diuretic. It is used in dropsy and uterine congestion. It is official in the secondary list of the U. S. Pharmacopœia. *Amer. Dispens.*, p. 115. This must not be confounded with Cannabis Indica, which is also much used in America.

362. GEISSOSPERMUM VELLOSII, *Allem.*

a. Bark. ("*Páo Pereira*," of Rio Janeiro.)

Note.—This is a very fibrous thin yellow bark; it is intensely bitter. It was presented by Professor Guibourt. It is said by him to contain an alkaloid, called Péreirine, possessing eminently febrifuge qualities. See *Hist. des Drog.*, t. ii., p. 569; *Martius. Syst. Mat. Med. Bras.*, p. 39. For Pereirine, see *Watts, Dict. Chemistry*, vol. iv., p. 377.

363. GELSEMIUM SEMPERVIRENS, *Pers.* (*Yellow Jasmine, Wild Jessamine, Woodbine, Carolina Jessamine.*)

a. Root. For fig. of root, see *P. J.* [3], vol. vi., p. 521.

Note.—This drug consists partly of root, and partly of stem. It is official in the U. S. Pharm. It is much valued as a remedy for controlling nervous irritability in fevers, and for subduing tetanus. In large doses it has proved fatal. See *Amer. Dispens.*, p. 378; *Lancet*, May 24, 1873, p. 731; September 23, 1873, p. 475; *Brit. Med. Journ.*, May 2, 1874, p. 576. For Tincture, see *P. J.* [3], vol. iv., p. 998. For Liquid Extract, *U. S. Pharm.*, p. 159; *P. J.* [3], vol. vi., pp. 481, 561, 601. For fig of plant, see *Bentley and Trimen, Med. Plants*, tab. 181.

364. HOLARRHENA ANTIDYSENTERICA, *R. Br.* (*Conessi Bark, Tellicherry Bark, Codaga Pala, Corte de Pala.*)

a. Bark.

b. Seeds. (*Anderjow.*)

Note.—The bark is deemed a specific in most complaints of the bowels by the natives of India. It was formerly sent to Europe, but fell into disrepute, probably owing to the fact that a tree extremely similar in appearance (Wrightia tinctoria, *R. Br.*), yields a bark not possessing the same properties, the bark of which may have been gathered for it. See *Ind. Pharm.*, pp. 137, 455. The bark is of a dirty white colour, similar to that of Alstonia scholaris, but is much denser and not spongy.

364. HOLARRHENA ANTIDYSENTERICA, continued.

The seeds are from the Exhibition of 1851. They are of the size of oats, of a brown colour, with one longitudinal furrow, and have an extremely bitter taste. They have been used to allay vomiting in cholera and also for cattle plague. See *Ind. Pharm.*, p. 138. For Wrightine or Conessine, an alkaloid contained in both bark and seeds, see *P. J.* [2], vol. v., p. 493; [2], vol. vi., p. 432.

LOGANIACEÆ.

365. SPIGELIA MARILANDICA, *L.* (*Carolina Pink, Worm Grass.*)

a. Herb. (*Indian Pink Root.*)

b. Root. See *Bentley and Trimen, Med. Plants*, No. 180.

Note.—Indian Pink root, as met with in English commerce, usually consists of the whole herb, with root attached. In the United States, the root only appears to be used. It much resembles serpentary root but is smaller, more furrowed, and without the peculiar odour of serpentary. From arnica it differs in taste, and in the rootlets being closer together. It is official in the U. S. Pharmacopœia. Besides its vermifuge property, it has a stimulant action on the heart and arteries. *Pharmacographia*, p. 389; *Wood and Bache*, p. 799.

366. STRYCHNOS IGNATII, *Bergius.*

a. Seeds. (*St. Ignatius Beans.*)

Note.—These seeds contain three times as much strychnia as nux vomica seeds. Very little is known concerning the plant itself. *Pharmacographia*, p. 387. See Leu-sung-kwo, in the collection of Chinese Materia Medica. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 179.

367. STRYCHNOS CINNAMOMIFOLIA, *Thw.* (?)

a. Section of small trunk.

Note.—This specimen is labelled in Dr. Pereira's handwriting, "Strychnos inermis, a creeper producing a species of nux vomica, Ceylon."

There is no species with the above name described in the *Enum. Plant. Zeylan*, p. 201.

368. STRYCHNOS NUX VOMICA, *L.*

a. Bark. For fig. see *Goebel und Kunze*, pt. i., taf. ii., fig. 5–7.

b. Ditto. Presented by Dr. Shaughnessy.

c. Ditto. See *Bentley and Trimen, Med. Plants*, tab. 178.

Note.—Specimen *c* was picked out of a sample of Angustura bark in Dublin, by Dr. Neligan, and was sent by him to Dr. Pereira. The letter which accompanied the specimen is enclosed with it in the glass jar.

d. Section of stem.

e. Fruit.

f. Ditto, preserved wet.

g. Seeds. For micr. section, see *Berg, Anat. Atlas*, taf. 47.

Note.—Some specimens of the bark much resemble Cusparia bark. Its transverse fracture, however, does not present the white specks present in Cusparia bark; and nitric acid turns it bright red, instead of dull red as with Cusparia bark. Nux Vomica bark contains brucia, but not strychnia. *Per. Mat. Med.*, vol. ii., pt. i., p. 688. See *P. J.* [3], vol. v., p. 7. For fig. of bark, see *Goebel und Kunze*, pt. i., taf. ii., figs. 5, 6, 7.

369. STRYCHNOS POTATORUM, *L.*

a. Seed. (*Clearing Nuts.*)

Note.—These seeds are used in India for clearing muddy water; the fruits are said to be used in medicine as an emetic, this property residing in the pulp and in the pericarp; also as a remedy in diabetes and gonorrhœa. The substance which clears water appears to reside in the coat of the seed. See *Ind. Pharm.*, p. 146; *P. J.* [1], vol. ix., p. 478. In use one of the seeds is rubbed round the sides of a glazed earthenware vessel, and the water then allowed to settle. For fig. of seed see *P. J.* [3], vol. ii., p. 44; of fruit, *Per. Mat. Med.*, vol. ii., pt. i., p. 656.

370. STRYCHNOS PSEUDO-QUINA, *St. Hil.* (*Quina do campo* of S. Paulo and Minas.)

a. Bark. Two specimens.

Note.—This bark is used in Brazil for intermittent fevers, and for hepatic and other glandular complaints. *Martius, Syst. Mat. Med. Brasil.*, p. 41. A rutaceous plant, Hortia Brasiliana, also bears the name of Quina do campo in some parts of Brazil. The specimens in this Museum were presented by Prof. Guibourt. *Hist. des Drog.*, t. ii., p. 563.

371. STRYCHNOS TOXIFERA, *Benth.* (*Wourari, Curari, Woorali.*)

a. Prepared poison.

Note.—This specimen jar contains two sets of arrows, presented by Mr. Morson, also some poison in a bamboo joint, some in a small gourd, and some in a bottle. The poison in a bottle is labelled, "Received from C. Waterton. 1821. See *Phil. Trans.*, 1751 and 1780." The poison is used by the natives of Guiana to tip their arrows and darts for killing game. The specimen presented by Mr. Morson was brought to this country in 1849, by Captain Gordon, of the Royal Marines, who procured it from the natives of Pirara, about twenty-five miles from Fort San Joaquim, on the Rio Branco, a branch of the Amazon. See letter accompanying specimen. See *P. J.* [1], vol. iii. p. 75; [2], vol. i. p. 246. Strychnia is said to be an antidote to Woorari poison. See *P. J.* [2], vol. ii. p. 213. *Per. Mat. Med.*, vol. ii., pt. i., p. 657.

GENTIANACEÆ.

372. CHELONANTHUS SPECIES.

a. Bark.

Note.—This specimen was presented by Dr. Lindley, and bears a label as follows: "Quina naranjada, Chelonanthus species. This bark belongs to the Gentianaceæ. It is preferred in Popayan to the Cinchona bark." It is occasionally exported.

373. ERYTHRÆA CENTAURIUM, *Pers.* (*Lesser Centaury.*)

a. Herb.

Note.—This plant is much used in the provinces as a bitter tonic. The Greater Centaury of the old herbalists is supposed to be Centaurea Centaurium, a plant belonging to the Compositæ. Chlora perfoliata, *L.*, another Gentianaceous plant, was formerly called Yellow Centaury. See *Per. Mat. Med.*, vol. ii., pt. i., p. 629.

374. FRASERA CAROLINENSIS, *Walter.* (*American Calumba.*)

a. Root.

Note.—This specimen was bought in Buffalo, New York, under the name of American Calumba, and was said to be imported there from the State of Indiana. This specimen was presented by Dr. Maclagan. *Bentley's Man. Bot.*, p. 571. *Per. Mat. Med.*, vol. ii. pt. i., p. 631. The root is official in the secondary list of the *U. S. Pharmacopœia.* For fig. of root, see *Goebel und Kunze*, pt. ii., taf. v., fig. 5, *a*, *c*, *d*.

375. GENTIANA LUTEA, L.

a. Root. (*Gentian root.*)

b. Powdered.

Note.—The roots of other species of Gentian, viz., G. purpurea, G. pannonica, and G. punctata are sometimes mixed with gentian root. G. purpurea and G. pannonica are known by being of a darker brown internally, and having strong longitudinal furrows, but no transverse wrinkles externally. The roots of G. punctata are of a yellowish, not brown, colour. *Per. Mat. Med.*, vol. ii., pt. i., p. 623. For fig. of root, see *Bentley and Trimen, Med. Plants*, tab. 182.

376. GENTIANA PERUVIANA, *Lam.*

a. Bark.

377. MENYANTHES TRIFOLIATA, *L.* (*Buckbean, Bogbean, Marsh Trefoil.*)

a. Leaves.

Note.—It is a bitter tonic, but sometimes produces cathartic and emetic effects. In Germany it is used as a substitute for hops. It is said to be eaten by sheep affected with the rot. Buckbean flowers in May. See *Bentley and Trimen, Med. Plants*, tab. 184.

378. OPHELIA CHIRATA, *Grisebach.* (*Chiretta, Dukhani Chiretta.*)

a. Herb. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 183.

b. Ditto, an original bundle.

c. Ditto, falsely packed.

Note.—Specimen *c* was presented by Mr. H. Sugden Evans. The root of Munjeet (Rubia cordifolia, *L.*) is packed in the centre of the bundle. See *P. J.* [3], vol. i., p. 367. Several species of this genus and some of other genera are used in other parts of India as substitutes for Chiretta. See *P. J.* [3], vol i., p. 106; *Pharmacographia*, p. 393. See also next specimen. The infusion of chirata, according to Mr. Squire, is more agreeable if made at a temperature below 180° F. See *P. J.* [1], vol. i., pp. 268, 413; *Ind. Ann. of Med. Science*, 1856, vol. iii., p. 270.

379. OPHELIA ANGUSTIFOLIA, *Don.* (*Paharee Chiretta.*)

a. Herb.

Note.—This species has lately been substituted in commerce for O. Chirata. It yields a paler infusion than the official species. *P. J.* [3], vol. v., p. 481. It is distinguished by the absence of any distinct pith, and by the thickness of the wood of the stem as seen when cut transversely. The *lower* portion of the stem is also quadrangular. *P. J.* [3], vol. i., p. 106; *Ind. Pharm.* p. 149.

380. SABBATIA ANGULARIS, *Pursh.* (*American Centaury, Rose-pink.*)

a. Herb.

Note.—It is official in the secondary list of the U. S. Pharmacopœia. It possesses tonic and anthelmintic properties, and is also used as a deobstruent. *Wood and Bache, Dispens.* p. 726.

ASCLEPIADACEÆ.

381. ASCLEPIAS INCARNATA, *L.* (*Flesh-coloured Asclepias, Swamp Silkweed, Milkweed.*)

a. Root.

Note.—The root is used as an anthelmintic in doses of 10–20 grains three times a day, also in chronic mucous disease of the stomach. It is official in the secondary list of the *U. S. Pharmacopœia; Wood and Bache*, p. 144.

382. ASCLEPIAS TUBEROSA, *L.* (*Butterfly Weed, Pleurisy Root, Wind Root, Tuber Root.*)

a. Root.

Note.—The root is used as an expectorant and diaphoretic in pleurisy and other catarrhal affections. Administered with Aletris farinosa, it is said to have cured many cases of prolapsus uteri. *Wood and Bache*, p. 143. Asclepidin and Ascletin are prepared from this root. The former is a kind of resinous extract, and the latter a crystalline principle.

383. CALOTROPIS GIGANTEA, *R. B.*

a. Root.

b. Bark of the root. (*Mudar Bark.*)

Note.—Specimen *a* was given by Dr. Bidie, of Madras, to Mr. D. Hanbury, by whom it was presented to the Society in 1874. The root-barks of C. gigantea and of C. procera are official in the Ind. Pharm., and are used in leprosy, syphilis, dysentery, etc. As an alterative tonic the bark is given in doses of three grains; as an emetic, thirty to sixty grains. The roots are apt to become mouldy and inert unless kept very dry. *Ind. Pharm.* pp. 141, 457, 458; *Pharmacographia*, p. 381, note 7.

384. CALOTROPIS PROCERA, *R. B.*

a. Root.

Note.—This specimen is an authentic one from Dr. E. Burton Brown, of Lahore. It was presented by Mr. D. Hanbury in 1874. *Pharmacographia*, p. 381, note 6. This species yields a portion of the Mudar bark of Indian commerce. See *Bentley and Trimen, Med. Plants*, tab. 176.

385. CYNANCHUM MONSPELIACUM, *L.*

a. French or Montpellier Scammony, in a semicircular cake. *J. P.* No. 253.

b. Ditto, in porous fragments.

Note.—This is a factitious scammony prepared from the expressed juice of the plant mixed with various resins and purgative substances. See *Per. Mat. Med.*, vol. ii., pt. i., p. 606.

386. Solenostemma Argel, *Hayne.*

a. Leaves.

b. Flowers.

c. Fruits.

Note.—Argel leaves may generally be found more or less abundantly in Alexandrian senna. They are known by their rougher surface, by the veins being indistinct, and by being equal at the base. The fruits are small and pear-shaped, and not at all like a legume. *Pharmacographia*, p. 194. For fig. of leaves and fruit, see *Bentley and Redwood, Mat. Med.*, p. 858, fig. 95 *a*, *b*. *Bentley and Trimen, Med. Plants*, tab. 175.

387. Hemidesmus Indicus, *R. Br.* (*Indian Sarsaparilla, Nannári Root, Ananto-múl.*)

a. Root.

b. Root and herb.

Note.—Specimen *b* was collected in Ceylon by Dr. Bennett, and was presented by Mr. A. P. Balkwill, Plymouth. It is known from other roots by its odour, resembling that of melilot, and by its transversely cracked, easily separable bark. *Pharmacographia*, p. 379; *Ind. Pharm.*, pp. 140, 457. For micr. structure, see *P. J.* [3], vol. iii., p. 62. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 174.

388. Tylophora asthmatica, *Wight et Arnott.* (*Indian Ipecacuanha.*)

a. Leaves. (*Unto-mool.*)

Note.—The leaves possess emetic, expectorant, and diaphoretic properties, and form one of the best indigenous substitutes in India for ipecacuanha. *Ind. Pharm.*, pp. 142, 458; *Pharmacographia*, p. 382. For fig. of leaf, see *P. J.* [3], vol. i., p. 105. *Bentley and Trimen, Med. Plants*, tab. 177.

CORDIACEÆ.

389. Cordia Boissieri, *A. de C.*

a. Portion of trunk. (*Anacahuite Wood.*)

Note.—The tree is a native of Tampico, where it is used by the Indians as a cure for consumption and pulmonary complaints. *Pharm. Journ.* [2], vol. ii., p. 407; [2], vol. iii., p. 164; and for fig. of plant, [2], vol. iv., p. 273. The specimen of wood was presented by Mr. D. Hanbury.

CONVOLVULACEÆ.

390. Batatas edulis, *Choisy.*

a. Root; two specimens preserved wet. (*Sweet Potato.*)

Note.—The tubercular root is used as a substitute for potatoes in warm countries. See *Treas. Bot.*, p. 128.

391. Convolvulus Scammonia, *L.*

a. Root and resin. See *Bentl. & Trim., Med. Plants*, No. 187.

b. Root showing exudation of resin, and chalk in interstices of root.

c. Virgin Scammony, contained in one of the shells used in collecting it. For fig. see *P. J.* [1], vol. xiii., p. 268.

391. Convolvulus Scammonia, continued.

d. Virgin Scammony, in lumps. Presented by Mr. D. Hanbury.

e. Ditto. Presented by J. Bell & Co.

f. Ditto. Presented by Wright & Co.

g. Aleppo Scammony, somewhat chalky. Presented by Wright & Co.

h. Ditto, amylaceous and chalky. Presented by Wright & Co.

i. Ditto, chalky and dextrinose. Presented by Wright & Co.

j. Ditto, ditto, in flat rounded cakes. Presented by Wright & Co.

The following specimens (*k* to *q*) are from Dr. Pereira's collection, and the numbers attached are those used in his catalogue.

k. Virgin Scammony, No. 248.

l. Second Scammony, containing chalk and flour, No. 249.

m. Ditto, containing chalk, No. 250.

n. Cake Scammony, various pieces adulterated with chalk, the proportions of chalk stated by the manufacturer (a Turkey merchant), No. 251.

o. Artificial Scammony, containing guaiacum, sold as Smyrna Scammony, No. 252.

p. Trebizond Scammony, No. 254.

q. Scammony out of a leather bag, No. 256.

r. Skilip Scammony.

s. Syrian Scammony.

t. Spurious Scammony. Presented by J. B. Batka, Prague.

u. Imitation of Scammony. See *P. J.* [1], vol. xiii., p. 269.

Note.—Skilip Scammony contains 30 to 40 per cent. of resin only, and much wheat starch. Scammony starch differs in shape from wheat starch. This kind of scammony may be known by its dull greyish brown opaque surface. It is probably sometimes used for Scammony Powder. See *P. J.* [1], vol. xiii., p. 267. For fig. of Scammony Starch, see *P. J.* [3], vol. v., p. 263. For fig. of Wheat Starch, see *Per. Mat. Med.* vol., ii., pt. i., frontispiece, fig. 1. Other resins, if present (except Jalap resin), would be precipitated when the scammony is dissolved in an alkali, and an acid added. Jalap resin may be detected by its odour, and by being insoluble in ether; chalk, by effervescence with an acid. See *P. J.* [1], vol. iv., p. 267; [1], vol. xi., p. 278; [1], vol. xiv., p. 38. For resin of scammony, see *P. J.* [1], vol. xvii., p. 37; [1], vol. xviii., p. 447. Collection of, *P. J.* [1], vol. xiii., p. 267; [2], vol. i., p. 521. Constitution of resin, *P. J.* [2], vol. ii., p. 159; [2], vol. iii., p. 213. Varieties of, *P. J.* [3], vol. ii., p. 1006. For micr. structure of root, *P. J.* [3], vol. ii., p. 81.

392. EXOGONIUM PURGA, *Benth*; IPOMŒA PURGA, *Hayne*. (*Vera Cruz Jalap.*)

a. Root, etc., preserved wet. *B. & T., Med. Plants*, tab. 186.

Note.—This specimen was grown at Clapham, and was presented by Mr. D. Hanbury. It shows the formation of tubercules by the enlargement of roots proceeding from a slender subterranean stem.

b. Tubercules, preserved wet.

Note.—This specimen was grown in the Botanical Garden of Trinity College, Dublin, and was presented by Dr. Aquila Smith, in May, 1869.

c. Tubercules. Two specimens.

d. Resin obtained from the tubercules. (*Jalapin.*)

e. Ditto, purified.

† *f*. Large pyriform jalap tubercules.

† *g*. One large globular ditto.

Note.—True Jalap is distinguished from Tampico by being usually turnip-shaped or pear-shaped, by its density, by not being shrunken, and by being marked with numerous little transverse scars, which are absent in Tampico Jalap. For culture of, see *P. J.* [2], vol. viii., p. 651. For valuation of, *P. J.* [2], vol. ix., p. 487. For resin, *P. J.* [1], vol. iv., p. 428; [2], vol. ix., p. 233. For adulteration of jalap resin, *P. J.* [1], vol. iii., p. 132; [2], vol. iv., p. 326. The root contains 15 per cent. of resin, about 5 per cent. of which is soluble in ether, the rest insoluble.

393. IPOMŒA ORIZABENSIS, *Ledan.*

a. Root. (*Male or Stalk Jalap, Woody Jalap, Orizaba Root, Purgo macho* of the Mexicans.)

Note.—This root contains a resin entirely soluble in ether. See *P. J.* [1], vol. iii., p. 133; [1], vol. xi., p. 521, No. 1; [1], vol. iv., p. 326.

394. IPOMŒA SPECIES.

a. Tubercules. (*Jalap with a roseate odour.*)

Note.—This Jalap much resembles in appearance Tampico Jalap, but occurs in much larger pieces. It was found by Guibourt in French commerce in 1842, and was presented by him. It contains according to his analysis only 3·23 per cent. of resin, about half of which is insoluble in ether. The roseate odour is not now (1875) perceptible. *P. J.* [1], vol. ii., p. 331.

395. IPOMŒA SIMULANS, *Hanbury.*

a. Tubercules. (*Tampico Jalap.*)

Note.—The Tampico Jalap plant was first described by Mr. D. Hanbury, and is figured in the *Journ. Linn. Soc.*, vol. xi. (1870), 279, tab. 2. See also *P. J.* [2], vol. xi., p. 848. It is distinguished from the true Jalap plant by its corolla being funnel-shaped, and its flower-buds drooping; the corolla of Exogonium purga is spread out horizontally like a wheel, and the flower-buds are erect. The tubercules are paler, more spongy, and are fusiform in shape. They yield a resin entirely soluble in ether. As imported, the drug often appears to be mixed with true Jalap, which will perhaps account for the different opinions held concerning the solubility of its resin in ether. *Pharmacographia*, p. 402. The tubercules have been mistaken for the roots of Nepaul Aconite. See *Aconitum ferox*, and *P. J.* [2], vol. vii., p. 58.

396. PHARBITIS NIL, *Choisy*.

a. Seeds. (*Kaladana*.) For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 185.

Note.—The resin (Kaladana resin) contained in the seeds is probably identical with that of true jalap, being insoluble in ether. It is official in the Pharm. Ind., as well as an extract, tincture, and compound powder. The specific name Nil, is a Hindustanee word signifying blue, the flowers being of that colour. The seeds are a safe and efficient purgative, and are used in a roasted state by the natives. See *Pharmacographia*, p. 402.

SOLANACEÆ.

397. CAPSICUM ANNUUM, *L*.

a. Fruit, preserved wet. (*Capsicum, Pod Pepper, Guinea Pepper*.)

Note.—The fruits of Capsicum annuum vary very much in size. See *Pharmacographia*, p. 406. See *Bentley and Trimen, Med. Plants*, tab. 188.

398. CAPSICUM FASTIGIATUM, *Blume*.

a. Fruit. (*Bird Pepper, Chillies*.)

b. Ditto, powdered. (*Cayenne Pepper*.)

399. SOLANUM DULCAMARA, *L*.

a. The young shoots.

Note.—This plant is known from Solanum nigrum by having lilac flowers and red berries. S. nigrum has white flowers and black berries. Plants of S. Dulcamara are sometimes found with the leaves not auriculate. See *Pharmacographia*, p. 404; *Per. Mat. Med.*, vol. ii., pt. i., p. 591. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 190.

400. SOLANUM TUBEROSUM, *L*.

a. Sugar.

b. Ditto, liquid.

c. Potato starch.

d. Potato sago, small.

e. Ditto, large.

Note.—A portion of the whiter varieties of sago of commerce and the substance known as Pearl Tapioca are made of potato starch. Potato starch may be known under the microscope by its large size, and by the granules being irregularly ovate in shape, and sometimes with more than one hilum in each. For fig. of the starch see *Per. Mat. Med.*, vol. ii., pt. i., pp. 148 and 588; frontispiece, fig. 9; *Berg, Anat. Atlas.*, taf. 50, fig. G.

ATROPACEÆ.

401. ATROPA BELLADONNA, *L*.

a. Root.

Note.—This root has been found mixed with mallow root. It may be distinguished by not being fibrous, like that of the mallow, and by its large meditullium. The roots usually have a portion of the base of the stem attached to them. The leaves may be distinguished from those of Stramonium by not being toothed in the margin. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 198.

402. DATURA STRAMONIUM, *L.*

a. Leaves.

b. Seed.

Note.—The leaves resemble those of Henbane in shape and in being toothed at the margin, but are not hairy, and the stem leaves are stalked, not sessile as in Henbane. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 192.

403. HYOSCYAMUS NIGER, *L.*

a. Leaves. (*Annual Henbane.*)

b. Ditto. (*Biennial Henbane.*)

c. Seed.

Note.—The radical stalked leaves of the biennial plant are often sold as Annual Henbane. In the Annual Henbane plants the small radical leaves are withered before the plant blossoms, therefore all the leaves in the annual drug should be without stalks. For the seed, see *P. J.* [2], vol. ix., p. 233. Henbane leaves may be known in the dried state from Stramonium by the leaves being hairy, not smooth, and from Belladonna by the leaves being toothed in the margin. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 194.

404. NICOTIANA TABACUM, *L.*

a. Leaves. (*Tobacco.*)

Note.—Tobacco is yielded by several different species. N. Persica yielding the Persian; N. rustica the Latakia, Turkish, and Manilla; N. repanda the Cuban and Havana. See *Bent. Man.*, p. 580; *P. J.* [1], vol. iii., p. 342; *P. J.* [3], vol. ii., p. 566. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 191.

OLEACEÆ.

405. FRAXINUS ORNUS, *L.* (*Manna Ash.*)

a. Section of stem, showing manner of incising the bark. See *P. J.* [3], vol. iii., p. 422.

b. Flaky Manna, on pieces of stick, as collected. (*Manna a cannolo.*)

c. Flaky manna, a commercial specimen.

d. Artificial manna, made in France, Presented by Mr. H. S. Evans. See *P. J.* [1], vol. 1, p. 603.

e. Ditto. Presented by Mr. W. W. Stoddart.

f. Mannite. See *P. J.* [1], vol. vi., p. 183.

Note.—Manna is not now produced in Calabria as an article of commerce. *P. J.* [3], vol. iii., p. 422; *P. J.* [2], vol. xi., p. 326. Artificial manna either contains no mannite at all, or not more than 40 per cent., while true manna contains 70–80 per cent. Spurious manna is known by its uniform colour and freedom from the slight impurities, as well as from the peculiar odour and slight bitterness of manna. *P. J.* [1], vol. iv., p. 567. Mannite occurs also in many other plants. See *Miller's Chem.*, pt. iii., p. 321; *P. J.* [1], vol. iv., p. 567; [1], vol. viii., pp. 480–482; [1], vol. x., p. 124; [1], vol. xvi., p. 530; [2], vol. xi., p. 629. For Artificial Mannite, see *P. J.* [3],vol. i., p. 864. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 170.

406. Olea Europæa, *L.* (*Olive Tree.*)

a. Branchlets in fruit, preserved wet.

b. Drupes, preserved wet.

c. Olive oil. Two specimens.

d. Castile soap.

e. Venetian soap.

f. Resin.

Note.—Castile soap is a compound of olive oil and soda. It owes its colour to the decomposition of ferrous sulphate, stirred into the soap during its manufacture. Pure soft soap is a compound of olive oil and potash. For the resin, see *Per. Mat. Med.*, vol. ii., pt. i., p. 664. For detecting adulterations, *P. J.* [1], vol. xii., pp. 484, 497; [1], vol. iii., p. 293; [2], vol. iv., p. 376; [2], vol. vii., p. 277. The leaves and bark of the olive tree are febrifuge. *P. J.* [1], vol. xiii., p. 353; [2], vol. iv., p. 473. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 172.

PLANTAGINACEÆ.

407. Plantago Ispaghula, *Roxb.*

a. Seed. (*Spogel seeds, Isphagùl.*)

Note.—These seeds contain a quantity of mucilage, and are official in the *Pharm. Ind.* as a remedy for diarrhœa and dysentery, as well as for catarrhal and renal affections. See *Ind. Pharm.*, p. 182; and for fig. *P. J.* [3], vol. i., p. 86. This specimen was presented by Dr. Christison. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 211.

BORAGINACEÆ.

408. Anchusa tinctoria, *L.*

a. Root.

Note.—The red colouring matter of this root is soluble in oil, turpentine, and spirit, but not in water. See *P. J.* [1], vol. vii., p. 535.

LABIATÆ.

409. Collinsonia Canadensis, *L.*

a. Rhizome. (*Stone Root, Oxbalm, Collinsonia Root.*)

Note.—The rhizome is used in North America as a stimulant tonic in atonic dyspepsia, chronic laryngitis, clergyman's sore throat, or in any case where a tonic for the mucous membrane is required. *Amer. Dispens.*, p. 278.

410. Hedeoma pulegioides, *Pers.* (*American Pennyroyal, Lickweed, Squaw Mint.*)

a. Essential oil. (*American Oil of Pennyroyal.*)

Note.—This oil is used in the United States instead of oil of pennyroyal. It is official in the U. S. Pharmacopœia. Its sp. gr. is ·945–·948, that of oil of pennyroyal being ·925–·931. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 200.

411. Lavandula vera, *D.C.* (*Lavender.*)

a. Flowers.

411. LAVANDULA VERA, continued.

b. Essential oil.

Note.—Lavandula vera may be distinguished from L. spica by having rhomboidal bracts, those of L. spica being linear. For cultivation, see *P. J.* [2], vol. i., p. 276; [3], vol. iii., p. 326. For results of distillation, *P. J.* [1], vol. viii., p. 276; [1], vol. x., p. 172. For adulteration, see *P. J.* [1], vol. xi., p. 32. Turpentine may be detected by its insolubility in spirit; alcohol may be removed, if present, by anhydrous chloride of calcium or glycerin. *Bentley and Trimen, Med. Plants*, tab. 199.

412. MENTHA PIPERITA, *L.* (*Peppermint.*)

a. Herb. See *Bentley and Trimen, Med. Plants*, tab. 203.

b. Essential oil.

Note.—Peppermint is known from spearmint by its purple tint, by the leaves being stalked, and by the terminal spike-like inflorescence being obtuse. For cultivation, see *P. J.* [1], vol. x., p. 340. The oil has been found adulterated with castor oil, spirit of wine, and turpentine. For detection of these and other adulterations, see *P. J.* [1], vol. ix., p. 580; [3], vol. ii., p. 981; *Cooley's Cyclopædia*, p. 834. For fluorescence with acids, *P. J.* [3], vol. i., p. 682; [3], vol. iv., p. 977. Hotchkiss' oil of peppermint is known by giving an opalescent solution with rectified spirit of wine, *P. J.* [3], vol. ii. p. 338. The dried herb yields from three to four times more volatile oil than in the green state.

413. MENTHA VIRIDIS, *L.* (*Spear-mint, Garden Mint.*)

a. Herb. See *Bentley and Trimen, Med. Plants*, tab. 202.

b. Essential oil.

Note.—The oil of spearmint of commerce is chiefly derived from Mentha aquatica, L., var. γ crispa, *Benth.* See *Pharmacographia*, p. 432.

414. MENTHA PULEGIUM, *L.* (*Pennyroyal, Organs.*)

a. Herb. See *Bentley and Trimen, Med. Plants*, tab. 201.

b. Essential oil.

Note.—Pennyroyal is distinguished from the other official mints by the small size of its leaves, and by the whorls of the flowers being distinct and not arranged in a dense spikelike inflorescence. See *Hedeoma pulegioides*, and note under *Origanum vulgare*.

415. MONARDA PUNCTATA, *L.* (*American Horsemint.*)

a. Herb.

b. Essential oil.

Note.—The leaves and tops are official in the U. S. Pharmacopœia. The plant possesses stimulant, anti-emetic, and emmenagogue properties. See *Amer. Dispens.*, p. 530. In this country Mentha sylvestris, *L.*, is known by the name of Horsemint. *Bentley and Trimen, Med. Plants*, tab. 208.

416. ORIGANUM VULGARE, *L.* (*Wild Marjoram.*)

a. Essential oil.

Note.—The Marjoram of the kitchen gardens is O. Majorana, *L.*, and is commonly known as "Sweet Marjoram." Pennyroyal is known in the S. W. of England under the name of "Organs," a corruption of Ori-

416. ORIGANUM VULGARE, continued.

ganum. The Oil of Origanum of commerce is obtained from Thymus vulgaris, *L.* See *P. J.* [1], vol. x., pp. 6 and 324. *Pharmacographia*, p. 438. By redistillation the oil becomes colourless, and forms the "Ol. Origani Alb." of the wholesale druggists. The cheap Oil of Origanum is a mixture of turpentine, oil of spike (Lavandula spica), oil of rosemary, and oil of thyme, coloured with alkanet. This adulterated oil is imported, and is also mixed in this country. See *Bentley and Trimen, Med. Plants*, tab. 204, 205.

417. POGOSTEMON PATCHOULY, *Pellet.* (*Pucha-pat, Patchouli.*)

a. Leaves.

b. Essential oil.

Note.—This plant is not used in medicine. See *P. J.* [1], vol. iv., p. 80; ix., p. 282; and for fig. of plant, *P. J.* [1], vol. viii., p. 576.

418. ROSMARINUS OFFICINALIS, *L.* (*Rosemary.*)

a. Flowering tops.

b. Essential oil.

Note.—The infusion was formerly esteemed a nervine tonic, and is still used in nervous complaints by herbalists. *Waring, Therapeutics*, p. 559. The oil is often adulterated with turpentine. "Camphine," or highly rectified oil of turpentine, is the kind often used in adulterating volatile oils. See *Bentley and Trimen, Med. Plants*, tab. 207.

419. SALVIA OFFICINALIS, *L.* (*Garden Sage.*)

a. Essential oil. See *Bentley and Trimen, Med. Plants*, tab. 206.

Note.—Used only as a culinary flavouring agent. The leaves are sometimes used to make a gargle for sore throat.

420. SCUTELLARIA LATERIFLORA, *L.* (*American Skullcap, Side Flowering Skullcap, Mad-Dog Weed, Hoodwort.*)

a. Herb.

Note.—This plant is highly esteemed by the Eclectic practitioners of America as a powerful nervine tonic, and is used by them for neuralgia, chorea, and other nervous affections. The herb is official in the secondary list of the U. S. Pharmacopœia. See *Amer. Dispens.*, p. 758.

MYOPORACEÆ.

421. AVICENNIA NITIDA, *L.* (*Courida Tree.*)

a. Bark.

Note.—This specimen was in the International Exhibition of 1851, and was contributed by Mr. David Shier, of Demerary. The bark is used in tanning. See *P. J.* [1], vol. xi., p. 160.

SELAGINACEÆ.

422. GLOBULARIA ALYPUM, *L.* (*Wild Senna.*)

a. Leaves. For fig., see *Hist. des Drog.*, vol. ii., p. 453.

Note.—This specimen was presented by Dr. C. Martius. The leaves are said to have been frequently found among senna leaves in Germany. *P. J.* [1], vol. xvi., p. 426. The leaves possess purgative properties in doses of 50 to 100 grains, when given in the form of decoction. See also *Bentley, Man. Bot.*, p. 592. The leaves have a bitter taste, and are covered with minute white points, only visible under a lens.

PEDALIACEÆ.

423. SESAMUM INDICUM, *D.C.*

a. Seeds. (*Sesame Seed, Teel Seed.*)

b. Fixed oil. (*Gingelly Oil.*)

c. Leaves. (*Sesame Leaves, Benne Leaves.*)

Note.—The seeds, which vary much in colour, are said to possess emmenagogue properties. *Ind. Pharm.*, p. 151. They yield half their weight of a fixed oil, in colour resembling almond oil, but possessed of drying properties. It is said that the finer qualities are used to adulterate almond oil. If more than 10 per cent. of it be present, it can be detected by shaking the oil with nitric and sulphuric acids, which turns a mixture of equal quantities of it green. See *Pharmacographia*, p. 427. The leaves contain a quantity of mucilage, and are used in North America to make a demulcent drink for catarrh, etc. See *Amer. Dispens.*, p. 769; *Pharm. Ind.*, p. 151. See *Bentley and Trimen, Med. Plants*, tab. 198.

SCROPHULARIACEÆ.

424. DIGITALIS PURPUREA, *L.* (*Foxglove.*)

a. Herb. See *Bentley and Trimen, Med. Plants*, tab. 195.

b. Seeds.

Note.—The leaves which most resemble those of Digitalis, and which frequently grow in the same neighbourhood, are those of Verbascum nigrum, *L.*, and Inula Conyza, *D.C.* The leaves of Digitalis may be distinguished from those of both these plants, by the smaller veins extending into the wing of the petiole. Verbascum thapsus, *L.*, has leaves which are too woolly to be easily mistaken for those of foxglove. See *P. J.* [1], vol. iv., p. 126; xi., p. 523. The seeds have been recommended as a substitute for the leaves, as being more reliable in their action, and less likely to be adulterated than the leaves. *P. J.* [1], vol. xi., p. 419. The leaves are said to be more active in early autumn than when the plant is in flower, *P. J.* [3], vol. i., p. 50. For therapeutical use, see *P. J.* [3], vol. ii., pp. 323, 366. For volatile alkaloid, *P. J.* [2], vol. v., p. 586.

425. LEPTANDRA VIRGINICA, *Nutt.* (*Black Root, Leptandra, Culver's Physic, Tall Speedwell.*)

a. Rhizome.

Note.—The rhizome is official in the U. S. Pharmacopœia. It is used as a stimulant to the liver and absorbent system, and possesses considerable medicinal activity. Leptandrin is a resinous principle obtained from the root. See *Amer. Dispens.*, p. 479. *Bentley and Trimen, Med. Plants*, tab. 196.

426. LYPERIA CROCEA, *Eckl.* (*Cape Saffron, Geele Blomeetjes.*)

a. Flowers.

Note.—The flowers when dried are black, and have an odour like saffron; and when moistened and rubbed between the fingers, yield a yellow stain. They are used in the convulsions of children, and as a colouring agent. The flowers are sometimes mixed with those of other species. This specimen was presented by Mr. J. M. Leslie, Port Elizabeth, South Africa. See *Pappe's Flora Med. Cap.*, p. 31; *P. J.* [2], vol. vi., p. 462.

POLYGONACEÆ.

427. COCCOLOBA UVIFERA, *L.* (*Seaside Grape.*)

a. Bark.

b. Extract. (*Jamaica Kino.*) Two specimens.

Note.—Jamaica kino is made by evaporating a decoction of the leaves, wood, and bark of the tree. The wood yields a red dye. See *Lindley's Fl. Med.*, p. 353.

428. POLYGONUM BISTORTA, *L.* (*Bistort.*)

a. Root. See *Bentley and Trimen, Med. Plants*, tab. 212.

Note.—The root is twice twisted upon itself, whence its name. It contains tannin and starch, and was formerly used for making an astringent gargle and injection. See *Per. Mat. Med.*, vol. ii., pt. i., p. 503.

429. RHEUM COMPACTUM, *L.*

a. Root. (*French Rhubarb, round.*)

b. Root. (*Ditto, flat.*)

Note.—These specimens were presented by Prof. Guibourt to Dr. Pereira, and by him to the Pharmaceutical Society. French rhubarb may be known by its irregular shape, and by the transverse fracture showing two radiate zones. For fig., see *P. J.* [3], vol. ii., p. 1010; *Hist. des Drog.*, t. ii., p. 430, figs. 481, 483. The flat pieces are probably produced by Rheum rhaponticum, *L.* *Per. Mat. Med.*, vol. ii., pt. i., p. 493.

430. RHEUM EMODI, *Wall.*

a. Root. (*Large Himalayan Rhubarb.*)

Note.—This rhubarb was imported into London in 1840. It differs entirely in appearance and structure from commercial rhubarb. For description, see *Per. Mat. Med.*, vol. ii., pt. i., p. 491; *P. J.*, [1], vol. iv., p. 449. This specimen formerly belonged to Dr. Pereira's collection, and was presented to him by Dr. Wallich.

431. RHEUM OFFICINALE, *Baill.*

a. Rootstock. (*Russian Rhubarb, Turkey Rhubarb, Russia Brown Rhubarb.*)

Note.—This kind of rhubarb has not been exported from Russia since 1860. Specimen *a* is the one from which Pereira's description was taken. The Russian label, a copy of which is given in his work, is preserved with the specimen. This specimen was collected in 1840. See *Per. Mat. Med.*, vol. ii., pt. i., p. 487. A specimen of the plant in flower is in the Herbarium of this Society. See *P. J.* [3], vol. vi., p. 861.

b. Rootstock. (*Russian Rhubarb.*)

Note.—This specimen was brought from Russia by Mr. T. Greenish, in 1874. Russian rhubarb is distinguished by the large size of the holes made in it, which are large enough to admit the end of the little finger, by its surface having been sliced off, and by its structure resembling that of East Indian Rhubarb. See *Bentl. & Trim., Med. Plants*, tab. 213, 215.

c. Rootstock. (*East Indian Rhubarb, Chinese Rhubarb.*)

d. Ditto, rounds. Very fine specimens.

e. Ditto, flats. Ditto.

Note.—This rhubarb is probably derived from the same species as the

432. RHEUM OFFICINALE, continued.

Russian rhubarb, but receives its name from the country from which it is imported. For description of the plant yielding it, see *P. J.* [3], vol. iii., p. 301; vol. iv., p. 690. Some of the East Indian rhubarb of commerce is also derived from Rheum palmatum, var. Tanguticum, *Max.* See *P. J.* [3], vol. v., p. 784.—*Regel's Garten Flora*, Jan., 1875. For collection of the root, see *P. J.* [1], vol. ii., p. 658; [2], vol. vii., p. 375; *Pharmacographia*, p. 442. East Indian rhubarb is distinguished by the small size, dark colour, and irregular shape of the holes with which it is pierced, these holes being often filled with stout string, by the outer surface being frequently marked with whitish reticulations which are more evident when the powder has been rubbed off, and by the transverse surface showing a number of starlike marks, but no distinct cortical layer. For an excellent figure of these marks, see *Goebel und Kunze, Wuar.*, pt. ii., taf. i., fig. 2 b, 3 b; *Hist. des Drog.*, vol. ii., p. 430, figs. 482, 486. For a microscopical structure of the root, see *Berg, Anat. Atlas*, taf. xii.; *P. J.* [3], vol. ii., p. 841. English rhubarb in powder is sometimes sold for the East Indian; this substitution may be detected by rubbing it with an essential oil and magnesia, when the powder becomes pink. It is from this cause that Gregory's powder sometimes becomes of a pink colour soon after being made. See *P. J.* [2], vol. ii., p. 28. Turmeric may be detected by moistening the powder, and then adding boracic acid, which turns it red brown if turmeric be present. See *P. J.* [3], vol. iv., p. 354. For active principles, see *P. J.* [1], vol. xvii., p. 572; vol. x., p. 39. For fluid extract, see *P. J.* [1], vol. xii., p. 398. For red colouring matter, *P. J.* [1], vol. iv., p. 446.

f. Rootstock. (*Batavian or Dutch Trimmed Rhubarb, Dr. P.*, 206.)

Note.—This rhubarb differs only from the East Indian in having an angular appearance, owing to the surface having been sliced off. It is not now met with in English commerce as a distinct variety, but used to be imported from Canton and Singapore. See *Per. Mat. Med.*, vol. ii., pt. i., p. 491.

g. Rootstock. (*East Indian Rhubarb.*) Presented by Mr. Paternoster.

Note.—This specimen is peculiar by reason of the meditullium being separated from the cortical portion.

h. Root. (*Canton Stick Rhubarb.*)

Note.—This is probably obtained from the root branches of the Chinese rhubarb plant. See *Per. Mat. Med.*, vol. ii., pt. i., p. 491; *P. J.* [1], vol. iv., p. 446.

432. RHEUM RHAPONTICUM, *L.*

a. Root. (*English Rhubarb*, "fine or Turkey trimmed.")

b. Ditto. Ditto, "East Indian trimmed."

c. Ditto. Ditto, "Dutch trimmed."

d. Ditto. Ditto, "small trimmed."

e. Ditto. Ditto, "cuttings."

Note.—English rhubarb is trimmed to imitate the Russian and East Indian rhubarbs, but may be detected by the absence of whitish reticula-

432. RHEUM RHAPONTICUM, continued.

tions on the surface, by the presence of straight lines here and there in groups on the external surface, and by the transversely cut surface showing straight lines radiating from centre to circumference, and by the cortical portion forming a well marked line, also by the holes being well rounded and fresh looking, owing to their having been made with a mouse-tail file. In powder it may be recognised by the test given under East Indian rhubarb. For fig. of these marks, see *Goebel und Kunze, Waar.*, pt. ii., taf. 3, fig. 1 b; *Berg, Anat. Atlas*, taf. xi., B. For cultivation, etc., see *P. J.* [1], vol. vi., p. 76; [2], vol. ix., p. 81.

f. Root. (*Siberian Rhubarb.*) Presented by Messrs. Hearon, McCulloch & Squire.

g. Root. (*Siberian Rhubarb.* Presented by Mr. Faber.)

Note.—Specimen *g* was grown in Siberia, from seeds obtained in the country where the Russian rhubarb grows. It was imported into this country in January, 1844. See *Per. Mat. Med.*, vol. ii., pt. i., p. 490. It is probably the produce of *Rheum rhaponticum*. *P. J.* [1], vol. iv., pp. 448, 500.

h. Root. (*Austrian Rhubarb.*)

Note.—This appears to be identical in structure with English rhubarb. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 214.

433. RHEUM UNDULATUM, *L.*

a. Root. (*Bucharian Rhubarb.*)

Note.—This rhubarb is an inferior kind, which does not appear at the present time in English commerce. It is described by Guibourt under the name of Rhubarb de Perse, as it was imported through Persia and Turkey. For description, see *Per. Mat. Med.*, vol. ii., pt. i., p. 489; *P. J.* [2], vol. ix., p. 249; [1], vol. iv., p. 446. This specimen was presented by Mr. Faber, by whom it was received in 1840, from St. Petersburg.

434. RHEUM WEBBIANUM, *Royle.*

a. Root. (*Small Himalayan Rhubarb.*)

Note.—This specimen was presented to Pereira by Dr. Royle. It consists of cylindrical brown pieces, somewhat curved or twisted. See *Per. Mat. Med.*, vol. ii. pt. i., p. 492.

435. RUMEX ACETOSA, *L.* (*Sorrel, Green Sauce.*)

a. Root.

Note.—The leaves have been used as a potherb or salad. They contain acid oxalate of potassium, tartaric acid, and tannic acid. See *Per. Mat. Med.*, vol. ii., pt. i., p. 502. This must not be confounded with Woodsorrel, which is Oxalis acetosella, *L.*

436. RUMEX HYDROLAPATHUM, *Huds.* (*Great Water Dock.*)

a. Root, preserved wet.

Note.—The root is astringent and antiscorbutic. See *Per. Mat. Med.*, vol. ii., pt. i., p. 503.

CHENOPODIACEÆ.

437. CHENOPODIUM ANTHELMINTICUM, *L.*

a. Fruits. (*Wormseed, Jerusalem Oak.*)

437. CHENOPODIUM ANTHELMINTICUM, continued.

b. Essential oil.

Note.—Wormseed is used as a vermifuge, chiefly for ascarides n children. Of the oil, four to eight drops are given in sugar or in an emulsion, and followed by a purgative. This species and C. Botrys, to which latter the name of Jerusalem oak is more commonly applied, are said to possess also expectorant properties. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 216.

PHYTOLACCACEÆ.

438. PHYTOLACCA DECANDRA, *L.* (*Garget or Poke, Pigeon Berry, Scoke, Coakum.*)

a. Root. (*Poke Root.*)

b. Raceme of fruits. (*Poke Berries.*)

Note.—The root and fruit are official in the secondary list of the U. S. Pharmacopœia. The plant possesses emetic, cathartic, and narcotic properties; it acts slowly, but the action continues for some time. The root when being powdered sometimes causes headache, and all the symptoms of coryza. *Amer. Dispens.*, p. 634; *Am. Journ. Pharm.*, May 1875, p. 196.

PIPERACEÆ.

439. ARTANTHE ELONGATA, *Miq.*; PIPER ANGUSTIFOLIUM, *R. et P.*

a. Leaves. (*Matico.*)

440. ARTANTHE ADUNCA, *Miq.*; PIPER ADUNCUM, *L.*

a. Leaves. (*Spurious Matico.*)

Note.—The term matico is applied to several plants in different parts of South America. A. adunca is distinguished by the leaves not being strongly reticulated, and nearly glabrous beneath. See *P. J.* [2], vol. v., p. 290; *Pharmacographia*, p. 532; and note under Eupatorium glutinosum, No. 331. See also *P. J.* [1], vol. iii., p. 472; and for fig. of A. elongata, p. 525; and *Bentley and Trimen, Med. Plants*, tab. 242.

441. CHAVICA ROXBURGHII, *Miq.*; PIPER OFFICINARUM, *C. de C.*; PIPER LONGUM, *L.*

a. Dried unripe fruit. (*Long Pepper.*)

Note.—Long pepper comes principally from Java, where it is produced by Piper officinarum, *C. de C.* (Chavica officinarum, *Miq.*) In India, Ceylon, and the Philippine islands, Long Pepper is derived from C. Roxburghii. See *Pharmacographia*, p. 524. *Bentl. & Trim., Med. Pl.*, tab. 245.

442. CUBEBA CLUSII, *C. de C.* (*African Cubebs, Guinea Cubebs, West African Black Pepper, Benin Pepper.*)

a. Dried unripe fruit.

b. Essential oil.

Note.—This kind of Cubebs has occasionally been imported into London, the last time being in February, 1858. It is distinguished by its taste, which is very pungent, and resembles pepper more than cubebs. It also does not crack readily between the teeth, as cubebs does. It is smaller in size than cubebs, and the external surface is not wrinkled. The essential oil was prepared by Mr. Darby, of Leadenhall Street, for Messrs. Desnaux & Co. See *P. J.* [1], vol. xiv., pp. 198, 363, and for fig. of fruit, p. 201. See also *Per. Mat. Med.*, vol. ii., pt. i., p. 392.

442. CUBEBA CLUSII, continued.

The fruits of Toddalia lanceolata have also been imported from the Cape of Good Hope under the name of African cubebs. See *P. J.* [2], vol. vi., p. 463.

443. CUBEBA OFFICINALIS, *Miq.*; PIPER CUBEBA, *L.*

a. Raceme of fruit.

b. Immature fruit.

c. Cubebs with a peculiar odour.

d. Essential oil.

Note.—For analysis of the fruit, see *P. J.* [3], vol. ii., p. 270. The cubebs with a peculiar odour is probably produced by Piper crassipes. *Korth.* See *Pharmacographia*, p. 530. It has a bitter taste, and an odour like olibanum. The diuretic properties are said to exist in the resin rather than in the volatile oil. See *P. J.* [2], vol. ix., p. 539; for extract, see *P. J.* [1], vol. vi., p. 319; for Cubebin, *P. J.* [1], vol. xiv., p. 37; see also *Per. Mat. Med.*, vol. ii., pt. i., p. 395; *B. & T.*, *Med. Plants*, tab. 243.

444. MACROPIPER METHYSTICUM, *Miq.*

a. Root. (*Cava Root, Ava Root, Kawa Kawa.*)

Note.—The root is used as an intoxicating agent in the Sandwich and Fiji islands, the root being first chewed and then mixed with water. See *P. J.* [1], vol. iii., p. 474; and for fig. of plant, p. 473; see also *Treas. Bot.*, p. 708; *P. J.* [1], vol. ix., p. 219; [2], vol. iv., p. 85; [3], vol. vii., p. 149.

445. PIPER NIGRUM, *L.*

a. Woody stem.

b. Dried unripe fruit. (*Black Pepper.*)

c. Dried ripe fruit. (*White Pepper.*)

Note.—The white pepper is less pungent than the black, which is said to be owing to the fruit being allowed to ripen before being gathered. It consists of the fruit deprived of the fleshy portion of the pericarp, see *Pharmacographia*, p. 523. Malabar black pepper is considered the best kind, and the Tellicherry and Penang the finest varieties of the white pepper. *Per. Mat. Med.*, vol. ii., pt. i., p. 385; *P. J.* [2], vol. vii., p. 288; and for adulterations, *P. J.* [2], vol. i., p. 605; and for figs., *P. J.* [2], vol. ii., pp. 7, 8, 9; *Bentley and Trimen, Med. Plants*, tab. 245.

THYMELACEÆ.

446. DAPHNE LAUREOLA, *L.*

a. Root, preserved wet. See *Bent. & Trim., Med. Plants*, tab. 226.

447. DAPHNE MEZEREUM, *L.*

a. Root, preserved wet.

b. Ditto, dried.

c. Bark of the root.

d. Original bundle of root bark.

Note.—The stem bark of D. laureola is similar to that of D. mezereum, but has not the prominent leaf scars of the latter. D. Laureola has evergreen leaves, and green flowers. D. Mezereum, purplish red flowers, which appear before the leaves. See *P. J.* [1], vol. i., p. 395; *Per. Mat. Med.*, vol. ii., pt. i., p. 477. *B. & Tr., Med. Plants*, tab. 225.

AQUILARIACEÆ.

448. AQUILARIA AGALLOCHA, *Roxb.*

a. Wood. (*Lign Aloes Wood.*)

Note.—This wood is supposed to be the aloes of Scripture. It has an odour faintly resembling that of patchouli. See *Pharmacographia*, p. 616; *Bentley's Man.*, p. 609. It has been used in gout and rheumatism. *Lindley, Flor. Med.*, p. 327.

PENÆACEÆ.

449. PENÆA SARCOCOLLA, *L.*

a. Gum. (*Gum Sarcocol.*)

Note.—This substance was formerly used for healing wounds, hence its name. The taste is sweet, with a decided bitterness. It is said to have been brought from Arabia. See *Pomet's History of Drugs*, 3rd ed., p. 198; *Treas. Bot.*, p. 1020; *Hist. des Drog.*, vol. ii., p. 587. Sarcocolline is a substance *sui generis*, intermediate between sugar and gum.

LAURACEÆ.

450. ACRODICLIDIUM CAMARA, *R. Schomb.*

a. Seed. (*Ackawa, Camara Nutmeg, Buck Nutmeg.*)

Note.—This seed comes from British Guiana, and is used by the Indians as a substitute for nutmegs. See *Bentley's Man.*, p. 611. The seed is turnip shaped, and consists of two cotyledons, each of which is as large as two nutmegs; the taste is between that of nutmeg and citron peel.

451. CAMPHORA OFFICINARUM, *C. Bank;* CINNAMOMUM CAMPHORA, *Fr. Nees et Eberm.*

a. Stearoptene. (*Crude Camphor.*)

b. Ditto. (*Refined Camphor.*)

† *c.* Ditto. (Do. a "bell" of camphor.)

† *d.* Ditto. Ditto. Presented by Messrs. Atkinson & Co., May, 1875.

e. Camphor oil, from Formosa.

f. Ditto, with feathery crystals of camphor in it.

Note.—Specimen *e* came from Formosa, per ship *Nestor*, and was presented by Messrs. Hodgkinson & Co. The camphor oil drains out of the vats or tubs in which the crude camphor is packed before exportation. It is used by the Chinese for rheumatism. See *Pharmacographia*, pp. 461, 465. Oil of Camphor of Borneo is derived from Dryobalanops aromatica, *Gaertn.*, and is found in reservoirs in the trunk of the tree. See *l. c.*, p. 465. The Formosa oil is distinguished by its peculiar odour, which resembles that of nutmeg or sassafras. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 222.

452. CINNAMOMUM AROMATICUM, *Nees*; CINNAMOMUM CASSIA, *Blume*.

† *a*. Section of trunk, polished.

Note.—Attached to this specimen is a memorandum by Dr. Pereira to the effect that he believed it to be derived from Litsæa zeylanica, and not from the cassia-tree. Its bark has not the taste of cassia.

b. Bark. (*Chinese Cassia*, an original bundle.)

Note.—For an account of the cassia-trees of China, see *Porter Smith, Chinese Mat. Med.*, p. 52.

c. Bark. (*Manilla Cassia*.)

Note.—This is the bark described by Pereira in his *Mat. Med.*, vol. ii., pt. i., p. 446. It differs from ordinary cinnamon, in having the epidermis imperfectly removed. It is possibly the produce of C. Burmanni, *Bl.* See *Pharmacographia*, p. 475.

d. Bark. (*Singapore canella*.)

e. Ditto. (*Cassia* from Calcutta.)

Note.—Specimen *e* is in long smooth thick quills, and has a taste reminding one of the smell of brown Windsor soap. It is labelled in Hanbury's writing, "Bark from Calcutta, sold in London as Cassia vera." It is probably obtained from another species, perhaps C. Tamala.

Specimen *d* does not differ from ordinary cassia, except in having a pale greyish fracture.

f. Oil of cassia.

Note.—Oil of cassia is sometimes adulterated with oil of cloves. This may be detected by the action of nitric acid, which causes oil of cassia to crystallize, if pure; but only to swell up, and form a thick brown oil if oil of cloves be present. See *P. J.* [1], vol. xii., p. 602; for artificial oil of cassia, *P. J.* [1], vol. xv., p. 180.

g. Flower-buds, cassia buds.

Note.—Cassia buds are supposed to be the flower-buds of the tree which yields Chinese cassia bark. *Pharmacographia*, p. 479. See also *Porter Smith, Chinese Mat. Med.*, p. 53. Cassia buds are used in confectionery and in Pot Pourri. See *Bentl. & Trim., Med. Plants*, tab. 223.

453. CINNAMOMUM CULILAWAN, *Bl.*

† *a*. Section of stem.

b. Bark, in flat pieces. (*Culilawan Bark, Indian Clove Bark*.)

Note.—This bark has exactly the taste of allspice. It occurs in thick, flat pieces. This bark must not be confounded with Brazilian clove bark, which occurs in tubular quills, packed one inside the other, and has a taste like cloves. *Lindl. Flor. Med.*, p. 331; *Per. Mat. Med.*, vol. ii., pt. i., p. 437. For fig., see *Goebel und Kunze*, taf. xxvii., fig. i–v.

454. CINNAMOMUM INERS, *Reinw.*

a. Fruit.

Note.—These fruits are used in Southern India instead of cassia buds. Their taste is not so agreeable. *Pharm. Ind.*, pp. 195, 460.

455. CINNAMOMUM ZEYLANICUM, *Breyne.*

a. Section of the trunk, polished.

b. Portion of a young branch.

c. Inner bark. (*Ceylon Cinnamon.*)

d. Ditto, an original bundle.

e. Ditto. (*Tellicherry Cinnamon.*)

Note.—Tellicherry cinnamon is similar in appearance to the Ceylon variety, but the inner surface is more fibrous, and the flavour inferior.

f. Ditto. (*Malabar* or *Madras Cinnamon.*)

Note.—This variety is coarser and thicker than the Ceylon variety, and is inferior to the latter in flavour.

g. Cayenne Cinnamon.

Note.—The oil of this kind is more pungent and acrid than that of Ceylon cinnamon. See *Per. Mat. Med.*, vol. ii., pt. i., p. 440; *Journ. de Pharm.*, vol. iii., p. 434.

h. Cinnamon chips, from Dalton & Young, July 6th, 1871.

i. Thick cinnamon, from W. E. Fry, Ceylon, May 22nd, 1874.

Note.—Specimens *h* and *i* were presented by Mr. D. Hanbury, Nov., 1874. Cinnamon chips are the trimmings from the shoots, and are very aromatic. Thick cinnamon occurs in pieces which, in shape and appearance, resemble Carthagena bark. It is deficient in aroma, and unfit for pharmaceutical use. See *Pharmacographia*, p. 472; *P. J.* [2], vol. iv., p. 319.

j. Essential oil. (*Oil of Cinnamon.*)

k. Ditto. (*Oil of Cinnamon leaf.*)

Note.—Oil of cinnamon leaf differs in its darker colour, greater viscidity, and clove-like odour. For detection of adulterations in cinnamon powder, see *Pharmacographia*, p. 474; and for tincture, see *P. J.* [3], vol. ii., pp. 467, 641. For artificial oil of cinnamon, *P. J.* [1], vol. xiv., p. 281. The "small cinnamon" of commerce consists of the portions broken during the unpacking of the drug in the dock warehouses, and is often of excellent quality. For oil of Cinnamon leaf, see *P. J.* [1], vol. xiv., p. 319. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 224.

l. Brazilian cinnamon, grown near Rio Janeiro.

Note.—This bark has a rough surface, and an inferior somewhat soapy flavour. See *Pharmacographia*, p. 472.

456. DICYPELLIUM CARYOPHYLLATUM, *Nees.*

a. Bark. (*Clove Cassia Bark, Brazilian Clove Bark, Pao Cravo, Imyra-Quiyuha.*)

Note.—This bark occurs in tubular quills, packed one in the other. It has a powerful, clove-like taste. For fig. of the bark, see *Goebel und Kunze, Waar.*, taf. iii., fig. 13. In appearance it resembles cassia; but is darker, and often marked with indistinct transverse lines. It is very hard. *P. J.* [1], vol. iv., p. 466; *Martius, Syst. Mat. Med. Bras.*, p. 111.

457. LAURUS BENZOIN, *L.* (*Spicewood, Wild Allspice, Feverwood, Benjamin Bush.*)

a. Bark.

Note.—The bark is used in N. America as an aromatic tonic and stimulant; but is not official in the U.S. Pharmacopœia. It is given in decoction or infusion in ague, typhoid fever, and is also used as an anthelmintic. See *Amer. Dispens.*, p. 158. The berries are said to have been used during the American war instead of allspice. *Lindl. Flor. Med.*, p. 339.

458. LAURUS NOBILIS, *L.* (*Sweet Bay, True Bay,* or *Noble Laurel.*)

a. Fruit. (*Bay Berries.*)

b. Concrete oil. (*Oil of Bays.*)

Note.—The leaves possess tonic and febrifuge properties. See *P. J.* [3], vol. iii., p. 488. The fruit somewhat resembles Cocculus indicus in appearance, but is perfectly oval, and contains two loose cotyledons. The bayberry powder, which appears in the eclectic recipes for "composition powder," is not the powder of these berries, but of the root-bark of Myrica cerifera, which is known in N. America under the name of bayberry. See *Amer. Dispens.*, p. 535. The common or cherry laurel of the gardens is Prunus Lauro-Cerasus. The leaves may be distinguished from those of the true laurel by the difference in odour when bruised, and by the garden laurel having serrate leaves, while those of the bay laurel are entire and undulate. The leaves in which Solazzi juice is packed are those of bay laurel. For a volatile oil of bay, see the Hanbury collection. See *Bentley and Trimen, Med. Plants*, tab. 221.

459. NECTANDRA RODIÆI, *Schomb.* (*Bibiru,* or *Green Heart Tree.*)

a. Bark.

b. Fruit. See *Bentley and Trimen, Med. Plants*, tab. 219.

Note.—This bark resembles flat calisaya bark in appearance, but is much harder and heavier. The bark of Alstonia constricta has been offered in the London market for Bibiru bark, but differs entirely in appearance, having a thick, rough, grey external layer. See *Pharmacographia*, p. 481. The seeds, which contain starch, after their bitter principle has been washed out, are made into bread by the Indians. See *Per. Mat. Med.*, vol. ii., pt. i., p. 467. Bibirine has been found useful in menorrhagia, see *P. J.* [2], vol. ix., p. 27.

460. NECTANDRA PUCHURY, *Nees.*

a. Cotyledons. (*Sassafras Nuts, Pichurim,* or *Puchury Beans.*)

Note.—These cotyledons have been used as a tonic and astringent. Their taste is between that of sassafras and nutmeg. They are occasionally imported from Brazil. See *Per. Mat. Med.*, vol. ii., pt. i., p. 462.

461. PERSEA GRATISSIMA, *Gaertn. f.*

a. Fruit. (*Avocado,* or *Alligator Pear.*)

Note.—This fruit is eaten in the West Indies. The seeds yield an indelible black stain, and are used for marking linen. *Treas. Bot.*, p. 867.

462. SASSAFRAS OFFICINALE, *Nees.*

a. Section of trunk, polished.
b. Shavings of the wood.
c. Bark.
d. Root.
e. Root bark.
f. Pith.
g. Essential oil.

Note.—In this country the root is official; but in America, the root bark and the pith are official; the bark is much more fragrant than the woody portion. The pith is used in the proportion of two drachms to a pint of water to form a demulcent drink for catarrh and other affections of the mucous membrane, and also as a local application in ophthalmia. The pith is obtained from the young branches. See *Amer. Dispens.*, p. 475. For examination of root, see *P. J.* [1], vol. v., p. 426. For micr. structure, *P. J.* [3], vol. iii., p. 181. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 220.

ATHEROSPERMACEÆ.

463. ATHEROSPERMA MOSCHATA, *Forst.* (*Australian Sassafras.*)

a. Bark.
b. Essential oil from the leaves.

Note.—The bark is used in Australia as a substitute for tea. It possesses diaphoretic and diuretic properties. See *P. J.* [1], vol. xv., p. 115. *Bentley, Man. Bot.*, p. 613.

MYRISTICACEÆ.

464. MYRISTICA OFFICINALIS, *L. f.*; M. FRAGRANS, *Houtt.*

a. Fruit and leaves, preserved wet. Two specimens.
b. Seeds with arillus.
c. Arillus of seed. (*Mace.*)
d. Nucleus of seed. (*Penang Nutmegs.*) Two specimens.
e. Ditto, limed. (*Dutch or Batavian Nutmegs.*)
f. Ditto. (*British Possessions Limed Nutmegs.*)
g. Expressed oil from nutmegs. (*Oil of Mace.*)
h. Volatile oil from nutmegs. (*Oil of Nutmegs.*)

Note.—The fruit consists of a succulent dehiscent ovary containing one seed, the seed being surrounded by an arillus, which is a growth from the hilum. Nutmeg is the kernel of the seed with the endopleura folded into it, giving the albumen a marbled appearance known as ruminated. Limed nutmegs are preferred in some countries. The lime is said to preserve the seeds from insects, but it injures the flavour. The Chinese prefer to import their nutmegs in the testa or shell, in which they keep good for a great length of time; the shells occupy one-third of their weight. Oil of mace is made from those nutmegs which are too small for exportation. See *P. J.* [1], vol. xi., pp. 516–520; see also *Per. Mat. Med.*, vol. ii., pt. i., p. 470; *Pharmacographia*, p. 451. For volatile oil, see *P. J.* [3], vol. iv., p. 311; [1], vol. x., p. 350. For myristicin, *P. J.* [3], vol. v., p. 136. See *Bentl. & Trim., Med. Plants*, tab. 218.

465. MYRISTICA FATUA, *Houtt.*

a. Arillus. (*Wild Mace.*)

b. Seeds with arillus.

c. Seeds.

d. Nucleus of seed. (*Wild Nutmegs, Long Nutmegs.*)

Note.—The nucleus of the seed is occasionally met with in the grocers' shops in London, under the name of long nutmegs. It differs from the true nutmeg in being longer, but possesses the flavour of nutmeg in a great degree. For fig. and description, see *Per. Mat. Med.*, vol. ii., pt. i., pp. 471, 473.

ULMACEÆ.

466. ULMUS CAMPESTRIS, *L.*

a. Inner Bark. (*Elm Bark.*)

Note.—The bark has been used as a mucilaginous astringent, and as an alterative in some cutaneous diseases. See *Per. Mat. Med.*, vol. ii., pt. i., p. 364. See *Bentley and Trimen, Med. Plants*, tab. 232.

467. ULMUS FULVA, *Mich.* (*Red Elm, Slippery Elm.*)

a. Inner bark. (*Slippery Elm Bark.*)

Note.—The bark has a strong odour like fenugreek seed. It contains a quantity of mucilage, and in fine powder is largely used in America to form a kind of gruel, which is often made with milk; in coarser or granular powder it is used for making poultices. Externally its use has sometimes caused irritation, particularly in ulcers, or where the skin is broken. See *Wood and Bache, Dispens.*, p. 841; *Pharmacographia*, p. 501. See also *Bentley and Trimen, Med. Plants*, tab. 233.

CANNABINACEÆ.

468. CANNABIS SATIVA, *var.* INDICA.

a. Tops. (*Guaza, Indian Hemp, Gunjah.*)

b. Ditto. ("*D'amba* or *Dakha*," from Congo.) See *P. J.* [1], vol. ix., p. 363.

c. Resinous exudation. (*Bengal Churrus.*) Presented by Dr. Shaughnessy.

d. Ditto. (*Hashish.*)

Note.—Specimen *d* is in a coil like that of Labdanum. It was received from Constantinople in May, 1863, and was presented by Mr. P. Squire. For smoking, four grains are used each time. Specimen *c* is in oblong pieces about the size of a walnut or date.

e. Hashish sweetmeat.

Note.—This specimen consists of a mixture of sugar, extract of hemp, filberts, preserved ginger, and spices, and was presented by Mr. P. Squire, to whom it was sent by Dr. Dicks. It was prepared at Constantinople in 1864.

"Gunjah" consists of the flowering tops from which the resin has not been removed. "Bhang" consists of the larger leaves and capsules without the stalks. The specimen of Hashish in the museum is identical with the Bengal Churrus of Dr. Shaughnessy, differing only in shape. See *Per. Mat. Med.*, vol. ii., pt. i., p. 367. *P. J.* [3], vol. iii., 622, Art. Kief.

The name "Hashish" appears to be applied in Arabic to that which is called Bhang in Hindustanee. See *Pharmacographia* p. 493; also *Bentley and Trimen, Med. Plants*, tab. 231.

469. HUMULUS LUPULUS, *L.*

a. Strobiles.

b. Fruits.

c. Lupuline, or lupulinic glands.

Note.—Lupuline consists of the glands which cover the fruit, etc. It must not be confounded with lupulite, the bitter principle of the hop. See *Royle, Mat. Med.*, p. 636; *Pharmacographia*, p. 495; *Per. Mat. Med.*, vol. ii., pt. i., p. 375; and for fig. of lupulinic glands, *Berg, Anat. Atlas*, taf. 49. See *Bentley and Trimen, Med. Plants*, tab. 230.

MORACEÆ.

470. DORSTENIA BRASILIENSIS, *L.* (*Eayapiá, Carapiá.*)

a. Root. (*Contrayerva Root.*)

Note.—The root was formerly used in this country as a stimulant, tonic, and diaphoretic, but it is now obsolete. The inflorescence is remarkable as affording an instance of an open hypanthodium. See *Per. Mat. Med.*, vol. ii., pt. i., p. 381, fig. 165. For fig. of the root, see *Goebel und Kunze*, pt. ii., taf. vii.

ARTOCARPACEÆ.

471. ANTIARIS TOXICARIA, *Lesch.* (*Upas Tree*, or *Antiar.*)

a. Upas poison.

Note.—This specimen was sent by Mr. J. Christie, merchant in Java, to Mr. J. Bowerbank, about the year 1816. This poison is said to render the heart insensible to the stimulus of the blood. See *Per. Mat. Med.*, vol. ii., pt. i., p. 383.

EUPHORBIACEÆ.

472. ALEURITES AMBINUX, *Pers.* (*Belgaum*, or *Indian Walnut, Candleberry Tree, Bankoul Nut.*)

a. Seeds. Presented by Mr. J. Reeves.

Note.—The oil of the seed, known in Ceylon as Kekune oil, is said to be as mild in its action as castor oil, and to have the advantage of being more fluid, and without taste or smell. *P. J.* [2], vol. ii., p. 42; *Pharm. Ind.*, p. 203. The oil is occasionally imported, and is known as artist's oil or country walnut oil. *Treas. Bot.*, p. 36.

473. ANDA BRASILIENSIS, *Raddi.* (*Anda-açu, Indayaçu, Purga de Gentio, Cocco de Purga, Purga dos Paulistas, Fruita d'Arara.*)

a. Fruit.

b. Fixed oil.

Note.—The oil has been found to be moderately purgative in doses of twenty drops. See *Per. Mat. Med.*, vol. ii., pt. i., p. 428. For fig. of fruit, see *Hist. des Drog.*, vol. ii., p. 360.

474. CNEORUM TRICOCCON, *L.* (*Widow-wale.*)

a. Leaves and twigs. Presented by Mr. McCulloch.

Note.—This plant is stated by C. Bauhin to be the Mezereon of Avicenna. The leaves much resemble those of the olive-tree. See *Per. Mat. Med.*, vol. ii., pt. i., p. 477.

475. CROTON ELUTERIA, *Bennett.*

a. Branchlets, showing the bark *in situ.*

b. Bark.

c. Spurious cascarilla bark. (*Croton Lucidum, L.?*)

Note.—The barks of other species of croton have sometimes been found mixed with Cascarilla bark in the bales as imported, see *P. J.* [1], vol. vii., p. 35.

Specimen *c* is distinguished from true Cascarilla by want of its aroma, its astringency, and by the redder tint and striated appearance of the inner surface. See *P. J.* [3], vol. iv., p. 810. For Cascarilline, see *P. J.* [1], vol. v., p. 223. For micr. structure, *P. J.* [3], vol. iii., p. 664; *Berg, Anat. Atlas*, taf. 37. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 238.

476. CROTON MALAMBO, *Krst.*

a. Bark. (*Malambo Bark, Matias Bark.*)

Note.—This bark has an odour like that of Calamus aromaticus. It is said to have been used in America as an adulterant of ground spice. See *P. J.* [1], vol. iii., p. 169. It is used in Columbia in infusion for diarrhœa and as a vermifuge, and the tincture is used as an external application for rheumatism. *P. J.* [2], vol. i., p. 321; *P. J.* [1], vol. vi., p. 255. *Bentley's Man. Bot.*, p. 625.

477. CROTON NIVEUS, *Jacq.*; CROTON PSEUDO-CHINA, *Schlecht.*

a. Bark in quills. (*Copalchi bark, Cascarilla.*)

Note.—This is the bark mentioned by Pereira under the name of "Quilled Copalche" in his *Mat. Med.*, vol. ii., pt. i., p. 415. It is figured in *Goebel und Kunze, Waar.*, taf. xxvi., fig. 1–6. The taste is similar to that of Cascarilla, with a slight flavour of mace. It is readily distinguished from other barks by the surface, when denuded of the loose outer layer, presenting the appearance of having been rasped. Under a lens this is seen to be owing to numerous minute oblong pits which cover its surface. See *P. J.* [1], vol. xiv., p. 319; *Pharmacographia*, p. 507. It is remarkable for containing an alkaloid which gives a green colour with chlorine and ammonia, but does not give any characteristic compound with iodine.

This specimen was presented by Mr. J. E. Howard. It was imported from Puntas Arenas, in the gulf of Nicoya, in 1855. Since that date it has been offered in the London market as Cusparia bark.

478. CROTON SUBEROSUM, *H. et B.?* CROTON PSEUDO-CHINA, *Schiede.*

a. Bark, in corky quills. (*Chiquiqui Bark.*)

Note.—This bark is the "Corky Copalchi Bark" of Pereira, described in his *Mat. Med.*, vol. ii., pt. i., p. 416. Its taste is very bitter, and it is almost free from aroma. It is distinguished from the last by its very thick corky layer, and by the dark surface when the corky layer is removed. This specimen was presented by Dr. Lindley, in April, 1851, as an undoubtedly authentic specimen of chiquiqui bark. It was brought from Guatemala by Mr. G. W. Skinner, and appears to be identical with the bark described in *P. J.* [1], vol. ix., p. 463, by Dr. J. Stark, who states that it is called "Natri" in Chili. This bark is not the copalchi bark figured by Goebel, which is that of C. pseudo-China, *Schlecht*, Croton niveus, *Jacq.* See note by Howard, *P. J.* [1], vol. xiv., p. 319. It was also met with in the London market in 1875.

478. CROTON SUBEROSUM, continued.

b. Bark in corky quills. (*Corky Copalchi Bark, Chiquiqui Bark, Natri Bark, Quina Blanca of Mexico.*)

Note.—This specimen has no history attached to it, but is probably that described by Stark in the *P. J.* [1], vol. ix., p. 463, since the label ascribes it to the species to which he refers it, and gives the synonyms mentioned by him. It is identical in taste and appearance with specimen *a*, and not with the bark of Croton pseudo-China, *Schlecht*, to which Stark refers it.

479. CROTON SPECIES.

a. Bark.

Note.—This specimen was presented by Mr. J. Collins. It was imported from San Juan in Mexico, and offered for sale in London in 1869. It is not bitter, and has a taste resembling that of Turkish oil of geranium (oil of ginger grass). Its botanical source is unknown.

b. Bark said to contain quinine. Presented by Mr. J. E. Howard.

480. CROTON TIGLIUM, *L.*

a. Seed. See *Bentley and Trimen, Med. Plants*, tab. 239.

b. Fixed oil, obtained from the seeds in England. (*Croton Oil.*)

c. Ditto, imported.

d. Croton cake, from which the oil has been expressed.

e. Husks of the seed.

Note.—The oil expressed in England is more esteemed than that imported from India. *Pharmacographia*, p. 509. The English oil is darker in colour than the Indian. Hypercatharsis produced by croton oil may be controlled by copious draughts of diluted lemon or lime juice or vinegar. *Ind. Pharm.*, p. 201. East Indian oil forms a milky mixture with its own weight of alcohol (0·796), which ultimately separates; but English oil dissolves, and forms a clear solution under the same circumstances. Pereira suggests that the East Indian oil may be adulterated with jatropha oil, which is not soluble in twenty-four parts of alcohol. See *Per. Mat. Med.*, vol. ii., pt. i., p. 411.

481. CURCAS PURGANS, *L.* (*English Physic Nuts.*)

a. Seeds. (*Physic Nuts, Polga Nuts, Pinheiro de Purga, Pinhao Paraguay.*) Presented by Mr. Morson.

b. Oil expressed from the seeds. (*Oil of Wild Castor Seeds, Jatropha Oil.*)

Note.—These seeds are in size and shape like those of the castor oil plant, but have a dull, black, cracked surface. Christison states that twelve to fifteen drops of the oil are equal to one ounce of castor oil, but the action of the drug is uncertain. The oil is only sparingly soluble in alcohol. See *Ind. Pharm.*, p. 203. The leaves have been used as a cataplasm to produce lactagogue effects. For fig. of seed see *Hist. des Drog.*, vol. ii., p. 355. See also *Per. Mat. Med.*, vol. ii., pt. i., p. 427; *P. J.* [1], vol. v., p. 25; vol. vii., p. 210; [2], vol. vii., p. 554.

482. CURCAS MULTIFIDUS, *Endl.*; JATROPHA MULTIFIDA, *L.* (*Coral Plant.*)

a. Seeds. (*French Physic Nuts, Purguira Nuts, Spanish Physic Nuts.*)

b. Fruit and oil.

Note.—These seeds are nearly as powerfully purgative as croton oil seeds, three of them having been known to produce symptoms of poisoning. See *Ind. Pharm.*, p. 203; *Per. Mat. Med.*, vol. ii., pt. i., p. 427.

483. EUPHORBIA COROLLATA, *L.* (*Large Flowering Spurge, Blooming Spurge, Milk Weed.*)

a. Root.

Note.—The root bark is emetic in doses of fifteen to twenty grains, and acts without causing much nausea, but is uncertain in its action. It is official in the secondary list of the *U. S. Pharmacopœia.* See *Amer. Dispens.*, p. 353. When given with vinegar, it acts as a purgative.

484. EUPHORBIA IPECACUANHA, *L.* (*Wild Ipecac, Ipecac Spurge.*)

a. Root. (*American Ipecacuanha.*)

Note.—The root bark possesses emetic, expectorant, and cathartic properties. It is chiefly used as a hydragogue in dropsical affections, in doses of ten to fifteen grains. *Amer. Dispens., p.* 356. Its properties are due to a resin. *Amer. Journ. Pharm.*, 1873, p. 255.

485. EUPHORBIA LATHYRIS, *L.* (*Caper Spurge.*)

a. Seeds. (*Semina Cataputiæ minoris, Grana Regia minora.*)

Note.—This plant is sometimes cultivated in gardens, and known as the Caper plant. The latter, however, belongs to a very different family. The name of the true caper plant is Capparis spinosa. See *Treas. Bot.*, p. 217. The seeds contain an oil insoluble in alcohol, which is powerfully purgative in doses of three to ten drops. Country labourers are said to take the seed as a purge. *Lindl. Fl. Med.*, p. 194; *P. J.* [2], vol. vii., p. 554.

486. EUPHORBIA RESINIFERA, *Berg.*

a. Stem.

b. Gum resin.

c. Ditto, showing the holes caused by the spines of the plant.

Note.—This drug is chiefly used as a vesicant in veterinary medicine. It causes considerable irritation of the nostrils and eyes when powdered. *Pharmacographia*, p. 502; *Per. Mat. Med.*, vol. ii., pt. i., p. 401; *P. J.* [3], vol. ii., p. 1049. It is said to be used as an ingredient in paint for ships' bottoms. See *Bentley and Trimen, Med. Plants*, tab. 240.

487. HURA CREPITANS, *L.* (*Sandbox Tree, Monkey's Dinner Bell.*)

a. Fruit.

Note.—The seeds possess purgative and emetic properties, the emetic property being said to reside in the embryo only. See *P. J.* [1], vol. ix., p. 131. The seeds lose their properties by age. The fruit affords an instance of the regma, and it is from the noise caused by the bursting of the fruit that the plant gets its curious name. *Treas. Bot.*, p. 603; *Bentley's Man, Bot.*, p. 298.

488. MANIHOT UTILLISSIMA, *Pohl.*

a. Root sliced.

b. Cassava meal, coarse. From Dr. Shier.

c. „ flour, fine. Ditto.

* *c.* Cassava bread. (*Tapioca Meal, Moussache,* or *Cipipa.*)

d. Cassava Starch, from British Guiana.

e. Ditto. (*Brazilian Arrowroot.*)

f. Cassareep.

g. Matapi, or cassava squeezer. From Dr. Shier.

h. Etami, or cassava sifter.

i. Tapioca. Two specimens.

Note.—The root is grated and pressed in a matapi, or cylindrical bag, made of the Ita palm (Mauritia flexuosa, *L.*); and after being pressed and dried, is sifted through an etami, or sifter, made of the same material, and then forms cassava meal. For figures of the matapi and etami, see *P. J.* [1], vol. xi., p. 248. Cassava bread occurs in thin round cakes, and is made from the meal in a moist state by gently heating it, and then drying it in the sun. Cassareep, which is now an article of commerce in London, is the concentrated juice of the bitter cassava, which loses its poisonous properties by heat. *P. J.* [2], vi., p. 302. It is said, but wrongly, to preserve meat boiled in it longer than any other substance which can be used. Cassareep, mixed with peppers and meat, forms the West Indian "pepper-pot." See *P. J.* [1], vol. vii., p. 197; [2], vol. ii., p. 13. For fig. of the starch see *Berg, Anat. Atlas,* taf. 50. Tapioca is made by heating and stirring the starch in a moist state until it agglomerates. *P. J.* [3], vol. iii., p. 569; *Per. Mat. Med.*, vol. ii., pt. i., p. 432. Rio tapioca is whiter than that from Bahia. For fig. of plant, see *Bentley and Trimen, Med. Plants,* tab. 235.

489. RICINUS COMMUNIS, *L.*

a. Fruit, preserved wet.

b. Seeds. (*Castor Oil Seeds, Semina Cataputiæ majoris.*)

c. Ditto, differently marked.

d. Ditto. (*African Castor Oil Seeds.*)

Note.—The African seeds were brought from W. Africa by Dr. Daniell. A small variety of the seed is cultivated in India also, where the large variety is expressed for lamp oil, and the small variety, for medicinal, oil. *P. J.* [3], vol. iv., p. 676. The American variety, with reddish seeds, is said to yield more oil than the Egyptian black seed, but the oil obtained from the Egyptian seed is paler in colour. For Italian castor oil see *P. J.* [2], vol. vii., p. 229; [2], vol. viii., p. 250. For cultivation in Algeria, *P. J.* [2], vol. i., p. 530. For Indian castor oil, *P. J.* [3], vol. iv., p. 676. See *Bentley and Trimen, Med. Plants,* tab. 237.

490. ROTTLERA TINCTORIA, *Roxb.*; MALLOTUS PHILIPPENSIS, *Müll. Arg.*

a. Fruit. See *Bentley and Trimen, Med. Plants,* tab. 236.

b. Glands covering the fruit. (*Kamala, Kapila, Kapilapodi, Wars, Wurrus, Wassunta gunda.*)

c. Ditto "Wurrus," first quality.

d. Ditto, ditto, second quality.

Note.—Wurrus is used in India very extensively as a rich orange brown

490. ROTTLERA TINCTORIA, continued.

dye for silk. It is a less pure form of the drug than kamala. Kamala is used as a vermifuge, and sometimes in cutaneous diseases. See *P. J.* [1], vol. xii., pp. 386, 589; [1], vol. xiii., p. 284. For fig. of the glands, see *P. J.* [2], vol. ix., p. 279, fig. h. k. *Berg, Anat. Atlas*, taf. 49, f. 135. For Rottlerine, see *P. J.* [2], vol. ix., p. 310; [2], vol. ii., p. 166; [3], vol. iii., p. 228; *Pharmacographia*, p. 518.

491. STILLINGIA SEBIFERA, *Mich.* (*Tallow Tree, Wu-k'iu muh, Yah-k'iu.*)

a. Solid fat.

Note.—This fat consists of tripalmitin. It forms a coating on the outside of the seed. It is used extensively in China for making candles, and to a small extent as an emetic purgative, and antidote to poisons. It has also been recommended for use as an ingredient in ointments and suppositories. *Porter Smith, Chinese Mat. Med.*, p. 211; *P. J.* [1], vol. xii., p. 73.

492. STILLINGIA SYLVATICA, *L.*

a. Root. (*Queen's Delight, Queen's Root, Yaw Root, Silver Leaf.*)

Note.—The root is official in the U. S. Pharmacopœia. It is used as a powerful alterative in cutaneous, scrofulous, and syphilitic diseases. It is said to exert a powerful influence over the secretory organs. *Amer. Dispens.*, p. 810. See *Bentley and Trimen, Med. Plants*, tab. 241.

ARISTOLOCHIACEÆ.

493. ARISTOLOCHIA LONGA, *L.*

a. Root.

494. ARISTOLOCHIA ROTUNDA, *L.*

Note.—The roots of these two species were formerly used in this country as stimulant tonics and emmenagogues, to which latter property the genus owes its name. See *Pomet, Hist. of Drugs*, pp. 44, 45; and for fig. of the roots see *Goebel und Kunze*, pt. ii., taf. ix., f. 1, 2. The plants are natives of the south of Europe. For A. cava, see Collection of Old English Drugs.

495. ARISTOLOCHIA RETICULATA, *Nutt.*

a. Root. (*Red River or Texan Serpentary Root.*)

Note.—This species is official together with the next in the U. S. Pharmacopœia. It differs from the root of A. Serpentaria only in the rootlets being thicker and less densely matted. All the serpentary root produced south-west of the Rocky Mountains is stated to be the produce of this species. See *Pharmacographia*, p. 534. This species contains more volatile oil than the other. See *Amer., Dispens.*, p. 132.

496. ARISTOLOCHIA SERPENTARIA, *L.*

a. Root. (*Virginian Snakeroot.*)

Note.—This root somewhat resembles in appearance valerian and Indian pink roots, but may be distinguished from both by its odour and the brittleness of its rootlets. See *Pharmacographia*, p. 533. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 246.

497. ARISTOLOCHIA SPECIES.

a. Root. (*Guaco.*)

Note.—Guaco is a name given in Central and South America to the roots of various plants used for snakebites. Specimen *a* is certainly the root of a species of Aristolochia, probably of A. Guaco. See *P. J.* [1], vol. xiii., p. 412. See also Mikania Guaco. It closely resembles in appearance a root in the collection of Brazilian drugs received under the name of Sipo de Milhomens, and which is referred by Martin to Aristolochia cymbifera and other species. See *Martius. Mat. Med. Bras.*, p. 107.

498. ASARUM CANADENSE, *L.*

a. Rhizome. (*Wild Ginger, Indian Ginger, Canada Snakeroot, Coltsfoot.*)

Note.—The rhizome is used as a stimulant, expectorant, and carminative. It is official in the secondary list of the U. S. Pharmacopœia. *Wood and Bache, Dispens.*, p. 143. English Coltsfoot is Tussilago Farfara, *L.*

SANTALACEÆ.

499. SANTALUM ALBUM, *L.*

a. Wood rasped. (*Sandal Wood.*)

b. Volatile oil.

Note.—The wood is derived from several species of Santalum, and from different countries. See *Pharmacographia*, p. 540. The oil is used as a remedy for gonorrhœa; and the wood, ground with water into a paste, is used in India as an application to erysipelas and local inflammations. See *Ind. Pharm.*, pp. 197, 461.

JUGLANDACEÆ.

500. CARYA ALBA, *Nutt.* (*Shell Bark, Shag Bark,* or *Scaly Bark Hickory.*)

a. Fruit. (*Hickory Nuts.*)

Note.—These nuts resemble a walnut internally, but are smooth externally. Pecan nuts, which are similar, but more pointed at the ends, are superior in flavour, and are produced by Carya olivæformis. See *Treas. Bot.*, p. 228.

501. JUGLANS CINEREA, *L.* (*Butter Nut, White Walnut, Oil-nut Tree.*)

a. Inner bark.

b. Endocarp of fruit. (*Butter Nuts.*)

Note.—The inner bark is used as a gentle cathartic, which acts without causing griping or subsequent weakness of the intestines. It is often combined in the form of extract with anthelmintics, for children, and is also used in chronic constipation. Juglans regia, L., the common walnut, has been found useful in scrofula. See *Amer. Dispens.*, p. 462. See *Bentley and Trimen, Med. Plants*, tab. 247.

CUPULIFERÆ.

502. QUERCUS ÆGILOPS, *L.*

a. Acorn cups.

Note.—The cupules are used in commerce for tanning, under the name of "valonia."

503. QUERCUS PEDUNCULATA, *Willd.*; QUERCUS ROBUR, *L.* (*The Common Oak.*)

a. Leaves and fruit. See *Bentl. & Trim., Med. Plants*, tab. 248.

b. Bark. For fig., see *Goebel und Kunze*, pt. i., taf. xxix., fig. 1–4.

Note.—Oak bark is somewhat similar in appearance to large specimens of the bark of Rhamnus Frangula; the latter, however, may be distinguished by its bright reddish colour when the surface is scraped. Quercus pedunculata may be easily distinguished from Q. sessiliflora by the sessile leaves, those of Q. sessiliflora being stalked.

504. QUERCUS SUBER, *L.* (*Cork Oak.*)

a. Bark. Two specimens.

Note.—Cork is the much developed epiphlœum of this tree. The younger bark of the tree is known under the name of European alcornoque bark, and is used in tanning. See *Per. Mat. Med.*, vol. ii., pt. i., p. 361. For American alcornoque bark, see *Byrsonima laurifolia.*

505. QUERCUS TINCTORIA, *Willd.* (*Quercitron, or Black Oak.*)

a. Inner bark. (*Black Oak Bark.*)

Note.—The bark is known in commerce as quercitron bark, and is used as a yellow dye. It is official in the U. S. Pharmacopœia, and is used externally as an astringent. See *Per. Mat. Med.*, vol. ii., pt. i., p. 360. White oak bark (Q. alba) is the kind chiefly used in medicine. Both are official in the U. S. Pharmacopœia. See *Amer. Dispens.*, p. 692, also *Bentley and Trimen, Med. Plants*, tab. 251.

MYRICACEÆ.

506. COMPTONIA ASPLENIFOLIA, *Gærtn.* (*Sweet Fern.*)

a. Herb.

Note.—This plant is used in America as an astringent and alterative tonic. A pillow of the leaves is sometimes used for children suffering from rickets. *Amer. Dispens.*, p. 282. It is not official in the U. S. Pharmacopœia.

507. MYRICA CERIFERA, *L.* (*Virginia Candleberry, Wax Myrtle, Waxberry, Bayberry.*)

a. Root bark. (*Bayberry Bark.*)

b. Wax. (*Bayberry Wax.*)

† *c.* Section of trunk.

Note.—The powder of the root bark forms a principal ingredient in the favourite powder of the medical botanists or Eclectics of America, viz., composition powder. It is used as a stimulant and astringent for the mucous membrane when in an atonic state. Its powder is excessively irritating to the nostrils, exciting coughing and sneezing, but only for a short time. The wax is used in making ointments. See *Amer. Dispens.*, p. 535.

508. MYRICA MACROCARPA, *H. et B.*

a. Candles.

Note.—These candles were presented by Dr. Lindley. They are made in Colombia of wax obtained from the fruit. Other species yield wax, as C. cordifolia, *L.*, at the Cape of Good Hope, and C. Carolinensis in Carolina. See *P. J.* [1], vol. xiii., p. 418; [1], vol. x., p. 450.

509. ALNUS RUBRA, *Desf.* (*Tag Alder, Smooth Alder, Common Alder.*)

a. Bark.

Note.—The bark is used in America as an alterative emetic in scrofula and cutaneous diseases. It is not official in the U. S. Pharmacopœia. See *Amer. Dispens.*, p. 82.

510. BETULA LENTA, *L.* (*Cherry Birch, Sweet Birch, Mahogany Birch.*)

a. Bark.

Note.—The bark is peculiar for having exactly the same taste and containing the same volatile oil as Gaultheria procumbens. In external appearance it much resembles the bark of Prunus virginiana, but can at once be distinguished by its taste. It is used in America as a tonic and astringent after dysentery, and in the diarrhœa of children, also for gravel. *Amer. Dispens.*, p. 160. *Amer. Journ. Pharm.*, 1844, p. 243.

511. BETULA ALBA, *L.* (*Common Birch.*)

a. Section of trunk.

b. Empyreumatic oil. Brought from Russia by Mr. Greenish.

Note.—Specimen *b* was prepared from the bark; it is used in the manufacture of russia leather. Wine made from the sap in spring is sometimes used in domestic medicine for gravel or stone. *Bentley, Man. Bot.*, p. 636.

LIQUIDAMBARACEÆ.

512. LIQUIDAMBAR ORIENTALIS, *Miller.*

a. Bark. Presented by Mr. S. H. Maltass, of Smyrna.

b. Ditto. Presented by Mr. Hanbury, Nov., 1874.

Note.—The bark used to be known in commerce as Cortex Thymiamatis, incense bark, or storax bark. It has also been called Cortex Thuris, Thus Judæorum, and Narcaphthum. It is now rarely met with. See *Pharmacographia*, p. 245. See *Bentley and Trimen, Med. Plants*, tab. 107. In *Pharmacographia* this plant is referred to the Hamamelideæ.

c. Liquid storax.

d. Prepared storax. (*Styrax Colatus.*)

e. Globular earthenware bottle containing balsam storax.

Note.—Rose malloes is the trade name for liquid storax in the East. *Pharmacographia*, p. 242.

Specimen *e* is a pellucid liquid, in appearance resembling Venice turpentine. It is the Pellucid Liquid Storax of Pereira. *Per. Mat. Med.*, vol. ii., pt. i., p. 678 β.

f. Storax in mass. (*Styrax Calamita.*)

g. Ditto. (*Storax en pain, Guib.*) α.

h. Ditto. (*Drop or Gum Storax.*) β.

i. Ditto. (*Hard blackish Storax; Styrax brun, Guib.*) γ.

Note.—Styrax calamita is made in Trieste, by mixing three parts of storax bark in coarse powder with two of liquid storax. Specimen *h* appears to contain rather more liquid storax than usual. Specimens *g*, *h*, and *i*, are the three kinds described by Pereira in his *Mat. Med.*, vol. ii., pt. i., p. 679, under α, β, γ. Specimen *i* is supposed by him to be a kind of false storax. In odour it resembles benzoin much more than storax. Styrax calamita is frequently covered with silky acicular crystals of styracin.

512. LIQUIDAMBAR ORIENTALIS, continued.

j. Storax in mass. (*Drum Storax.*)

Note.—This specimen is alluded to by Pereira under the head of reddish brown storax. Prof. Guibourt considered it to be "falsified brown storax." It is covered with minute white crystals which are flat, unlike the acicular crystals of styracin, usually found on styrax calamita.

513. LIQUIDAMBAR STYRACIFLUA, *L.*

a. Balsam. (*Liquidambar, Sweet Gum, Copalm Balsam.*)

b. Cylindrical earthenware jar containing balsam of liquidambar, from Guatemala. Presented by Mr. D. Hanbury.

Note.—Liquidambar is produced in the Southern States of America. Its odour is more terebinthinous than that of liquid storax, which it otherwise much resembles. It has been used in the form of ointment for healing indolent ulcers and for cutaneous diseases. See *Amer. Dispens.*, p. 489. Liquidambar Altingia, *Bl.*, yields a similar product in Tenasserim. *P. J.* [1], vol. viii., p. 243. A syrup of liquidambar is used in America for the diarrhœa of infants. It is made by the same formula as that given in the U. S. Pharmacopœia for syrup of Prunus Virginiana. See *P. J.* [1], vol. xvi., p. 336.

c. Liquidambar mou, ou blanc. Presented by Prof. Guibourt.

Note.—This is the specimen mentioned by Pereira in his *Mat. Med.*, vol. ii., pt. i., p. 336, as being distinct from commercial liquidambar. It resembles Chian turpentine in appearance, and styrax in odour. See *Hist. des Drog.*, vol. ii., p. 306.

† *c*. Section of the trunk from Guatemala. Presented by Mr. D. Hanbury.

SALICACEÆ.

514. POPULUS BALSAMIFERA, *L.* (*Tacamahac Poplar.*)

a. Leaf buds.

Note.—The leaf buds of this species, and of P. nigra, *L.*, are used to make an ointment, and to prevent rancidity in other ointments, in which property they are said not to be equal to paraffin. See *Lind. Fl. Med.*, p. 320. *Amer. Dispens*, p. 664. For formulæ see Cooley's Cyclopædia, p. 855.

515. POPULUS TREMULOIDES, *Mich.* (*American Aspen, American Poplar.*)

a. Bark. (*White Poplar Bark.*)

Note.—This bark is used as a bitter tonic and febrifuge in America. *Amer. Dispens.*, p. 666. It somewhat resembles slippery elm bark in appearance, but the latter has an odour like fenugreek, and is not bitter like poplar bark. See *Amer. Dispens.*, p. 665.

516. SALIX CAPREA, *L.* (*Great Sallow, Round-leaved Willow.*)

a. Bark. (*Willow Bark.*)

Note.—Several other species yield willow bark. The bark of Salix purpurea, *L.*, is stated to be intensely bitter. S. Caprea is known by its broad flat ovate leaves, with wavy margins. The bark has been used in agues. See *Per. Mat. Med.*, vol. ii., pt. i., p. 337.

BALANOPHORACEÆ.

517. CYNOMORIUM COCCINEUM, *L.*

a. The plant. (*Fungus melitensis.*)

Note.—This plant was formerly highly valued as an astringent in dysentery, and was also used in Malta to procure abortion. See *Treas. Bot.*, p. 372. For fig. see *Hist. des Drog.*, vol. ii., p. 74.

CYTINACEÆ.

518. CYTINUS HYPOCISTIS, *L.*

a. Extract. (*Succus Hypocistidis.*)

Note.—This occurs in lenticular cakes of about 2 oz. in weight. It was formerly used as an astringent in diarrhœa and hæmorrhage. The seeds of this plant are remarkable for having an amorphous embryo. See *Hist. des Drog.*, vol. ii., p. 86. The plant is a curious parasite found in the South of Europe upon the root of the cistus, or rock rose. See *Pomet, Dict. Drugs*, p. 221; *Salmon's English Physician*, 1693, p. 917.

GYMNOSPERMIA.

CONIFERÆ.

519. ABIES BALSAMEA, *Marshall;* PINUS BALSAMEA, *L.* (*Balsam Fir, Balm of Gilead Fir.*)

a. Oleoresin. (*Canada Balsam.*)

Note.—Canada balsam is also produced by Pinus Fraseri, *Pursh.* It is much used for mounting objects for the microscope. For this purpose old hard Canada balsam is preferred. It readily mixes with chloroform and benzol in all proportions. See *Pharmacographia*, p. 552. It solidifies with one sixth of its weight of calcined magnesia. For its optical properties, see *Per. Mat. Med.*, vol. ii., pt. i., p. 306.

b. Volatile oil.

Note.—This is the volatile oil separated by distillation from Canada balsam. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 263.

520. ABIES CANADENSIS, *Mich.;* PINUS CANADENSIS, *L.* (*Hemlock Spruce.*)

a. Oleoresin. (*Canada Pitch, Hemlock Pitch.*)

Note.—In its purified state it is official in the U. S. Pharmacopœia. The powdered inner bark is used by American herbalists as an astringent. An oil obtained from the oleoresin, and called oil of hemlock or oil of spruce, has been used to procure abortion. See *Wood and Bache, Dispens.*, p. 651. *Bentley and Trimen, Med. Plants*, tab. 264.

521. ABIES EXCELSA, *D.C.;* PINUS ABIES, *L.* (*Norway Spruce.*)

a. Fruiting branchlet.

b. Concrete oleoresin. (*Burgundy Pitch.*)

Note.—Specimen *b* is an authentic specimen, which, as well as the fruit, was gathered in Switzerland, at Simmenthal, Canton de Bern, by Mr. D. Hanbury in the autumn of 1849. It is described by Pereira in his *Mat. Med.*, vol. ii., pt. i., p. 306.

c. Concrete oleoresin. Two specimens, from Messrs. Allen & Co.

d. Ditto. Four specimens.

e. Strained Burgundy pitch, from Hamburg.

f. Plaister made from a specimen imported from St. Petersburg in 1849. Presented by Mr. J. Barclay.

g. Artificial Burgundy pitch.

Note.—Most of the Burgundy pitch found in commerce is a fictitious article, made by melting resin with linseed oil, and colouring with arnatto or palm oil. The genuine article is much more irritating than the fictitious one. See *Cooley's Cyclopædia*, p. 941; *Pharmacographia*, pp. 557–560. Any fat oil may be detected by treating the Burgundy pitch with twice its weight of glacial acetic acid, when it forms a turbid mixture. For fig. of plant, see *Bentl. & Trim., Med. Plants*, tab. 262.

522. ABIES PECTINATA, *D.C.*; PINUS PICEA, *L.* (*Silver Fir.*)

a. Oleoresin. (*Strassburg Turpentine.*)

b. Volatile oil. (*Oleum Abietis.*)

Note.—This oleoresin, like that of Abies balsamea, is contained in little swellings of the bark of young stems, there being no resin ducts in the wood. See *Pharmacographia*, pp. 545, 555, 556. It differs from Canada balsam in having no distinct fluorescence, a more pleasant taste, and no bitterness. The genus Abies is distinguished from Pinus by the cones having thin scales. The volatile oil was official in the form of inhalation in the Throat Hospital Pharmacopœia of 1872, p. 74, but has since been replaced by the volatile oil of Pinus Pumilio. See *Bentley and Trimen, Med. Plants*, tab. 261.

523. CALLITRIS QUADRIVALVIS, *Vent.*; THUJA ARTICULATA, *Desf.* (*Arar Tree.*)

a. Resin. (*Gum Juniper, Gum Sandarach.*)

Note.—This resin somewhat resembles mastic in appearance, but the tears are longer and more cylindrical, and the odour is different. It is used in making French polish. See *Cooley's Cyclopædia*, p. 541. In the state of powder it is used as pounce. *Treas. Bot.*, p. 198. See *Per. Mat. Med.*, vol. ii., pt. i., p. 327. Galls are also found on this tree. See *Collection of Animal Mat. Med.*

524. DAMMARA AUSTRALIS, *Don.* (*Kauri Pine.*)

a. Resin. (*Australian Copal, Australian Dammar, Coire Gum, Kawrie Gum.*)

b. Ditto. Remarkably fine specimen.

Note.—Kauri or cowdie gum is a fossil resin, used as a substitute for copal in making varnishes. It is readily soluble in eucalyptus oils. It is largely imported into this country from New Zealand, where it is dug up by the Maories. *P. J.* [3], vol. v., p. 259. In the year 1866, no less than 41,428 cwts. were imported, a large proportion of which was probably again exported to America. See *McCulloch's Commercial Dictionary*, p. 655. It has fetched as much as £120 a ton in London. The fine specimen *b* was presented in 1875 by Messrs. Fitch & French, of Melbourne, a descriptive note from whom is enclosed with specimen *a*. Common dammar resin is produced in India by Dammara orientalis, *Lamb. Hist. des Drog.*, vol. ii., p. 268.

525. JUNIPERUS COMMUNIS, *L.*

a. Tops.

b. Ditto, with very fine fruit.

c. Galbuli. (*Juniper Berries.*)

d. Volatile oil. (*Oil of Juniper.*)

e. Ditto. Obtained from the wood.

Note.—The fruit is a fleshy galbulus. When first formed, it consists of three fleshy bracts quite separate from each other, with an ovule at the base of each. These bracts afterwards grow together to form the so-called juniper berry. For fig., see *Bentley and Trimen, Med. Plants*, p. 255. The small catkins of male flowers occur on separate plants. *Pharmacographia*, p. 565. The oil is often adulterated with turpentine, and is then less viscid, and not entirely soluble in alcohol. The pure oil is soluble in that fluid. *Hist. des Drog.*, vol. ii., p. 240.

526. JUNIPERUS SABINA, *L.* (*Savin.*)

a. Tops.

b. Volatile oil. (*Oil of Savin.*)

Note.—Savin differs from juniper in having leaves only half as long and more spreading than in that plant, and in its different odour. It may be distinguished by its tufted branchlets from the common species of Thuja, which have fan-like, flattened branches. See *Pharmacographia*, p. 567. See *Bentley and Trimen, Med. Plants*, tab. 254.

527. JUNIPERUS VIRGINIANA, *L.* (*Red Cedar*, or *American Savine.*)

a. Wood. Presented by Mr. D. Hanbury.

Note.—This plant closely resembles savine in appearance and odour, but yields less volatile oil. It appears to differ from savine only in its larger size and more diffuse habit. *Pharmacographia*, p. 568. The wood is the kind of cedar commonly used for lead pencils. It has the advantage over common cedar of not being attacked by insects.

528. JUNIPERUS OXYCEDRUS, *L.*

a. Empyreumatic oil. (*Huile de Cade, Juniper Tar Oil.*)

b. Ditto, from Germany. Dr. M. Weidenbach, 965, Cologne Street, Aix-la-Chapelle.

Note.—This oil was formerly made from J. Oxycedrus, *L.*; but its present source is not known. *Pharmacographia*, p. 563. It is used in skin diseases, either alone or combined with soap.

529. PINUS PINEA, *Lamb.* (*Stone Pine.*)

a. Cones. (*Pignoli Pines.*)

Note.—The seeds are eaten under the name of pignons doux in France and pinocchi in Italy. Pignons d'Inde are the seeds of Curcas purgans. For fig. see *Hist. des Drog.*, vol. ii., p. 245.

530. PINUS PINASTER, *Sol.* (*Cluster Pine, Pinaster.*)

a. Cones. See *Bentley and Trimen, Med. Plants*, tab. 256.

b. Oleoresin. (*Bordeaux Turpentine.*)

c. Galipot du pin maritime.

d. Galipot fondu. (*False Colophony.*)

Note.—The specimens *b*, *c*, *d*, were presented to Dr. Pereira by Prof. Guibourt. Galipot (formerly garipot), or barras, is the resin which exudes from old incisions in the tree, and hardens on the trunk. It is chiefly collected in winter. Galipot fondu is the same melted to free it from impurities. See *Hist. des Drog.*, vol. ii., p. 263.

531. PINUS PUMILIO, *Haenke.* (*Mugho*, or *Mountain Pine.*)

a. Volatile oil. (*Oleum templinum.*)

Note.—The volatile oil is official in the Throat Hospital Pharmacopœia, p. 89. *Per. Mat. Med.*, vol. ii., pt. i., p. 300.

532. PINUS SYLVESTRIS, *L.* (*Scotch Fir.*)

a. Archangel pitch.

b. British pitch.

c. Volatile oil. (*Oleum Pini Sylvestris, Fir Wool Oil.*)

532. PINUS SYLVESTRIS, continued.

Note.—Archangel pitch is also produced by Larix Sibirica, *Ledeb.* Pitch has been used, made into pills with flour, in skin diseases and languid circulation. See *Per. Mat. Med.*, vol. ii., pt. i., p. 324. Pitch is the residue in the still after the distillation of wood tar.

The volatile oil is official in the Throat Hospital Pharmacopœia, p. 90. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 257.

533. PINUS TÆDA, *L.*; PINUS PALUSTRIS, *Mill*; PINUS AUSTRALIS, *Mich.*

a. Oleoresin. (*Crude Turpentine.*)

b. Concrete ditto. Two specimens. (*Resina Abietis, American Frankincense, Gum Thus.*) Presented by Mr. Ree.

c. Volatile oil. (*Oil of Turpentine, Spirit of Turpentine.*)

d. Ditto, rectified from water, and having left-handed polarization.

e. Ditto, with both right-handed and left-handed polarization.

f. Resin. (*White Rosin.*)

g. Ditto, ditto. (*Poix-résine.*) From Prof. Guibourt.

h. Ditto. (*Yellow* or *Amber Rosin.*)

i. Ditto. (*Black Rosin*, or *Colophony.*)

Note.—White rosin is the residue from the distillation of oil of turpentine, and owes its opacity to water contained in it. When this is driven off entirely, the resin becomes transparent, and forms the amber or yellow rosin of commerce. When heated more strongly, it forms black rosin, or colophony. For fig. of P. palustris, see *Bentley and Trimen, Med. Plants*, tab. 258, and for P. Tæda, tab. 259.

TAXACEÆ.

534. DACRYDIUM CUPRESSINUM, *Lamb.* (*Dimon Pine.*)

a. Bark, leaves, and extract.

Note.—The extract has an astringent taste.

CYCADACEÆ.

535. CYCAS REVOLUTA, *Thunb.*

a. Section of stem.

b. Fruit.

c. Seeds. From Foo-chow, China. Presented by Mr. D. Hanbury.

Note.—Japan sago is said to be made of the starch of this plant; but it is not imported into England. See *Per. Mat. Med.*, vol. ii., pt. i., p. 298.

ENDOGENÆ.

DICTYOGENÆ.

DIOSCORACEÆ.

536. DIOSCOREA VILLOSA, *L.* (*Colic Root, Wild Yam.*)

a. Root.

Note.—This root is said to be a specific for bilious colic. It is also used as an antispasmodic in irritable states of the muscular tissue beneath mucous membrane. See *King's Dispens.*, p. 335. It is not official in the U. S. Pharmacopœia.

537. DIOSCOREA TRIPHYLLA, *L.* (*Buck Yam.*)

a. Starch.

Note.—The root yields about 16 per cent. of starch. The word "buck" has no reference to the animal of that name; it refers to its use by the native Indians, who are called Bucks by the settlers.

538. DIOSCOREA SATIVA, *L.* (*Common Yam.*)

a. Root, preserved wet.

Note.—The root yields about 24 per cent. of starch. Yams are roasted or boiled and used like potatoes, in the West and East Indies. See *Per. Mat. Med.*, vol. ii., pt. i., p. 269.

539. TAMUS COMMUNIS, *L.* (*Black Bryony.*)

a. Root, preserved wet.

Note.—This plant must not be confounded with white bryony, which belongs to the Cucurbitaceæ. White bryony has rough palmate leaves, and greenish white flowers. Black bryony has glossy, smooth, heart-shaped leaves, and minute green flowers. The fresh root, which is very large, is used for black eyes and bruises. It is used in the form of pulp, made by scraping the root. It is apt to cause irritation if allowed to get into the eyes. See *Treas. Bot.*, p. 1122.

SMILACEÆ.

540. RIPOGONUM PARVIFLORUM, *R. Br.*

a. Root.

Note.—The root of this plant is used in New Zealand as a substitute for sarsaparilla. *Bentley, Man. Bot.*, p. 648.

541. SMILAX ASPERA, *L.* (*Italian Sarsaparilla.*)

a. Root, collected at Nismes, in 1849.

b. Ditto, incised.

c. Flowers and fruit, preserved wet.

Note.—Specimens *a* and *c* were presented by Mr. D. Hanbury.

542. SMILAX BRASILIENSIS, *Griseb.*

a. Rhizome. (*Brazilian China Root, Juapecanga, Japicanga, Inhapecanga, Raiz de China branca.*)

Note.—Brazilian China root is probably obtained from several species of Smilax. See *Per. Mat. Med.*, vol. ii., pt. i., p. 296; *P. J.* [3], vol. v., p. 985. For fig. of the root, see *Goebel und Kunze*, pt. ii., taf. xviii., fig. 2. This specimen came from Rio Janeiro, and was presented by Mr. Simkin.

543. SMILAX CHINA, *L.*

a. Rhizome. (*China Root.*)

Note.—This rhizome is used in the East for syphilis. It is said to possess alterative and sudorific properties. See *Pharmacographia*, p. 648. China root has been confounded with the curious fungus Pachyma Cocos, which latter may be distinguished by containing no starch. See *P. J.* [3], vol. iii., p. 762; *Porter Smith, Mat. Med. China*, p. 198, art. Smilax. For fig. see *Goebel und Kunze*, pt. ii., taf. xviii., fig. 1.

544. SMILAX PSEUDO-CHINA, *L.*

a. Rhizome. (*American China Root.*)

Note.—This specimen was presented by Mr. Roberts.

545. SMILAX SPECIES.

a. Caraccas sarsaparilla, or gouty Vera Cruz sarsaparilla.

Note.—This kind is figured in *Per. Mat. Med.*, vol. ii., pt. i., p. 277, fig. 137. According to Prof. Bentley, it is distinguished by the pith being from 2 to 4 times the breadth of the woody layer, with the cells of the nucleus sheath elongated radially, their walls being thicker on the inner than on the outer side. It is of a pale brown colour, thick and swollen, and has the chump or rootstock attached. It is a starchy sarsaparilla. It is not now found in commerce. For micr. sect., see *Berg, Anat. Atlas.*, taf. 10, fig. 12.

b. Brazilian, Lisbon, or Para sarsaparilla.

Note.—This specimen is figured in *Per. Mat. Med.*, vol. ii., pt. i., p. 278. The roots are deprived of the chump, and are slender, wiry, not deeply furrowed, with a thin brown cortical portion, and are starchy. It is probably the root of S. papyracea, *Poir. Pharmacographia*, p. 641. For fig. see *P. J.* [1], vol. xii., pp. 470, 472. It is not now met with in commerce. For micr. section, see *Berg, Anat. Atlas*, taf. iv. fig. 13.

c. Lisbon sarsaparilla.

Note.—This specimen was presented by Messrs. Herring & Co. It is paler than specimen *b*, scarcely furrowed, and has a white mealy cortical portion. It has a distinct acrid taste, with a slight bitterness, and appears to belong to the same species as the Honduras rather than to the Brazilian.

d. Honduras sarsaparilla. One large bundle.

e. Ditto. Five smaller bundles.

f. Ditto. Two short bundles.

Note.—Specimen *d* and one of specimen *e* are figured in *Per. Mat. Med.* vol. ii., pt. i., p. 279, figs. 139, 140. It is distinguished from the Jamaica variety by its pale mealy cortical portion, which has a somewhat acrid taste. The cells of the nucleus sheath are square or elongated tangentially, and are equally thick on all four sides. See *l. c.*, fig. 134. It is a starchy sarsaparilla. See also *Berg, Anat. Atlas*, taf. iv., fig. 11.

545. SMILAX SPECIES, continued.

g. Guatemala sarsaparilla.

Note.—This sarsaparilla is described and figured by Prof. Bentley, in *P. J.* [1], vol. xii., p. 479. In appearance it approaches the Caraccas more nearly than any other, but differs in its brighter orange brown colour, and in being deprived of the chump. It is referred by him to S. papyracea, *Poir.*, but with this opinion Hanbury does not agree. *Pharmacographia*, p. 645. It is a starchy sarsaparilla.

Although all the above starchy sarsaparillas have a thick white cortical portion throughout a considerable portion of their roots, yet they have often only a thin brown cortical portion near the chump, and vary exceedingly in different parts. They are therefore usually distinguished in commerce by the way in which they are packed, and by the fracture being powdery or not when the root is broken.

h. Jamaica sarsaparilla. Two large bundles.

i. Ditto. Two small bundles.

j. Ditto. One plaited bundle.

Note.—This sarsaparilla is usually distinguished by its reddish brown colour, dark brown cortical portion, and by having an abundance of beard or rootlets. Specimens *h* and *j* are figured and described in *Per. Mat. Med.*, vol. ii., pt. i., p. 281. It yields one third of its weight of extract. For micr. sect., see *Berg, Anat. Atlas*, taf. iv., fig. 17.

k. Lima sarsaparilla. Two large bundles.

l. Two small bundles.

m. Two specimens of the chump.

Note.—This sarsaparilla closely resembles Jamaica in external appearance, but has not the reddish brown tint of the Jamaica variety. The rhizome, or chump, is usually contained in the interior of the bundle. It yields less extract than the Jamaica kind, but is probably produced by the same species of Smilax. There can be but little doubt that Jamaica sarsaparilla is the produce of Smilax officinalis, *H. B. K.* For fig., see *Bentley and Trimen, Med. Plants*, tab. 289.

n. Lean Vera Cruz or Mexican sarsaparilla.

Note.—This specimen is figured in *Per. Mat. Med.*, vol. ii., pt. i., p. 284, fig. 146. The roots are slender, not folded, shrivelled, almost without rootlets, and the chump remains attached. It usually contains no starch. It is produced by Smilax medica, *Schl. et Cham. Pharmacographia*, pp. 640, 646. For micr. sect., see *Berg, Anat. Atlas*, taf. iv., fig. 16, and *Bentley and Trimen, Med. Plants*, tab. 290.

o. Guayaquil sarsaparilla. From Hill & Son, April, 1851.

Note.—This specimen was presented by Mr. D. Hanbury, in Nov., 1874. It consists of rather large roots with the chump attached, and often portions of the stem, which are round, not square as in S. officinalis, nor multi-angular as in S. papyracea. When cut transversely, it shows the central ring of an orange tint. It is furnished with rootlets. The thicker portions alone are mealy. See *Pharmacographia*, p. 646.

p. Spurious sarsaparilla, from Jamaica.

Note.—This specimen was presented by Mr. Geo. Roberts, in March, 1853. It has no distinct pith, and does not resemble sarsaparilla in external appearance. See *P. J.* [1], vol. xii., p. 469.

TRILLIACEÆ.

546. TRILLIUM PENDULUM, *Willd.*

a. Root. (*Beth Root, Wake Robin, Birth Root, Indian Balm, Lamb's Quarter, Ground Lily.*)

Note.—This root is used in the United States as a remedy for menorrhagia, and externally for obstinate ulcers. See *Wood and Bache, Dispens.*, p. 1616. It appears to contain a principle like saponin. See *Am. Journ. Pharm.*, 1856, p. 512. It is not official in the U.S. Pharmacopœia. In England the name of Wake Robin is applied to Arum maculatum, *L.*

ORCHIDACEÆ.

547. CYPRIPEDIUM PUBESCENS, *Willd.* (*Cypripedium, Mocassin Plant, Ladies' Slipper.*)

a. Root. (*American Valerian.*)

Note.—Cypripedium root is the produce of C. parviflorum as well as of the above species. The root is used as a nervous stimulant, and is considered equal to valerian. Cypripedin is prepared by precipitating a strong tincture of the root with water. The fresh plant sometimes causes the same symptoms of irritant poisoning as Rhus toxicodendron. See *Am. Journ. Pharm.*, 1875, p. 82.

548. EULOPHIA CAMPESTRIS, *Lindl.*

a. Roots. (*Sálib misri.*) Presented by Mr. Strickland.

Note.—The tubercular roots of several species of Eulophia furnish salep.

b. Ditto. Salep from Cashmere.

c. Ditto. Salep from the Neilgherries.

d. Ditto. (*Royal Salep, Badshah Saleb.*)

Note.—Royal salep is supposed to be the bulb of a liliaceous plant. The specimen *d* was brought from Bombay, and given to Mr. D. Hanbury by Dr. J. E. Stocks. It was presented to the Museum by Mr. D. Hanbury. For fig., see *P. J.* [1], vol. xvii., pp. 500, 501; *Pharmacographia*, p. 593.

549. ORCHIS MASCULA, *L.* (*Early Purple Orchis.*)

a. Roots. Two specimens. (*Indigenous Salep.*)

b. Ditto. Powdered.

Note.—Salep is esteemed in the East as an aphrodisiac, but in this country it is simply used as a demulcent and emollient drink. It is best prepared by mixing 1 drachm of powdered salep with 1½ drachms of spirits of wine, then adding ½ pint of water suddenly, and boiling the mixture. See *Pharmacographia*, p. 594. For method of drying the root, see *Per. Mat. Med.*, vol. ii., pt. i., p. 264.

550. VANILLA PLANIFOLIA, *Andr.*

a. Fruit. (*Vanilla Pods.*)

Note.—Mexican vanilla is most esteemed. The odorous principle, vanillin, can be made artificially. It is the methylic aldehyde of pyrocatechuic acid. See *Pharmacographia*, p. 597. On the Continent, vanilla

550. VANILLA PLANIFOLIA, continued.

has been used in hysteria, etc.; but its chief use in this country is to flavour chocolate and confectionery. See *Per. Mat. Med.*, vol. ii., pt. i., p. 268. For culture, see *P. J.* [1], vol. vii., p. 73; [1], vol. ix., p. 275; [3], vol. iv., p. 517. For Vanillin, see *P. J.* [2], vol. i., p. 31; [3], vol. iii., p. 407; [3], vol. iv., p. 996. For estimation of Vanillin, see *P. J.* [3], vol. vi., p. 603. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 272.

551. VANILLA GUIANENSIS, *Splitb.*

a. Fruit. From Demerara, preserved wet.

b. Fruit. Dried.

Note.—This specimen came from Demerara. The odour is slightly different from that of the Mexican vanilla.

ZINGIBERACEÆ.

552. ALPINIA GALANGA, *Willd.*

a. Rhizome. (*Java*, or *Greater Galangal Root, Galanga de l'Inde.*)

b. Fruit. (*Galanga Cardamom.*)

Note.—The rhizome has a much feebler odour than the Chinese kind. It is not a regular article of commerce. For fig., see *Hist. des Drog.*, vol. ii., p. 204. The fruit is figured in *P. J.* [1], vol. xiv., p. 241. See also Chinese Collection of Drugs.

553. ALPINIA NUTANS, *Roscoe.*

a. Rhizome, from Mr. J. S. Stutchbury, Demerara.

b. Fruit.

Note.—This plant was supposed by Guibourt to produce light galangal root. It has been proved however by Mr. D. Hanbury that such is not the case. Specimens *a* and *b* were presented by Mr. D. Hanbury. See *Per. Mat. Med.*, vol. ii., pt. i., p. 257.

554. ALPINIA OFFICINARUM, *Hance.*

a. Rhizome. (*Chinese Galangal Root, Lesser Galangal Root.*) See *Bentley and Trimen, Med. Plants*, tab. 271.

Note.—This variety has an odour resembling the taste of grains of paradise. It is the radix galangæ of the European shops. See *Per. Mat. Med.*, vol. ii., pt. i., p. 257; and for fig., *Hist. des Drog.*, vol. ii., p. 202. The plant producing galangal root, was unknown until 1870. See *Journ. Linn. Soc., Bot.*, vol. xiii., 1873, p. 1; *P. J.* [3], vol. ii., p. 248.

555. AMOMUM ANGUSTIFOLIUM, *Sonn.*; A. NEMOROSUM, *Boj.*; A. DANIELLII, *Hook. f.*

a. Leaves and root preserved wet.

b. Flowers.

c. Fruit.

Note.—The above specimens were sent from the Mauritius in May, 1854, by Mr. Emile Fleurot, under the name of Longauze or Zedoaire du Pays, and were attributed by him to Amomum nemorosum, *Boj.* *P. J.* [1], vol. xiii., p. 639.

d. Fruit.

555. AMOMUM ANGUSTIFOLIUM, continued.

Note.—This specimen was brought from Sierra Leone by Dr. W. F. Daniell, under the name of Barsalo, or Bastard Melligetta, and was attributed by him to Amomum Daniellii, *Hook. f. P. J.* [1], vol. xii., p. 72. Hanbury has since shown that Daniell's and Fleurot's plants are identical, and that Sonnerat's name of A. angustifolium was the one first given to the plant. *P. J.* [3], vol. ii., p. 642.

The plant differs from A. Melagueta in having yellow flowers.

The seeds resemble those of A. Clusii in being polished, but are rather smaller, of a chestnut brown colour, have a blackish ring near the hilum, and under a lens are seen to be speckled with black dots, which seem to be underneath the polished surface. Their taste is slightly sweet and acid, but scarcely aromatic. This drug is the "grande cardamome de Madagascar" of Guibourt, *Hist. des Drogues*, vol. ii., p. 216 (1849), but not the "Cardamomum majus" of ancient writers, which is the Korarima cardamom of Pereira. See below. See also note under Cardamomum majus in the *Collection of Old English Drugs and the Hanbury Collection.*

556. AMOMUM CARDAMOMUM, *L.*

a. Fruits. (*Round*, or *Cluster Cardamom.*)

Note.—The fruit is figured in *Per. Mat. Med.*, vol. ii., p. 243, and *Hist. des Drog.*, vol. ii., p. 215. It is used in the East like Malabar cardamoms. *Pharmacographia*, p. 587. The seeds taste exactly like those of the official cardamoms. See *Collection of Old English Drugs.*

557. AMOMUM CEREUM, *Hook. f.*; A. PALUSTRE, *Afz.*

a. Fruit. Presented by Dr. W. F. Daniell.

Note.—The fruit is figured in *P. J.* [1], vol. xvi., p. 515. The powdered seed is made into an ointment, and used as a perfume by the Timneh women in Sierra Leone, W. Africa. See *P. J.* [1], vol. xvi., p. 516.

558. AMOMUM CITRATUM, *Pereira.*

a. Fruit.

Note.—The fruit is of a deep or purplish brown colour. The seeds have a strong taste of oil of verbena, much more powerful than in A. medium. From that drug the seeds are distinguished by being brown and silky, those of A. medium being dull and of a paler brown colour. Grana paradisi, No. 12057, in the Sloanian Collection of the British Museum, belongs to this species. For fig. of this specimen see *Per. Mat. Med.*, vol. ii., pt. i., p. 251, fig. 109. *P. J.* [1], vol. ix., p. 313.

559. AMOMUM CLUSII, *Smith.*

a. Fruit. (*Long-seeded Cardamom.*)

Note.—This includes a fruit of the specimen presented to Dr. Pereira by Dr. T. W. C. Martius. See *Per. Mat. Med.*, vol. ii., pt. i., p. 251; and *Hist. des Drog.*, vol. ii., p. 223, fig. 398. The seeds of both are glossy and smooth, *greenish* brown, about the size of a linseed, but blunter and thicker, and have scarcely any taste, and under a lens are seen to be speckled with elongated whitish dots underneath the polished surface.

560. AMOMUM GLOBOSUM, *Lour.*

a. Fruit. (*Large Round China Cardamom.*)

b. Seeds.

560. AMOMUM GLOBOSUM, continued.

c. Fruit. (*Small Round China Cardamom.*)

Note.—These fruits have been figured by Hanbury in *P. J.* [1], vol. xiv., p. 353, figs. 1 and 2. The seeds of the large kind are greyish brown, not polished, and have a deep furrow on one side. The taste recalls the odour of bruised camomile leaves. They are used in China as a stomachic. See *Chinese Collection of Drugs.*

The small round China cardamom differs in having a reticulated capsule, and in the seeds having a Y-shaped furrow.

561. AMOMUM KORARIMA, *Pereira.*

a. Fruit. (*Korarima Cardamom, Gurágie Spice, Heil, Habhal-habashi.*)

Note.—This fruit is mentioned in very old pharmacopœias as Cardamomum majus, by which name grains of paradise are now usually intended. *Pharmacographia*, p. 589; *Pomet Dict. Drugs*, p. 21. The seeds are brown, and taste somewhat like Malabar cardamoms. They are larger than grains of paradise. See for fig., *Per. Mat. Med.*, vol. ii., pt. i., p. 250, fig. 106; *P. J.* [1], vol. vi., p. 511. It is used in Abyssinia as a carminative, and by the Arabs as a spice for their coffee. *P. J.* [1], vol. xii., p. 587.

562. AMOMUM LATIFOLIUM, *Afz.* (*Obro-enlah, Obro-lelah, Mabubu, Egbubu, Goguoi.*)

a. Fruit, from Sierra Leone.

Note.—This specimen was presented by Dr. Daniell. See *P. J.* [1], vol. xvi., p. 470. The seeds are oblong and polished, blackish brown, about the size of a grape stone, and are almost tasteless. The root and plant are used by the natives to remove the debility following fevers. They are boiled with the leaves of Morinda citrifolia, *L.*, and the decoction used to wash the body every morning.

563. AMOMUM LONGISCAPUM, *Hook. f.* (*Obro Beghar.*)

a. Fruit, from Sierra Leone. Presented by Dr. W. F. Daniell.

Note.—The fruit of this species is figured in *P. J.* [1], vol. xvi., p. 469. The seeds are angular and have scarcely any aroma. They are not used in medicine by the natives.

564. AMOMUM MACROSPERMUM, *Smith.*

a. Fruit. (*Large-seeded Guinea Cardamom.*)

Note.—This fruit is the *mabooboo* of the natives of Sierra Leone. The seeds are about the size of grains of paradise; angular and polished, of a leaden grey colour, with a pale circular mark surrounding the hilum. The taste is slightly aromatic, and resembles that of cajuput oil. For fig. of the fruit see *Per. Mat. Med.*, vol. ii., pt. i., p. 253.

b. Fruit.

Note.—This specimen is the one alluded to by Dr. Pereria as having been given to him by Dr. Daniell. The following memorandum is attached to it:—"The fruit is called *palancupon* in the Mandingo language. The pulp, which is acidulous, is sucked by the natives. The flowers are stalked (in this respect differing from those of A. Melagueta), white, with a purplish tint. The plant grows at Coto, Cape St. Mary, Gambia. Given by Dr. Daniell, August 19th, 1849." See *Per. Mat. Med.*, vol. ii., pt. i., p. 253.

565. AMOMUM MAXIMUM, *Roxb.*

a. Fruit. (*Java Cardamoms, Great Winged Cardamoms.*)

Note.—The fruits are about the size of a cob-nut; the seeds are angular, and have a taste like cardamoms, but less powerful. The fruits when soaked in water are seen to have 9–13 ragged wings about one eighth inch deep. Nepal and Bengal cardamoms have been confounded with this kind by Pereira. Nepal cardamoms have a long tubular calyx as long or longer than the fruit, and are often stalked. Bengal cardamoms differ in being of a deep brown colour. Java cardamoms have a dull grey colour. See *Pharmacographia*, p. 588. Bengal cardamoms are known to the native drug dealers as Morung Elachi, and in the bazaars as Buro Elachi. For fig. of fruit see *Per. Mat. Med.*, vol. ii., pt. i., p. 249, fig. 105.

566. AMOMUM MELAGUETA, *Roscoe.*

a. Fruit, preserved wet.

b. Seeds. (*Grains of Paradise, Guinea Grains.*)

c. Roots, preserved wet.

Note.—The fruit, when fresh, is of a red colour. The seeds are used by the natives of West Africa as a condiment. In this country they are used in cattle medicines, and also, it is stated, for giving pungency to cordials. *Pharmacographia*, p. 592. The seeds may be distinguished from those of colchicum by their larger size and the conical, paler, membranous caruncle at the base of the seed. See *Bentley and Trimen, Med. Plants*, tab. 268. See also the *Hanbury Collection.*

567. AMOMUM MEDIUM, *Lour.*; ALPINIA ALBA, *Roscoe.*

a. Fruit. (*Tsao-quo, Quâ-leu, Ovoid China Cardamom.*)

Note.—The fruit is about the size of a small nutmeg, and of a dirty grey colour, and the seeds are larger than in any other kind, angular and somewhat pear-shaped. They have an aromatic taste like that of oil of lemon-grass or verbena, but much less powerful than that of A. citratum. A specimen of the ovoid China cardamom in the Museum of Natural History at Paris is labelled *qua-leu*. The seeds are used in China as a condiment. For fig. see *Per. Mat. Med.*, vol. ii., pt. i., p. 257, fig. 126; *P. J.* [1], vol. xiv., p. 420, fig. 9.

568. AMOMUM SPECIES. (*Black Cardamom.*)

a. Fruit. (*Bitter-seeded Cardamom, Yih-che-tsze.*)

Note.—The seeds are pitted, and have a bitter, myrrh-like taste; they are of a deep brown colour. This specimen was presented by Mr. D. Hanbury. For fig. of the fruit and seeds see *P. J.* [1], vol. xiv., p. 419, fig. 8.

569. AMOMUM VILLOSUM, *Lour.*

a. Fruit. (*Hairy Chinese Cardamom, Yang-chun-sha.*)

Note.—The fruit is covered with numerous small asperities, which are short, dried, fleshy spines. The seeds have a peculiar taste, which resembles the odour of burnt cork (Hanbury describes it as tar-like), together with the warmth of Malabar cardamoms. The fruit is referred by Guibourt to the above species; but Hanbury considers this identification doubtful. The specimen was presented by Mr. D. Hanbury. For fig. see *P. J.* [1], vol. xiv., p. 355, fig. 45.

570. AMOMUM XANTHIOIDES, *Wall.*

a. Fruit, preserved wet. (*Xanthioid Cardamoms.*)

b. Pericarps, deprived of seeds. (*Sha-jin-ko.*)

c. Seeds. (*Bastard Cardamoms, Cardamom Seeds.*)

Note.—The seeds of this species are minutely pitted. The taste is powerfully camphoraceous. The fruit is covered with longer spines than in A. villosum. This drug is the produce of Laos and Cambodia. The specimen was presented by Mr. D. Hanbury. For fig. see *P. J.* [1], vol. xiv., pp. 417, 418, fig. 67. *Pharmacographia*, p. 587.

571. ELETTARIA CARDAMOMUM, *Mat.*

a. Fruit. (*Malabar Cardamoms.*) *B. & Tr., Med. Pl.*, tab. 267.

b. Seeds. (Ditto.)

c. Fruit. (Ditto), shorts.

d. Seeds. (Ditto), short-shorts.

e. Fruit. (Ditto), short-longs.

f. Fruit. (Ditto), long-longs.

g. Ditto. (Ditto), ditto. Presented by Prof.

h. Seeds. (Ditto), ditto. [Guibourt.

Note.—The Malabar cardamoms are the most esteemed. Those which are obtuse at the ends are known as "shorts," and those which are tapering as "short-longs." Madras cardamoms are paler, and are usually "short-longs" only. Aleppy cardamoms are "shorts," and have a peculiar greenish tint. Good samples yield three-quarters of their weight of seeds. "Long-longs" are rarely imported.

572. ELETTARIA MAJOR, *Smith.*

a. Fruit. (*Ceylon Cardamoms, Ensal.*)

b. Seeds.

Note.—This plant is only known to occur in Ceylon. It is now considered to be only a variety of E. cardamomum. The seeds and fruit have however a very distinct odour and taste, resembling mace or elemi. They are said by Pereira to be chiefly used on the Continent. The fruits are long, narrow, and of a dirty white colour. *Pharmacographia*, pp. 583–5. For fig. see *Per. Mat. Med.*, vol. ii., pt. i., p. 263, fig. 131.

573. CURCUMA ANGUSTIFOLIA, *Roxb.*

a. Starch. (*Curcuma Starch, East Indian Arrowroot, Tikor* or *Tikhar.*)

Note.—According to Hanbury this starch is not known as a special kind in the English market, the East Indian arrowroot of the London drug sales being the starch of a maranta. *Pharmacographia*, pp. 574–5. Curcuma starch is figured in *Per. Mat. Med.*, vol. ii., pt. ii., frontispiece, fig. 12. It is distinguished from all other starches (except plantain starch, fig. 2, *l. c.*, which is rarely quite white) by its flatness, and by having the hilum at the small end. See *Per. Mat. Med.*, vol. ii., pt. i., p. 242.

574. CURCUMA LONGA, *L.*

a. Rhizome, preserved wet.

b. Chinese turmeric, fine.

c. Madras ditto, fine.

d. Bengal ditto, fine.

574. CURCUMA LONGA, continued.

e. Bengal turmeric, inferior, from Calcutta.

f. Malabár or Bombay turmeric.

g. Java turmeric, from Amsterdam.

Note.—The Chinese is most esteemed, but is seldom met with in the European markets. Madras turmeric frequently consists entirely of round rhizomes. It is a large kind. Bengal turmeric is of a deeper tint, and is preferred for dyeing. Java turmeric is usually dusted with its own powder, and is not of a very brilliant colour when broken. *Pharmacographia*, p. 579. The round rhizomes are the central portion or first year's growth, the long rhizomes are the lateral rhizomes developed afterwards from the central one. For fig. of the different kinds see *Per. Mat. Med.*, vol. ii., pt. i., pp. 238–9. For Curcumin, see *Pharmacographia*, p. 579. For fig of plant, see *Bentley and Trimen, Med. Plants*, tab. 269.

575. CURCUMA SPECIES.

a. Rhizome. (*Yellow Ginger from Pernambuco.*)

Note.—This specimen was brought from Pernambuco by a brother of the Rev. E. Bower. It has a yellow colour internally, and an aromatic flavour, something like that of the yellow zedoary. It is labelled Amomum sylvestre (?), but is placed here on account of its similarity to the tubers of the Curcuma genus.

576. CURCUMA ZEDOARIA, *Roxb.* (*Castoorie munjil*, Hindoo.)

a. Rhizome. (*Zedoary Root.*)

b. Ditto. (*Cassumunar Root.*)

Note.—These specimens, which have a yellow colour internally, and an aromatic bitter taste with a turmeric flavour, correspond to Pereira's description in his *Mat. Med.*, vol. ii., pt. i., pp. 242, 236, but not to Pomet and Lemery's description. The above specimens are not true zedoary root, which is of pinkish white colour, as described by Pomet in the *Hist. of Drugs*, p. 33, and has a bitter taste and a flavour like rosemary or cardamoms. For specimen of genuine zedoary and zerumbet roots see *Collections of Old English Drugs*. Both the above specimens (*a* and *b*) appear to be identical in structure and taste, and are evidently identical with the turmeric-coloured zedoary of Ainslie, which is produced by Curcuma Zedoaria of Roxburgh, true zedoary being the produce of Curcuma Zerumbet of Roxburgh. See *Ainslie, Mat. Med.*, vol. i., pp. 492, 493. The cassumunar roots are probably the long lateral shoots of the Curcuma Zedoaria, *Roxb.* See *P. J.* [2], vol. i., p. 17.

577. CURCUMA ZERUMBET, *Roxb.*

a. Rhizome. (*Zedoary Root, Zerumbet Root.*)

Note.—This specimen was presented by Messrs. Cyriax and Farries. It answers well to the description given by Ainslie in his *Mat. Med.*, vol. i., p. 492, and also to Pomet's description. The taste is bitter and aromatic, like that of cardamoms; and the cut surface is white with a pinkish tint. The best is said to come from Ceylon. Its Tellingoo name is *keechlie gudda*, and its Tamool name *pulāng-kilunggu*. See *Ainslie, Mat. Med.*, vol. i., pp. 492, 493; also *Collections of Old English Drugs*.

Zerumbet root, according to Pomet, is the produce of the same plant as true zedoary, zerumbet being the ovate and zedoary the long portion of the rhizome. Zedoary formerly came from the East Indies and Isle of St. Lawrence. For fig., see *Goebel und Kunze*, pt. ii., taf. xxiv., figs. 3, 4.

578. ZINIGIBER OFFICINALE, *Roscoe.*

a. Rhizome, preserved wet. Presented by Mr. Booth.

b. Ditto and leaves. Ditto.

c. Rhizome. (*Jamaica Ginger.*)

d. Ditto. (*Barbados Ginger.*)

e. Ditto. (*Cochin*, or *Malabar Ginger*, *fine.*)

f. Ditto. (*Ditto coated.*)

g. Ditto. (*Bengal Ginger.*)

h. Ditto. (*Ditto, coated.*)

i. Ditto. (*African Ginger.*)

j. Starch from ginger.

Note.—The dried rhizomes are called by the dealers "races," or "hands." The younger portions are amylaceous, and the older hard and resinous. The Jamaica is the best, and is pale and uncoated. Cochin ginger resembles it, but is of a pale brownish tint externally. The Calicut variety of Bengal ginger is like Cochin ginger, but darker and harder. The Barbados, Bengal, and African, are coated gingers. See *Per. Mat. Med.*, vol. ii., pt., i., p. 232. For fig. of ginger starch see *Berg*, *Anat. Atlas*, taf. xx. Bleached ginger is sometimes coated with sulphate and carbonate of lime. *P. J.* [3], vol. iv., p. 831. *Bentl. & Trim.*, *Med. Plants*, tab. 270.

MARANTACEÆ.

579. CANNA EDULIS, *Ker. ?*

a. Starch. (*Tous les Mois*, *Canna Starch.*)

Note.—This starch is made from the tuber, principally in St. Kitts, one of the West India Islands. It is the largest known starch, and can only be confounded with potato starch. For distinctive characters see *Per. Mat. Med.*, vol. ii., pt. i., p. 230. According to Dr. Shier it produces a jelly more tenacious than any other starch. See also *Pharmacographia*, p. 573. According to Guibourt, tous les mois is extracted from Canna coccinea, *Rosc.* This plant, however, has a fibrous not a tuberous root. *P. J.* [1], vol. vii., p. 56; *Hist. des Drog.*, t. ii., p. 230; see also *Bentley*, *Man. Bot.*, p. 654. See *Bentley and Trimen*, *Med. Plants*, tab. 266.

580. CANNA INDICA, *L.*

a. Flowers and young fruit, preserved wet.

b. Rhizome. Ditto.

c. Fruit and seeds. Ditto.

d. Ditto. Presented by Mr. Bartlett.

Note.—The seeds are known as Indian shot, from their blackness and hardness. They are used as beads. *Bentley*, *Man. Bot.*, p. 655.

581. MARANTA ARUNDINACEA, *L.*

a. Plant, preserved wet.

b. Rhizome cultivated at Natal.

c. Rhizome cultivated at Sierra Leone. Presented by Mr. W. Penney.

d. Rhizome preserved wet. Presented by Senor J. Nobrega, of Madeira.

e. Starch. (*Arrowroot.*)

581. MARANTA ARUNDINACEA, continued.

f. Starch, from British Guiana.

g. Ditto. (*African Arrowroot.*)

Note.—Specimen *c* is a sample of the root from which African arrowroot is prepared. Specimen *f* is No. 31 of the British Guiana collection of drugs in the International Exhibition of 1851. It was contributed by T. H. Garnett, and was produced at Herstelling plantation, Demerara. *P. J.* [1], vol. xi., p. 159. For fig. of starch see *Per. Mat. Med.*, vol. ii., pt. ii., frontispiece, fig. 10; and also pt. i., p. 224. For African arrowroot, see *P. J.* [1], vol. x., p. 272. See *Bentl. & Trim., Med. Plants*, tab, 265.

582. THALIA DEALBATA, *Fras.*

a. Inflorescence, preserved wet.

Note.—The structure of the leaf-stalk is very curious. See *Treas. Bot.*, p. 1138. The specimen was presented by Prof. Bentley. It was grown in the Royal Botanical Gardens, London.

MUSACEÆ.

583. MUSA PARADISAICA, *L.* (*Plantain.*)

a. Fruit. (*Plantain core sliced.*)

b. Ditto. (*Ditto, powdered; Plantain Meal, Conquin Tay.*)

c. Starch.

Note.—Specimen *c* was prepared at Kitty plantation, Demerara, and was contributed to the International Exhibition of 1851, by Dr. Shier. See *P. J.* [1], vol. xi., p. 159, No. 34; and p. 156, No. 13. Specimens *a* and *b* were presented to Dr. Pereira by Dr. Shier. Plantain starch closely resembles that of East Indian arrowroot in appearance. The fruits yield about 17 per cent. of it. For fig. see *Per. Mat. Med.*, vol. ii., pt. ii.; frontispiece, No. 21. See also *l. c.*, vol. i., p. 222.

IRIDACEÆ.

584. CROCUS SATIVUS, *L.*

a. Stigmata. (*Hay Saffron.*) Two specimens.

b. Ditto. (*Adulterated Saffron.*)

c. Ditto. (*Adulterated Saffron.*)

d. Ditto. (*After being used in infusion.*)

e. Ditto. (*Exhausted of colouring matter.*)

Note.—Saffron is sometimes adulterated with safflower, marigold florets, or crocus stamens, carbonate of calcium, and sulphate of barium. Safflower, if present, may be recognised when the saffron is put into warm water, by its tubular corolla with syngenesious anthers; marigold petals and crocus stamens by not being tripartite as in the saffron (*P. J.* [2], vol. vii. p. 452). Carbonate of calcium, if present, may be detected by its effervescence with hydrochloric acid (*P. J.* [3], vol. i., pp. 241, 624); and oil, which is sometimes used to freshen the colour of saffron, by pressure between blotting-paper. See *Pharmacographia*, p. 606; *Per. Mat. Med.*, vol. ii., pt. i., p. 216. Cake saffron consists of the florets of safflower made into thin cakes with gum-water. For Cape saffron see Lyperia crocea. For cultivation in France and Austria, see *P. J.* [1], vol. viii., p. 171; in Cashmere, *P. J.* [1], vol. xv., p. 226; in Pennsylvania, *P. J.* [2], vol. ix., p. 28; in France, *P. J.* [3], vol. iv., p. 551; in Italy, *P. J.* [3], vol. vi., p. 215. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 274.

585. Iris Florentina, *L.*

a. Rhizome.

b. Ditto, powdered.

Note.—Orris root is also derived from Iris Germanica, *L.*, and Iris pallida, *Lam.* The essential oil, which is semi-solid like that obtained from elder blossom, is sold when dissolved in about 15 parts of spirit as oil or essence of orris root. For micr. section and starch, see *Berg, Anat. Atlas.*, taf. xxi. The rhizome yields $\frac{1}{12}$ per cent. of the oil. See *P. J.* [3], vol. iii., p. 230. It consists chiefly of what is supposed to be myristic acid. *Pharmacographia*, p. 601. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 273.

586. Iris versicolor, *L.* (*Blue Flag.*)

a. Rhizome. (*Blue Flag Root.*)

Note.—The root by American herbalists is used as a powerful purgative and alterative in scrofulous diseases, usually mixed with cayenne pepper or other stimulant. Irisin or iridin is a resinous body, made by precipitating the tincture with water, and mixing the precipitate with an equal quantity of some absorbent powder. It is used by the eclectic practitioners. See *Wood and Bache*, p. 487. In small doses it is said to stimulate the whole glandular system. See *Grover Coe, Positive Med. Agents*, p. 167.

AMARYLLIDACEÆ.

587. Alstrœmeria Lictu, *L.*

a. Starch.

Note.—The starch of the root of this and other species of the same genus, are used in Chili as arrowroot. *Bentley, Man. Bot.*, p. 659. This specimen was sent by Mr. Smith, of Concepcion, Chili. *P. J.* [1], vol. x., p. 265.

TACCACEÆ.

588. Tacca oceanica, *Nutt.*

a. Starch. (*Sandwich Island Arrowroot, Tacca Starch, Tahiti Arrowroot, Otaheite Salep.*)

Note.—Pereira states that this starch would probably be equal to West Indian arrowroot if it were prepared with equal care. *Per. Mat. Med.*, vol. ii., pt. i., p. 221. The starch is called by the natives Pea. For fig. of plant see *Am. Journ. Pharm.*, 1838, p. 307. For fig. of starch, see *Per. Mat. Med.*, vol. ii., pt. ii., frontispiece, No. 18.

LILIACEÆ.

589 Agapanthus umbellatus, *Herit.*

a. Bulb.

Note.—The juice of this plant contains numerous crystals, and when rubbed on the skin causes irritation and redness, lasting several hours. *Pharmacographia*, p. 629.

590. Allium Porrum, *L.* (*Leek.*)

a. Bulb, preserved wet.

b. Fruit, ditto.

Note.—For an account of the leek, see *Treas. Bot.*, p. 40.

591. ALLIUM SATIVUM, *L.*

a. Bulb, preserved wet. (*Garlic.*)

Note.—Garlic consists of a bulb in which all the scales are membranous, but a number of buds or small bulbs, which are called "cloves," are developed in the axils of the membranous scales. It keeps best when hung up in a dry place, so that the bulbs do not come in contact with anything. See *Treas. Bot.*, p. 41. *Bentl. & Trim., Med. Plants*, tab. 280.

592. ALLIUM VICTORIALE, *L.*

a. Bulb.

Note.—This bulb is remarkable for the strong resemblance it bears to the rootstock of Nardostachys Jatamansi. It is described by Guibourt under the name of "Faux Nard du Dauphiné," it being a native of that district. See *Hist. des Drog.*, t. iii., p. 82, fig. 581. It is distinguished from Nardostachys Jatamansi by having a slight alliaceous odour, and by the fibres forming a regular network.

593. ALOE INDICA, *Royle.*

a. Inspissated juice *a*. (*Indian aloes.*) Presented by Dr. Royle.

b. Ditto, *β*.

c. Ditto. (*Aloes from Hadramaut.*) Presented by Dr. J. A. Vaughan.

d. Ditto. (*Aden*, or *Black Aloes.*)

Note.—Specimens *a* and *b* are those described by Pereira in his *Mat. Med.* under Indian aloes, *α* and *β*, in vol. ii., pt. i., p. 193. Specimens *c* and *d* are No. 1 and 3 mentioned in the footnote, *P. J.* [1], vol. xii., p. 268. A memorandum on specimen *d* states that the price of that kind was 2 rupees for 28 lbs.

e. Aloesine.

Note.—A memorandum on this specimen states that it was prepared by evaporating a watery decoction after the deposition of the resin, and removing the pure principle by oxide of lead by Braconnot's process.

594. ALOE LINGUIFORMIS, *D.C.*

a. Inspissated juice.

Note.—This specimen has the following note attached: "Aloes from French Hoek, much preferred by the resident doctor, Dr. Versveld, to Cape or even to hepatic aloes. Hanbury mentions this species as one of those reputed to yield the best Cape aloes.

595. ALOE SOCOTRINA, *Lam.*

a. Inspissated juice. (*Hepatic Aloes.*)

b. Ditto. Two specimens. From Horner & Sons.

Note.—The hepatic aloes of old writers is considered by Hanbury to have been the sediment deposited in Socotrine aloes juice, the upper transparent portion forming, when dried, Socotrine aloes. *Pharmacographia* p. 621. Much of the hepatic aloes of the present day, however, owes its opacity to a feculent matter. *P. J.* [1], vol. xi. p. 439; *P. J.* [3], vol. iii., p. 994.

595. ALOE SOCOTRINA, continued.

c. Inspissated juice. (*Mocha*, or *Moka Aloes*.) From Wright & Co.

d. Ditto. Presented by Dr. A. Leared.

Note.—This kind of aloes has been imported from Muscat. It is of inferior quality, containing usually 25 per cent. of impurity. *Per. Mat. Med.*, vol. ii., pt. i., p. 192. Hanbury attributes it to Aloe Socotrina. *Pharmacographia*, p. 616. Its odour is intermediate between that of Socotrine and Barbados aloes, which would seem rather to indicate that it is produced by Aloe Indica, *Royle*, which Hanbury thinks is a slight variety of Aloe vulgaris, *Lam. Pharmacographia*, p. 622; *P. J.* [1], vol. xii., p. 268. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 283.

e. Socotrine aloe juice, No. 1.

f. Socotrine aloes prepared, No. 2, from No. 1.

g. Large skin of false Socotrine aloes.

Note.—Specimen *e* is the one alluded to in *Per. Mat. Med.*, vol. ii., pt. i., p. 188. It was imported into London from Madras, but was first purchased from some Arabs on the coast of the Red Sea.

h. Zanzibar aloes. Presented by Mr. F. J. Hanbury.

Note.—This kind of aloes is imported in monkey skins. It is the kind mentioned in *Pharmacographia*, p. 622. The odour of the specimen *h* is similar to that of Socotrine aloes but less agreeable, and the surface is duller and more resinous-looking.

596. ALOE FEROX, *Lam.*

a. Portion of the stem. *Bentl. & Trim., Med. Plants*, tab. 284.

b. Inspissated juice. (*Cape Aloes*.)

c. Ditto. (*Socotrine Cape Aloes*.) Two specimens.

d. Ditto. (*Hepatic Cape Aloes*.) Two specimens.

e. Ditto. (*Natal Aloes*.)

f. Resin deposited from a decoction of aloes.

Note.—Other species, such as Aloe ferox, *L.*, A. perfoliata, *L.*, also yield Cape aloes. A. Africana, *Mill*, and A. plicatilis, *Mill*, are said by Dr. Pappe to yield a less powerful kind. Specimens *c* and *d* are the specimens β and γ mentioned by Pereira in his *Mat. Med.*, vol. ii., pt. i., p. 192. They were sent to him by Mr. Dunsterville of Algoa Bay. Natal aloes is produced by a large aloe which has not yet been identified, but from the similarity of the odour of the drug to Cape aloes, it is here classed with it. It closely resembles hepatic aloes in appearance, but has an odour like Cape aloes, and usually presents a powdery surface. Hepatic aloes has an odour like Socotrine aloes, and a dull and opaque, not a powdery, surface. Socotrine aloes may be recognised by its reddish tint, and by the fragments being nearly transparent, as well as by its odour.

597. ALOE VULGARIS, *Lam.*

a Stem. See *Bentley and Trimen, Med. Plants*, No. 282.

b. Leaves, preserved wet.

c. Inspissated juice. (*Barbados Aloes*.) Two specimens.

d. Gourd, containing Barbados aloes.

597. ALOE VULGARIS, continued.

e. Portion of an opened gourd.

f. Fœtid, or horse aloes. (*Aloes Caballin* of Guibourt.)

Note.—There are two varieties of Barbados aloes met with in commerce, one presenting a brown and the other a black fracture; the former is the best. Barbados aloes may be at once distinguished by its disagreeable odour. Specimen *f* was presented by Prof. Guibourt. It is alluded to in *Per. Mat. Med.*, vol. ii., pt. i., p. 192, No. 5.

598. ASPARAGUS OFFICINALIS, *L.*

a. Rhizome and young shoots, preserved wet.

Note.—The young shoots are sometimes called turiones. The juice of the asparagus plant possesses diuretic properties. *Bentley, Man. Bot.*, p. 663. The plant is said to contain asparagine and mannite. See *Per. Mat. Med.*, vol. ii., pt. i., p. 211. The true leaves of this plant are minute scales.

599. DRACÆNA DRACO, *L.*

a. Portion of stem, with leaves.

b. Resin. Dragon's blood in the tear.

Note.—The specimens *a* and *b* were presented by Senor G. J. de Nobrega, of Funchal, Madeira.

c. Socotra dragon's blood. Presented by Dr. Vaughan.

Note.—Specimen *c* is probably produced by Dracæna Draco. See *Wellstead's Travels in Arabia*, vol. ii., p. 449; and *P. J.* [1], vol. xii., p. 385.

d. Dragon's blood in the tear. Presented by Messrs. Allen & Co.

600. POLYGONATUM OFFICINALE, *All.*

a. Rhizome. (*Solomon's Seal.*)

Note.—The plant is indigenous, occurring in woods. The rhizome, grated or scraped into a pulp, is used in the provinces as an application to bruises, to remove the discoloration. *Per. Mat. Med.*, vol. ii., pt. i., p. 212.

The last two plants, together with Ruscus aculeatus and a few others, have, by some botanists, been placed in a separate family, called Asparagaceæ, characterized by having a succulent fruit, and a root which is not bulbous. See *Babington, Man. Bot.*, p. 350.

601. URGINEA SCILLA, *Steinheil.*

a. Bulb. See *Bentley and Trimen, Med. Plants*, No. 281.

b. Ditto, sliced.

c. Ditto, preserved wet.

d. Ditto. Fine specimen.

Note.—The bitter principle of squill is precipitated by tannin. *Pharmacographia*, p. 628. According to Quekett, powdered squill contains 10 per cent. of raphides. *Per. Mat. Med.*, vol. ii., pt. i., p. 204.

602. XANTHORRHŒA ARBOREA, *B. Br.* (*Grass Tree.*)

a. Portions of the bases of leaves with the resin *in situ*.

b. The balsamic resin in masses, after fusion by fire.

c. Balsamic resin in tears, fused in sand by the sun's action.

602. XANTHORRHŒA ARBOREA, continued.

d. Balsamic resin. (*Gum Acroides, Botany Bay Resin.*)

Note.—Specimens *a*, *b*, and *c* were presented by Mr. Bowerbank, of Sydney. The resin is of a bright yellow colour, becoming reddest, externally, on exposure to air and light, and is known in commerce under the name of gum acroides. It has a fragrant odour when burned, and contains cinnamic acid, together with a little benzoic acid. See *Per. Mat. Med.*, vol. ii., pt. i., p. 213. It is remarkable for the large quantity of picric acid it yields when treated with nitric acid. See *P. J.* [1], vol. vi., p. 89. The name acroides is derived from Acroides resinifera, the name given by Sprengel to the plant yielding the resin. See *Merat et De Lens, Dict. Mat. Med.*, t. vi., p. 970.

603. XANTHORRHŒA AUSTRALIS, *R. Br.*

a. Spike of fruit.

b. Portion of the bases of the leaves, with the resin adhering.

Note.—The specimens *a* and *b* were presented by Mr. Bowerbank, of Sydney.

c. Balsamic resin, massive, after fusion by fire. Presented by Mr. Rea. (*Black Boy Gum.*)

d. Balsamic resin in tears, mixed with the fruit. Presented by Dr. Lindley.

Note.—This resin is of a deep garnet-red colour, and usually occurs in tears. It is known in commerce under the name of "black-boy gum." It is soluble in alcohol, and in the essential oils of the Eucalypti, except that of E. amygdalina (dandenong peppermint); insoluble in turpentine, and very slightly in the drying oils. It contains benzoic and cinnamic acid. See *Catalogue, Victorian Exhib.*, 1861, *Jurors' Report*, p. 57; also *Per. Mat. Med.*, vol. ii., pt. i., p. 213.

MELANTHACEÆ.

604. ASAGRÆA OFFICINALIS, *Lindl.*; SCHŒNOCAULON OFFICINALE, *A. Gray.*

a. Fruit. (*Cevadilla Seeds, Sabadilla.*)

Note.—The seeds are used chiefly for the preparation of veratria. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 287.

605. COLCHICUM AUTUMNALE, *L.*

a. The plant in flower, preserved wet. Two specimens.

b. The corm, preserved wet. Two specimens.

c. The corm, dried and sliced.

d. Ditto, powdered.

e. Starch obtained from the corm.

f. Seed. See *Bentley and Trimen, Med. Plants*, No. 288.

Note.—Colchicum blossoms in September, about the same time as Crocus sativus, the flower of which it resembles; but it is distinguished from the crocus by the leaves not appearing with the flower, and by the flower having six stamens, the crocus having three stamens only. The seeds appear in spring with the leaves. The seed slightly resembles

605. COLCHICUM AUTUMNALE, continued.

black mustard seed; but is distinguished from it by its larger size, by not being pungent, and by being very hard. For micr. section of the corm and fig. of starch, see *Berg. Anat. Atlas*, taf. xxiv., fig. 59. The corms lose nearly three-fourths of their weight in drying. They are said to be most active in autumn, and to preserve their qualities better if dried whole than if sliced. *Pharmacographia*, p. 637.

606. VERATRUM ALBUM, *L.* (*White Hellebore.*)

a. Rhizome. See *Bentley and Trimen, Med. Plants*, tab. 285.

Note.—This rhizome closely resembles that of Veratrum viride; but the latter has much whiter rootlets, which are usually present. In V. album, the roots are often absent, either partly or entirely. For micr. section of root and starch, see *Berg, Anat. Atlas*, taf. xxi.

607. VERATUM VIRIDE, *Ait.* (*American Hellebore, Indian Poke, Swamp Hellebore.*)

a. Rhizome.

Note.—The rhizome is official in the U. S. Pharmacopœia as well as in the B. Pharmacopœia. It is used as an arterial and nervous sedative. See *Wood and Bache, Dispens.*, p. 853; *Pharmacographia*, p. 633. This must not be confounded with Phytolacca decandra, which is also called poke. The specimen of V. viride was presented by Dr. E. Cutter, of Woburn, Massachusetts. See *P. J.* [2], vol. iv., p. 134. Green hellebore, a name sometimes applied to this drug, belongs properly to Helleborus viridis, a ranunculaceous plant. For fig. of plant, see *Bentley and Trimen, Med. Plants*, tab. 286.

ACORACEÆ.

608. ACORUS CALAMUS, *L.* (*Sweet Flag, Butch, Vassamba.*)

a. Rhizome.

b. Ditto. Fine specimen.

c. Ditto, preserved wet.

d. Spadix.

Note.—The rhizome of Iris pseudacorus sometimes occurs mixed with this drug; but it may be recognised by its dark colour, astringent taste, and absence of aroma. *Pharmacographia*, p. 616. It is used in pot pourri, and in India as a remedy for infantile diarrhœa. It is an aromatic tonic, and is useful in atonic dyspepsia. *Per. Mat. Med.*, vol. ii., pt. i., p. 140. The volatile oil is used in making aromatic vinegar and for scenting snuff. For micr. section of root, see *Berg, Anat. Atlas*, taf. xx. See also *Treas. Bot.*, p. 13. *Bentley and Trimen, Med. Plants*, tab. 279.

609. SYMPLOCARPUS FŒTIDUS, *Bart.*; DRACONTIUM FŒTIDUM, *Big.* (*Skunk Cabbage.*)

a. Root.

Note.—The root has a strong garlic-like odour when fresh, hence its name. It is official in the secondary list of the U. S. Pharmacopœia, under the name of dracontium. It is used as an antispasmodic and expectorant in asthma. It loses its properties by age. *Wood and Bache, Dispens.*, p. 355.

PALMACEÆ.

610. Areca Catechu, *L.*

†*a.* Section of trunk, from Ceylon.

b. Fruit. For fig., see *Hist. des Drog.*, vol. ii., p. 132.

c. Seeds. (*Areca*, or *Betel Nut.*)

d. Ditto, carbonised.

e. Extract prepared from the fruit. (*Kassu.*)

f. Ditto. Presented by Prof. Guibourt.

g. Ditto, from Colombo.

h. Ditto, from Ceylon.

Note.—The seeds sliced are used as a masticatory in India; for this purpose a slice is powdered over with lime, and wrapped in a leaf of Piper Betle, *L.* The grated seeds are used as a remedy for tapeworm in dogs, and are given to human beings for the same purpose in India and China, and now in Britain also. According to Hanbury, areca nuts do not contain any catechin or crystalline matter. Pereira, however, states that areca nut catechu contains numerous large crystals. Hence it appears doubtful if the areca nut catechu of Pereira is really obtained from areca catechu. Areca nut catechu of Pereira is distinguished by occurring in flat circular cakes, two to three inches in diameter, and about two-thirds of an inch thick, and is usually covered with the glumes of rice, which are called paddy husks. Compare *Pharmacographia*, p. 608, and *Per. Mat. Med.*, vol. ii., pt. ii., p. 341. See *Bentl. & Trim., Med. Plants*, tab. 276.

611. Calamus Draco, *Willd.*

a. Resin. (*Reed Dragon's Blood.*)

b. Ditto, ditto, fine.

c. Ditto, ditto, very old.

Note.—Specimen *a* is in sticks about fourteen inches long, and is the kind described in *Pharmacographia*, p. 611. Specimen *b* is in shorter sticks, about six to eight inches long. The sticks are wrapped in palm leaves, and are secured by the flexible stem of some kind of grass. Specimen *c* is a portion of a stick of rather larger diameter. Specimen *a* contains about 80 per cent. of matter soluble in spirit of wine.

d. Resin. (*Lump Dragon's Blood.*)

e. Ditto, ditto. Presented by Mr. Savory.

f. Dragon's blood, in oval masses.

g. Fictitious ditto, in globose pieces. Presented by Mr. D. Hanbury.

Note.—The dragon's blood of the Canary Islands is produced by Dracæna Draco, *L.*, which see. The Sumatran dragon's blood, produced by Calamus draco, may be distinguished from the other kinds by containing little shell-like scales, and by giving off, when heated on the point of a knife, irritating fumes of benzoic acid. See *Pharmacographia*, p. 613. Fictitious dragon's blood differs in shape, and in its resin-like odour when broken. *Hist. des Drog.*, t. ii., p. 139.

612. Ceroxylon Andicola, *H. B.* (*Wax Palm.*)

a. Wax, as scraped from the trunk. Presented by Dr. Lindley.

612. CERÓXYLON ANDICOLA, continued.

b. Wax, melted into masses.

Note.—The wax forms a white marble-like coating on the trunk of the tree. The tree, when cut down and scraped, yields usually about 25 lbs. See *Treas. Bot.*, p. 258. The wax is hard and somewhat resinous, and does not seem to become rancid by keeping. *Hist. des Drog.*, t. ii., p. 136. It is used in New Granada for making candles.

613. CORYPHA CERIFERA, *Arrud.*; COPERNICIA CERIFERA, *Mart.*

a. Root. (*Carnaüba Root.*) Presented by Dr. Symes.

b. Wax. (*Carnaüba Wax, Brazilian Wax, Palm Wax.*) Presented by Dr. Hooker.

Note.—The root possesses diuretic properties, and has lately been introduced into this country as a substitute for sarsaparilla. See *P. J.* [3], vol. v., pp. 661 and 965. The wax has been used in this country for making candles. Each tree yields about 4½ lbs. of wax. The wax is obtained from the leaves, which are coated with it, by shaking them. See *Treas. Bot.*, p. 327. The wax is said to approach very nearly to beeswax in its chemical constitution. *Hist. des Drog.*, t. ii., p. 136. It melts at 180° F. *Per. Mat. Med.*, vol. ii., pt. i., p. 151.

614. COCOS NUCIFERA, *L.* (*Cocoa Nut Palm.*)

a. Fruit, germinating, preserved wet.

b. Ditto. Presented by Mr. L. Hetherington.

c. Oil. (*Cocoa-Nut Oil.*)

Note.—The fruit is a tryma, the fibrous outer portion of which is used for making matting, etc., and is known under the name of coir. What is commonly called the cocoa-nut is the endocarp of the fruit, the edible portion is the albumen, and the cocoa-nut milk is the liquor amnios. The embryo is lodged in a small cavity in the albumen near the soft hole in the shell. *Per. Mat. Med.*, vol. ii., pt. i., p. 150. Cocoa-nut oil fuses at 70° F. It is used for making floating and marine soaps, which form a lather with salt water.

615. ELŒIS GUINEENSIS, *Jacq.* (*Guinea Oil Palm.*)

a. Seeds.

b. Farina of seeds.

c. Oil. (*Palm Oil.*) Two specimens.

Note.—The oil is obtained from the mesocarp, or fibrous yellow portion, of the fruit by boiling it in water. Palm oil melts at about 98½° F. It is used in the manufacture of soap, candles, and glycerin, and also forms an ingredient in the grease used for railway axles. See *Per. Mat. Med.*, vol. ii., pt. i., p. 150.

616. ELŒIS MELANOCOCCA, *Gærtn.*

a. Fruit, preserved wet.

Note.—This species also yields a portion of the palm oil of commerce. It is probably the specimen alluded to by Pereira as having been given to him by Mr. Warington. See *Per. Mat. Med.*, vol. ii., pt. i., p. 149.

HYPHENE THEBAICA. (*Doum Palm, Gingerbread Tree.*)

a. Fruit.

Note.—This palm is remarkable for having a repeatedly forked stem, Its fruit is said to resemble gingerbread in taste, and the outer portion is eaten by the poorer classes in Egypt. See *Treas. Bot.*, p. 612; *Bentley, Man. Bot.*, p. 92.

618. PHŒNIX DACTYLIFERA, *L.* (*Date Palm.*)

a. Spike of fruit.

b. Sugar obtained from the fruit.

Note.—The crude sugar obtained from this and other palms is known under the name of jaggery. The long leaves of this palm are probably the "branches of palm-trees" mentioned in John xii. 13. *Treas. Bot.*, p. 877.

619. PHYTELEPHAS MACROCARPA, *R. et P.* (*Ivory Plant.*)

a. Seeds. (*Vegetable Ivory.*)

Note.—The seeds consist in large proportion of a white hard albumen which, when the fruit is young, forms a clear insipid fluid which soon becomes milky and sweet, and then hardens into the substance known as vegetable ivory. Vegetable ivory is used for tops of smelling bottles, etc.

620. SAGUS LÆVIS, *Rumph*, and other species. (*Spineless Sago Palm.*)

a. Pearl sago. Two specimens.

b. Large sago. (*Common*, or *Brown Sago.*)

c. Ditto, bleached.

d. Sago starch.

Note.—This species is said to yield most of the sago imported into Europe. Some is, however, obtained from S. Rumphii, *Roxb.*, the prickly sago palm, or malay. The greatest quantity is procured by cutting down the tree as soon as the flower spike appears; a single tree often yielding 600 lbs. Sago is apparently made by two different processes, the starch grains being burst in some samples and not in others. See *Per. Mat. Med.*, vol. ii., pt. i., p. 145; *Treas. Bot.*, p. 1006. Fictitious sago, sold by grocers under the name of pearl tapioca, is made from potato starch. See *Per. Mat. Med.*, vol. ii., pt. i., p. 147. For fig. of sago starch see *Per. Mat. Med.*, vol. ii., pt. i., frontispiece, fig. 7, 8, 9. It much resembles Tacca starch, but the truncated grains are rather longer than in that starch. The specimen *d* is the sample received by Pereira from Cockermouth, Cumberland, under the name of "food for the people." *Per. Mat. Med.*, vol. ii., pt. i., p. 145.

ARACEÆ.

621. CALADIUM ESCULENTUM, *L.*

a. Rhizome. Presented by Senor G. J. de Nobrega, Madeira.

Note.—The rhizome and leaves are sold in the bazaars in Bombay, and are eaten by the natives. In the West Indies they are called yams, cocoes, or eddoes. *Bentley, Man. Bot.*, p. 676; *Per. Mat. Med.*, vol. ii., pt. i., p. 137.

622. ARUM MACULATUM, *L.* (*Lords and Ladies, Cuckoopint, Wake Robin.*)

a. Plant, preserved wet.

b. Corms, sliced.

c. Starch prepared from the rhizome. (*Portland Arrow-root.*)

Note.—The rhizome, dried and grated, is used by herbalists as a remedy for gout. It formerly held a place in the Dublin Pharmacopœia. The starch was formerly manufactured at Portland, and is still made there in small quantity, but is not an article of commerce. See *P. J.* [1], vol. xiii., p. 60. A peck of roots yields about 3 lbs. of starch. For fig. of the starch see *Per. Mat. Med.*, vol. ii., pt. ii., frontispiece, fig. 11.

CYPERACEÆ.

623. CYPERUS HEXASTACHYS, *Rottb.* (*Mootha.*)

a. Rhizome, from Delhi.

Note.—This specimen was presented by Dr. Royle. The rhizome is used in India for cholera. *Nagur Mootha* is the rhizome of C. pertenuis, which is used by Hindoo ladies for cleaning and perfuming their hair. *Treas. Bot.*, p. 373.

624. CYPERUS LONGUS, *L.* (*Sweet Scented Cyperus.*)

a. Rhizome.

Note.—The rhizome is now used only in perfumes, it having a violet-like odour. Formerly it was used as a tonic and stomachic for sweetening the breath. See *Pomet, Dict. of Drugs*, p. 36. It contains a bitter principle. The plant is a native of England, but is very local, occurring only in the southern counties.

625. CYPERUS ROTUNDUS, *L.*

a. Rhizome.

Note.—The rhizome is known in Jamaica under the name of "Adrew." The specimen was presented by Dr. D. Maclagan.

GRAMINACEÆ.

626. ANDROPOGON CITRATUS, *D.C.*; ANDROPOGON SCHŒNANTHUS, *Wall.* (*Lemon Grass, Sireh of Java.*)

a. Leaves.

b. Volatile oil. (*Oil of Verbena, Lemon Grass Oil, Indian Melissa Oil.*)

Note.—The oil receives its name of oil of verbena from its similarity in odour to the lemon plant, or sweet-scented verbena of the gardens (Lippia citriodora, *H. B. K.*). It is imported from Ceylon and Singapore. The oil made by Winter, of Ceylon, and Fisher, of Singapore, being esteemed the best. *Pharmacographia*, p. 660. The Andropogon schœnanthus of Linnæus is another species. See below.

627. ANDROPOGON LANIGER, *Desf.* (*Schœnanthus, Squinanthus, Fœnum Camelorum, Juncus Odoratus, Khávi.*)

a. Leaves.

Note.—This specimen was presented by Mr. D. Hanbury in 1874.

627. ANDROPOGON LANIGER, continued.

See *Pharmacographia*, p. 663. It has an aromatic pungent taste. It was formerly official in the London Pharmacopœia, and formed an ingredient in Theriaca and Mithridatium. It was considered to possess stimulant, vulnerary, diuretic, and emmenagogue properties. See *Per. Mat. Med.*, vol. ii., pt. i., p. 135. It is a native of Arabia. For fig. of the plant, etc., see *Pomet, Hist. of Drugs*, p. 110, fig. 1.

628. ANDROPOGON MURICATUS, *Retz.* (*Vetiver, Vittie vayr, Kuskus.*)

a. Root.

b. Volatile oil.

Note.—The fibrous roots are used in this country to lay in drawers as a perfume and to keep away moths. In India they are made into screens for windows and doors, and sprinkled with water to diffuse an agreeable odour and coolness. The oil is used in perfumery. The root has been used in medicine for a variety of purposes. See *Per. Mat. Med.*, vol. ii., pt. i., p. 132. *Pharmacographia*, p. 663.

629. ANDROPOGON NARDUS, *L.*

a. Essential oil. (*Citronelle Oil.*)

Note.—This grass is cultivated in Ceylon and Singapore, and the best comes chiefly from the same firms which make the best oil of verbena. Citronelle oil is largely used for perfuming honey soap. *Pharmacographia*, pp. 660, 661. Citronelle is the French name for Melissa officinalis, *L.* See *Bentley and Trimen, Med. Plants*, tab. 297.

630. ANDROPOGON SCHŒNANTHUS, *L.*

a. Leaves.

b. Volatile oil. (*Oil of Ginger Grass, Turkish Oil of Geranium, Grass Oil of Nimar or Nemaur, Rusa-ka-tel, Rosa Oil, Palma Rosa Oil, Idris Yaghi or Entershah of Turkey.*)

Note.—The oil is largely used for the adulteration of otto of rose. The otto which is sold in small gilt bottles, often consists of nothing more than oil of ginger grass. For the purpose of adulteration, it is first shaken with lemon-juice water and then exposed to sun and air, when its odour becomes more like that of the rose. Otto of rose containing much ginger grass oil will not congeal. See *Pharmacographia*, pp. 662 and 238. See also Pelargonium species. Andropogon schœnanthus, *L.*, is identical with A. pachnodes, *Trin.* and A. calamus aromaticus, *Royle.* A. schœnanthus of *Wallich* is identical with A. citratus, *D.C.*, and yields oil of verbena.

631. ARUNDO DONAX, *Beauv.* (*Great Reed.*)

a. Rhizome.

Note.—It is said that the heroes of Homer made their arrows of this reed, and that the tent of Achilles was thatched with its leaves. *Treas. Bot.*, p. 98.

632. AVENA SATIVA, *L.*

a. Caryopsides. (*Oats.*)

b. Ditto crushed. (*Embden Groats.*)

Note.—Oats are generally sold with the two paleæ attached to the

632. AVENA SATIVA, continued.

grain. Oats yield about 65 per cent. of starch. Oatmeal, if allowed to get damp, contracts a bitter taste. *Per. Mat. Med.*, vol. ii., pt. i., pp. 76–79. For fig. of starch, see above work, frontispiece, fig. 3. The grains are more angular than those of wheat, and not lenticular in shape. See *Bentley and Trimen, Med. Plants*, tab. 292.

633. BAMBUSA ARUNDINACEA, *L.*

a. Stem. (*Bamboo.*)

Note.—For an account of the uses of bamboo, see *Treas. Bot.*, p. 120. See also *Trans. Linn. Soc.*, vol. xxvi., p. 1.

634. COIX LACHRYMA, *L.*

a. Caryopsides. (*Job's Tears.*)

Note.—This specimen was in the International Exhibition of 1851, and was contributed by Mr. T. B. Duggin, of Berbice, Brit. Guiana. The grains are said to possess diuretic and tonic properties, *Treas. Bot.*, p. 311. They are also used as beads, *Bentley, Man. Bot.*, p. 685, and as a substitute for pearl barley.

635. ELEUSINE CORACANA, *Pers.*

a. Panicle of fruit. (*Natchnee.*)

Note.—This grass is cultivated as a corn crop in Japan, and also on the Coromandel Coast, where it is known under the name of natchnee. *Treas. Bot.*, p. 446; *Bentley, Man. Bot.*, p. 685.

636. HOLCUS SORGHUM, *Pers.*

a. Caryopsides. (*Indian Millet, Guinea Corn, Durra, Jaar, Turkish Millet.*) Presented by Dr. Daniell.

Note.—This grain is used in this country for feeding poultry. The stems are used in the manufacture of carpet brooms, etc. *Bentley, Man. Bot.*, p. 686. In many warm countries this grain replaces oats. *Treas. Bot.*, p. 1074. For fig. of the plant see *P. J.* [1], vol. xi., p. 350.

637. HORDEUM DISTICHUM, *L.*

a. Caryopsides. (*Barley.*)

b. Ditto, decorticated. (*Scotch, hulled*, or *pot Barley.*)

c. Ditto, ditto. (*Pearl Barley.*)

d. Malt.

Note.—As found in commerce, the grains are usually enclosed in the paleæ or husk. Patent barley simply consists of the ground decorticated grain. Barley meal contains about 68 per cent. of starch. Scotch barley consists of the grain with the husk partly removed by a mill. Pearl barley consists of the grain with all the integuments removed, and the seeds rounded and polished. *Per. Mat. Med.*, vol. ii., pt. i., p. 83. For fig. of starch, see above work, frontispiece, fig. 2.

Malt is the grain in which about 40 per cent. of the starch is turned into glucose and dextrine, by the altered proteine or diastase of the seed. Malt dried at 100° F., is pale malt; at 180° F., amber malt; at 260° F., brown malt. The brown malt is used for flavouring. Roasted or burned malt is used for colouring porter, etc. *Per. Mat. Med.*, vol. ii., pt. i., p. 85. See *Bentley and Trimen, Med. Plants*, tab. 293.

638. ORYZA SATIVA, *L.*

a. Panicle of fruit. See *Bentley and Trimen, Med. Plants*, tab. 291.
b. Caryopsides. (*Paddy.*)
c. Ditto, decorticated. (*Carolina Rice.*)
d. Ditto, ditto. (*Bengal Rice.*)
e. Ditto, ditto. (*Patna Rice.*)
f. Ditto, ditto, ground. (*Ground Rice.*)
g. Starch. (*Rice Starch of commerce.*)
h. Ditto. (*Orlando Jones's Patent Starch.*)
i. Gluten. (*Chinese Vermicelli.*)

Note.—Rice, while enclosed in the husk or paleæ, is called by the Malays *paddie*, and when freed from the husk, *bras*. Rice yields about 85 per cent. of starch. For the process of making Orlando Jones's patent rice starch, see *Per. Mat. Med.*, vol. ii., pt. i., p. 73. Rice starch is the smallest of all the commercial starches. In shape it resembles maize, but is very much smaller. For fig. of the starch, see *Per. Mat. Med.*, vol. ii., pt. i., frontispiece, fig. 6. The Chinese vermicelli is sold in flat bundles about 5 inches long and 1¼ inch broad, and is composed of a folded filament made of rice paste.

639. PENICILLARIA SPICATA, *Willd.*

a. Spike of inflorescence. (*Caffre Corn*, or *African Millet.*)

Note.—For fig. of this plant, and a full description of the uses of the grain, see *P. J.* [1], vol. xi., p. 396. It is a native of the Gold Coast, and is there used for food. The specimen was presented by Dr. Daniell.

640. SACCHARUM OFFICINARUM, *L.*

a. Culm, or stem. (*Sugar Cane.*)
b. Ditto, preserved wet.
c. Cane juice.
d. Cane sugar. (*Bastards.*)
e. Ditto. (*Raw Foots.*)
f. Ditto. (*Unclayed Manilla Sugar.*)
g. Ditto. (*Purified ditto.*)
h. Ditto. (*Sugar Candy.*)
i. Slag.
j. Wax from cane juice.

Note.—The specimen *f*, of unclayed Manilla sugar, was presented by Mr. W. W. Stoddart. Specimen *j* was presented by Prof. Guibourt, to whom it was sent by M. Avequin, of Orleans. It appears to be detached from the canes when crushed in the mill. See *Per. Mat. Med.*, vol. ii., pt. i., p. 121. It occurs as a glaucous powder, coating the canes, chiefly those of the violet variety. It is fusible at 180° F., dissolves in boiling alcohol, and gelatinizes on cooling. Cane juice contains about 20 per cent. of sugar. "Muscovado" is a term often applied to raw sugar. "Bastards" is prepared from molasses and the green syrups. The coarser brown sugars often contain mites in large numbers, for fig. of which see *P. J.* [1], vol. x., p. 396. Molasses is the term applied in commerce to the drainings from raw sugar, and treacle to the thicker syrup which has drained from refined sugar in the moulds. *Cooley's*

640. SACCHARUM OFFICINARUM, continued.

Cyclopædia, p. 1087. For caramel, saccharum penidium, etc., see *Chemical Collection*. See also *Per. Mat. Med.*, vol. ii., pt. i., p. 120, etc. *Bentley and Trimen, Med. Plants*, tab. 298.

641. SECALE CEREALE, *L.*

a. Caryopsides. (*Rye.*)

Note.—The black bread of Russia and Germany is made from this grain. Its use is said to cause ergotism, on account of the occurrence of ergot more frequently in this grain than in others. It yields about 65 per cent. of starch. For fig. of starch, see *Per. Mat. Med.*, vol. ii., pt. i., frontispiece, fig. 4.

642. TRITICUM VULGARE, *L.*

a. Caryopsides. (*Wheat.*)

b. Starch. (*Wheat Starch.*)

c. Gluten. (*Macaroni.*)

d. Semolina.

e. Manna croup.

Note.—Semolina and manna croup are granular preparations of wheat deprived of bran. Wheat yields about 70 per cent. of starch. For fig. of the starch, see *Per. Mat. Med.*, vol. ii., pt. i., frontispiece, fig. 1. Wheat starch is remarkable for the number of small grains found in it. The larger grains are round and lenticular, and appear elliptical when seen sideways. Triticum durum, *Kunth*, is said to be the species preferred for making macaroni. See *Bentley and Trimen, Med. Plants*, tab. 294.

643. TRITICUM REPENS, *L.* (*Couch Grass, Quitch Grass, Dog Grass.*)

a. Rhizome.

Note.—A decoction of the rhizome has of late been recommended in mucous discharge from the bladder. *Pharmacographia*, p. 664; *Culpepper's Herbal*, p. 156.

644. TRITICUM COMPOSITUM, *L.* (*Mummy Wheat.*)

a. Panicle of fruit.

Note.—This specimen was grown from seed found in an Egyptian mummy by Mr. Pettigrew. Presented by Mr. Savory.

645. ZEA MAYS, *L.*

a. Spike of fruit.

b. Caryopsides. (*Indian Corn, Maize.*)

c. Starch.

Note.—The specimen *a* was grown and presented by Mr. G. Jeynes. Maize contains about 67 per cent. of starch. Maize meal has been known under the name of polenta. Most of the "Indian corn flours" are composed entirely of maize starch. The starch is distinguished from others by being thick and angular. For fig., see *Per. Mat. Med.*, vol. ii., pt. i., frontispiece, No. 5. *Bentley and Trimen, Med. Plants*, tab. 296.

CRYPTOGAMIA.

FILICES.

646. ADIANTUM CAPILLUS VENERIS, *L.*

a. Fronds. (*Maidenhair.*)

647. ADIANTUM PEDATUM, *L.*

a. Fronds. (*Canadian Maidenhair.*)

Note.—Maidenhair is mucilaginous, slightly astringent, and aromatic; it is used in France as a remedy in chronic catarrh. The Canadian maidenhair is the more aromatic of the two. Sirop de capillaire is prepared from the latter plant, with the addition of orange-flower water. The capillaire of the shops usually consists of simple syrup, flavoured with orange-flower water. *Per. Mat. Med.*, vol. ii., pt. i., p. 66. For fig., *Hist. des Drog.*, t. ii., p. 76.

648. CIBOTIUM BAROMETZ, *Smith.*

a. Rhizome, and portion of stipes. (*Scythian Lamb.*)

Note.—For the curious fable concerning the rhizome of this fern, see *P. J.* [1], vol. xvi., p. 280.

b. Stipes.

c. Ramenta. (*Penghawar Djambi.*)

Note.—The ramenta, or silky hairs covering the base of the stipes, of this fern, have been used in Germany and Holland as a styptic. It is imported from Sumatra. See, for fig., *P. J.* [1], vol. xvi., p. 502.

649. CIBOTIUM GLAUCUM, *Hook.* and *Arn.*

a. Ramenta. (*Pulu.*)

Note.—The silky hairs of this fern are imported from the Sandwich Islands. Pulu is probably produced also by two other species, C. Chamissoi, *Kaulf.*, and C. Menziesii, *Hook.*, natives of the same islands. In 1858, it was exported to the extent of 313,220 lbs. Each plant yields about two to three ounces. Pulu was supposed by Prof. Archer to be identical with penghawar djambi, see *P. J.* [1], vol. xvi., p. 322. See also *P. J.* [2], vol. i., p. 501. By the natives, pulu is used for pillows, etc.

650. DICKSONIA CHRYSOTRICHA; BALANTIUM CHRYSOTRICHUM, *Hassk.*

a. Stipes.

b. Ramenta. (*Pakoe Kidang.*)

Note.—The silky hairs, called pakoe kidang, are larger than those of penghawar djambi, and the cells of which they are composed are shorter than those of pulu. Pakoe kidang yields, according to De Vrij, 6·74 per cent. of ashes, and penghawar djambi only 1·53 per cent. See, for fig., *P. J.* [2], vol. i., p. 503. The fern is a native of Java. It has been sold in Holland under the name of penghawar djambi.

651. Lastræa Filix-mas, *Presl.*; Aspidium Filix mas, *Swartz.* (*Male Fern.*)

a. Rhizome.

b. Ethereal extract. (*Oil of Male Fern.*)

Note.—The rhizomes are distinguished from the similar ones of Athyrium—Filix fœmina, Lastræa Oreopteris, and Lastræa spinulosa, by the section of the leaf-base showing eight vascular bundles, while in the other ferns named there are only two. The rhizome yields about 8 per cent. of ethereal extract. See *Pharmacographia*, p. 669. See *Bentley and Trimen, Med. Plants*, tab. 300.

652. Polypodium Calaguala, *Ruiz.*

a. Rhizome.

Note.—The rhizome of this, and other species, is used in Peru as a diuretic and febrifuge, also in syphilis. *Bentley, Man. Bot.*, p. 692. For fig. of the root, see *Hist. des Drog.*, t. ii., p. 73; and *Goebel und Kunze*, pt. ii., taf. 11, fig. 2.

LYCOPODIACEÆ.

653. Lycopodium Clavatum, *L.*

a. Spores. (*Lycopodium, Vegetable Sulphur.*)

Note.—The spores are used for rolling pills in; as a dusting powder for infants' sores; for imitation of lightning in theatres, by blowing the powder across a jet of flame, and also in fireworks. The spores have a peculiar structure, by which they can easily be distinguished under the microscope from all other substances. *Pharmacographia*, p. 667. For fig. of spores, see *Berg, Anat. Atlas*, taf. xlix., fig. 132; *Per. Mat. Med.*, vol. ii., pt. i., p. 67. See *Bentley and Trimen, Med. Plants*, tab. 299.

LICHENES.

654. Cetraria Islandica, *L.*

a. Thallus. (*Iceland Moss.*)

Note.—This foliaceous lichen is indigenous in the north of Britain, and is easily distinguished by its fronds being minutely fringed. None is exported from Iceland. It yields 70 per cent. of lichenin—a substance resembling starch—which swells up in cold water, and turns blue with iodine. Its bitterness may be removed by a solution of carbonate of soda. *Pharmacographia*, p. 671. Treated with sulphuric acid, Iceland moss yields 72 per cent. of glucose. See *Bentl. & Trim., Med. Plants*, tab. 302.

655. Cladonia rangiferina, *Hoffm.*

a. Reindeer moss.

Note.—This fruticulose lichen is common in heathy places. It is used in this country chiefly by bird-stuffers for ornamenting the inside of cases. For fig. of plant, see *Per. Mat. Med.*, vol. ii., pt. i., p. 21.

656. Gyrophora pustulata, *Ach.*

a. Thallus.

Note.—Several species are employed as food in the Arctic regions, under the name of tripe de roche. This species is common on boulders and subalpine rocks from Devonshire to Scotland. It is easily recognised by its mealy appearance, and saucer-shaped, blistered thallus, attached only by a central point. It is a foliaceous lichen.

657. GYROPHORA VELLEA, *Hoffm.*

a. Thallus.

Note.—This is the species figured by Pereira in his *Mat. Med.*, vol. ii., pt. i., p. 20, fig. 19, right-hand figure. It is one of those known under the name of tripe de roche. It is also found in this country on alpine rocks.

658. LECANORA TARTAREA, *L.*

a. Thallus.

b. Ditto, prepared.

c. Ditto. (*Ground Cudbear.*)

Note.—Cudbear is made, like litmus, by the action of air and ammoniacal liquor upon the above species and other lichens. The name cudbear is a corruption of Cuthbert, the christian name of Dr. C. Gordon, under whose management it was first manufactured at Leith, in 1777. See *Per. Mat. Med.*, vol. ii., pt. i., p. 37. Lecanora tartarea is a crustaceous lichen.

659. PARMELIA PERLATA, *L.*

a. Thallus.

Note.—This lichen forms No. 2 quality of Socotra orchella weed. It is one of the commonest lichens on trees and rocks in this country.

660. PELTIGERA CANINA, *L.*

a. Thallus.

Note.—This foliaceous lichen is sold by herbalists under the name of ground liverwort, and is used by them for liver complaints. It is very common in hedge-banks in damp, hilly districts; and is readily recognised by its grey colour and broad fronds, which are white and fibrous underneath. It is, however, chiefly imported from Germany. For fig., see *Per. Mat. Med.*, vol. ii., pt. i., p. 19, fig. 16.

661. ROCCELLA TINCTORIA, *D.C.*

a. Thallus. (*Lima thick Orchella Weed.*)

Var. β HYPOMECHA, *Ach.*

a. Thallus with apothecia, from the Cape de Verde Islands.

662. ROCCELLA FUCIFORMIS, *Ach.*

a. Thallus. (*Orchella Weed.*)

b. Ditto, ditto, with apothecia, from Madagascar.

c. Ditto. (*Socotra Orchella Weed, Shennah*, no. 1 quality.)

d. Ditto, from Aden. Presented by Dr. J. Vaughan.

e. Litmus.

f. Orchil.

Note.—Roccella fuciformis occurs in this country only in the extreme south of England, as in Devon, Cornwall, Isle of Wight, and Jersey; but not in sufficient quantity for commercial purposes. Roccella tinctoria does not occur in Britain; R. phycopsis has usually been mistaken for it. Specimens *b*, *c*, and *d* consist chiefly of R. Montagnei, which differs from R. fuciformis in being flaccid. R. phycopsis is readily distinguished by its cylindrical branches, dense habit, and the yellow colour of its point of attachment to the rock. For fig., see *Bentley and Trimen, Med. Plants*, tab. 301. Orchil is made by mixing the powdered orchella weed with urine, and exposing it to the air. To make litmus, potash, soda, or lime is added. See *Per. Mat. Med.*, vol. ii., pt. i., p. 33.

663. STICTA PULMONARIA, *Ach.* (*Lungwort, Oak Lungs, Hazel Rag, Hazel Crottles.*)

a. Thallus.

Note.—This foliaceous lichen is common in this country on trees in damp subalpine woods, and is readily recognised by its reticulated thallus. See *Per. Mat. Med.*, vol. ii., pt. i., fig. 18. It is sold by herbalists as a remedy in pulmonary affections. In Siberia, in which country it appears to be more bitter, it is used as a substitute for hops in brewing. See also *Treas. Bot.*, p. 1099.

FUNGI.

664. AGARICUS CAMPESTRIS, *L.*

a. Mycelium. (*Mushroom Spawn.*)

Note.—The mycelium consists of white branched cottony threads. It is the vegetative organ of the fungus, the mushroom being the reproductive organ. True mushrooms are recognised by the flesh turning pink, not yellow, when injured, and by the gills being pink at first and afterwards black. The spores are borne upon the gills, and may easily be collected for the microscope by placing a mushroom upon a piece of white paper for a few hours, when the spores will appear as a dark stain on the paper.

The mushroom belongs to the natural order Hymenomycetes.

665. CLAVICEPS PURPUREA, *Tulasne.*

a. Sclerotium. (*Ergot of Rye.*) Two specimens.

b. Ditto. (*Ergot of Wheat.*)

Note.—Sclerotium is the name given to a mycelium when hard and compact. It consists of minute jointed threads compacted together. These threads are called hyphæ. The sclerotium is the vegetative organ of the fungus, the reproductive organ of the fungus not being developed until the succeeding spring. See *Pharmacographia*, p. 675; and for fig. of the fungus, *Per. Mat. Med.*, vol. ii., pt. i., p. 105, fig. 68; *Cooke, British Fungi*, p. 772, fig. 369. This fungus belongs to the natural order Sphæriacei. See *Bentley and Trimen, Med. Plants*, tab. 303. *P. J.* [3], vol. i., p. 702.

666. ELAPHOMYCES GRANULATUS, *Fries.*

a. Fungus. (*Lycoperdon Nuts, Hart's Truffles, Deer Balls.*)

Note.—This fungus, like the truffle, grows entirely underground. It was formerly used in promoting parturition and the secretion of milk, and also as an aphrodisiac. For fig. see *Per. Mat. Med.*, vol. ii., pt. i., p. 49. The fungus is a native of Britain and is found in dry heathy ground. This fungus belongs to the natural order Tuberacei.

667. EXIDIA AURICULA-JUDÆ, *Fr.*; HIRNEOLA AURICULA-JUDÆ, *Berk.* (*Jew's Ear.*)

a. Fungus.

Note.—This specimen was presented by Prof. Batka, of Prague. It consists in part of Phlebia mesenterica (Auricularia mesenterica, *Bull*), a fungus much resembling it in appearance, but forming extended patches, while Jew's ear grows in isolated cup-shaped pieces. Jew's ear grows chiefly on elder trees. For fig. see *Cooke, Brit. Fungi*, vol. i., p. 349.

667. Exidia Auricula-Judæ (continued).

and for Auricularia mesenterica, p. 319. Other species are often substituted for it, but may be distinguished by not swelling up in water nor becoming gelatinous. Another species of Jew's ear (E. hispidula) is used in China and Japan as a food, under the name of moghi (tree-ears), and also in some parts of India. In this country it was formerly used as an astringent in sore throat; also like a sponge to apply collyria to the eye. *Per. Mat. Med.*, vol. ii., pt. i., p. 52. *Bentley, Man. Bot.*, p. 704. This fungus belongs to the natural order Tremellini. See also *Dr. Porter Smith, Mat. Med. China*, p. 99. *P. J.* [3], vol. i., p. 681.

668. Morchella esculenta, *L.*

a. Fungus. (*Morel.*)

Note.—The morel is a native of Britain, occurring in shady woods, but is imported from the Continent for sale in Covent Garden Market, etc. It is chiefly used as a flavouring ingredient in cookery. *Per. Mat. Med.*, vol. ii., pt. i., p. 53; and for fig. p. 54, fig. 45. This fungus belongs to the natural order Helvellacei.

669. Mylitta lapidescens, *Horan.* (*Carom-pallagum of Travancore.*)

a. Fungus. (*Lui-hwan* of China.)

Note.—This fungus is used in China for worms, several infantile diseases, and impotency. Its Chinese name, signifying thunder-balls, is given to it from its asserted power of destroying worms and casting out devils. *Porter Smith, Chinese Mat. Med.*, p. 154. In Travancore it is used for urinary complaints. See *P. J.* [2], vol. ii., p. 546.

670. Pachyma Cocos, *Fries.*

a. Mycelium. (*Indian Bread, Tuckahoo, Fuh-ling.*)

Note.—This substance is similar in appearance to the rhizomes of Smilax China, but may be distinguished by not containing starch. It is white inside, with usually a reddish tinge towards the outside. It is usually met with in fir plantations, and is often attached to the roots of the trees. It is said by Porter Smith to be exported to India under the name of Chob-China. See *Porter Smith, Chinese Mat. Med.*, pp. 165 and 198, art. *Smilax*. It is composed almost entirely of pectine. It is used in febrile and dyspeptic complaints and also made into small square cakes with rice flour, which are sold for food in Hankow. See *P. J.* [3], vol. iii., p. 763; [2], vol. iii., p. 421. For fig. of the fuh-ling, see *Linn. Trans.*, vol. xxiii., p. 94; and *Journ. Linn. Soc.*, vol. iii., *Bot.*, p. 102.

671. Polyporus fomentarius, *Fr.* (*Dingy-hoof Polyporus.*)

a. Fungus.

b. Ditto, prepared. (*Amadou.*) Two specimens.

Note.—This fungus is found chiefly on the oak and birch. Amadou is made by cutting it into slices, and beating it. It is used for corn plaister, etc., and has the advantage over lint of not losing its elasticity. German tinder is formed by soaking it in a solution of nitrate of potassium. The Polyporus belongs to the natural order Polyporei, in which the hymenium, or spore-bearing surface, lines numerous tubes instead of gills.

672. POLYPORUS OFFICINALIS, *Fries.*

a. Fungus. (*White*, or *Larch*, or *Female Agaric.*)

Note.—This fungus is a native of the South of Europe and Asia, and grows upon the larch. It has a bitter acrid taste, and was formerly used as an emetic and cathartic, and as an anti-sudorific in phthisis. See *Per. Mat. Med.*, vol. ii., pt. i., p. 55. It was formerly an ingredient in hiera picra. See *Pomet, Hist. of Drugs*, p. 172.

673. PUCCINIA GRAMINIS, *Pers.* (*Corn Mildew.*)

a. Fungus.

Note.—This fungus is very common on wheat. It is found on the stems, etc. It belongs to the natural order Pucciniæi.

674. SPHÆRIA SINENSIS, *Berk.*

a. Fungus and caterpillar.

Note.—This curious fungus is figured in *Per. Mat. Med.*, vol. ii., pt. i., p. 52, and in *P. J.* [1], ii., p. 591. It is a fungus which grows upon the larva of a moth, and is said to possess cordial and restorative properties. It is very scarce; old and rotten specimens being worth four times their weight in silver. See *P. J.* [1], ii., p. 592. A similar fungus is found in New Zealand on the larva of Hepiolus virescens, *Doubleday*. See *P. J.* [1], iv., p. 206.

675. TUBER ÆSTIVUM, *Sibth.*; TUBER CIBARIUM, *Sow.* (*Truffle.*)

a. Fungus.

Note.—Truffles are chiefly used as a flavouring agent for culinary purposes. Truffles grow beneath the surface of the ground in beechwood or chalky downs, and are hunted for by dogs or pigs trained for the purpose which find them by the peculiar odour of the fungus. See *Per. Mat. Med.*, vol. ii., pt. i., p. 51. Like many other fungi they have been stated to possess aphrodisiac properties. They belong to the natural order Tuberacei.

ALGÆ.

676. ALSIDIUM HELMINTHOCORTON, *Kutz.*; PLOCARIA HELMINTHOCORTON, *Endl.*

a. Thallus. (*Corsican Moss.*)

Note.—This seaweed is used in Corsica as a remedy for intestinal worms, especially ascarides. For fig. of the plant, see *Per. Mat. Med.*, vol. ii., pt. i., p. 17. It belongs to the natural order Rhodomeleæ.

677. CHONDRUS CRISPUS, *Lyngb.*

a. Thallus. (*Carragheen Moss, Irish Moss.*)

Note.—Irish moss is often mixed with other species of algæ of which the most frequent are Gigartina mamillosa, *J. A.*, and G. acicularis, *Lamour.* G. mamillosa is distinguished by being slightly channelled towards the base, and by having the fructification in little elevated or stalked tubercles—that of C. crispus being immersed in the frond, or scarcely raised above it. G. acicularis has a filiform thallus with divaricate branches. All, when growing, are of a purplish colour, which changes during drying into yellowish green or white. *Pharmacographia*, p. 681. For fig. see *Per. Mat. Med.*, vol. ii., pt. i., pp. 10, 11; and *Bentley and Trimen, Med. Plants*, tab. 305.

678. EUCHEUMA SPINOSA, *J. Ag.*

a. Thallus. (*Agar Agar.*)

Note.—This seaweed has been imported into this country under the name of *Agar Agar*, and has been used in the form of gelatine, for dressing silks and other textile fabrics. According to Professor Archer, it has also been imported under the name of Ceylon Moss. See *P. J.* [1], vol. xiii., pp. 313, 448. It belongs to the natural order Sphærococcoideæ.

679. FUCUS VESICULOSUS, *L.* (*Bladder Wrack, Sea Oak, Sea Lettuce.*)

a. Thallus.

Note.—This Fucus is distinguished from the other species by the thallus having a midrib, and by not being serrate; also by the numerous air-bladders in the frond. It is of a blackish brown colour. It was at one time recommended as a remedy for obesity. *P. J.* [2], vol. iv., p. 131; [2], vol. viii., p. 616. *Bentley, Man. Bot.*, p. 709. It belongs to the natural order Fucaceæ. See *Bentl. & Trim., Med. Plants*, tab. 304.

680. GIGARTINA MAMMILLOSA, *J. Ag.*; CHONDRUS MAMMILLOSUS, *Grev.*

a. Thallus.

Note.—This seaweed is a native of this country. It is frequently met with in commerce intermixed with Chondrus crispus, from which it may be readily distinguished by the presence of numerous stalked tubercles scattered over the upper portion of the frond, and by the lower portion of the frond being channelled. See *Pharmacographia*, p. 681. For fig., see *Per. Mat. Med.*, vol. ii., pt. i., p. 11. The plant belongs to the natural order Gigartineæ.

681. GRACILARIA LICHENOIDES, *Grev.*; SPHÆROCOCCUS LICHENOIDES, *Agardh.*; PLOCARIA CANDIDA, *Nees.*

a. Thallus. (*Ceylon Moss, Jaffna Moss.*)

Note.—This seaweed is used like Carragheen Moss. It is the *Agar Agar Carang* of the Malays. For fig., see *Per. Mat. Med.*, vol. ii., pt. i., p. 14. See also *Pharmacographia*, p. 260. It is official in the Indian Pharmacopœia. It belongs to the natural order Sphærococcoideæ.

CHEMICAL MUSEUM.

*Some of the rarer or very expensive chemicals will be found in Case I. in the Chemical Museum. These specimens are indicated by †. Those specimens which are placed under shades are marked thus *.*

INORGANIC COMPOUNDS.

HYDROGEN. H.

1. PEROXIDE. H_2O_2. (*Hydroxyl, Hydric Dioxide.*)
   a. Commercial specimen.

   Note.—This is the ordinary aqueous solution: the old "oxygenated water."

NITROGEN. N.

2. NITROSYL CHLORIDE. NOCl. (*Chloronitrous Gas. Monochloride of Nitrosyl.*)
   a. Condensed gas, in a hermetically sealed glass tube.

   Note.—This specimen was prepared by Dr. Tilden, whose researches in connection with it are recorded in the *Journ. Chem. Soc.*, 1874, p. 630.

3. NITROUS ANHYDRIDE. N_2O_3. (*Nitrogen Trioxide, Anhydrous Nitrous Acid.*)
   a. Condensed gas, not quite pure.

   Note.—This specimen was condensed by means of a freezing mixture. Nitrous anhydride before exposure to the air condenses into a dark blue liquid, but emits a red vapour which is soluble in the blue liquid. This specimen having been very carefully prepared, is of a blue colour.

4. NITRIC PEROXIDE. NO_2. (*Nitrogen Tetroxide, Hyponitric Acid, Nitroso-nitric Anhydride.*)
   a. Condensed gas, in a hermetically sealed glass tube.

   Note.—This specimen was condensed by means of a freezing mixture. At 62° F. this specimen remains a brownish yellow liquid. Specimens 3 and 4 were presented by Messrs. Hopkin and Williams.

CARBON. C.

5. CRYSTALLINE.
   a. Models of the koh-i-noor and other diamonds.

   Note.—This specimen will be found in the central case, in which perfect crystals and models of crystalline forms are contained.

CARBON.

b. Graphite. (*Plumbago*, or *Black Lead.*)

Note.—This specimen came from Travancore; it was presented by Dr. Waring.

6. AMORPHOUS.

a. Anthracite. (*Stone Coal, Culm.*)

b. Jet, from Whitby.

c. Glance coal. (*Metallic Carbon.*)

Note.—This kind of carbon is deposited on the inside of gas retorts.

* *d.* Glance coal, deposited on a burnt whisp of straw.

Note.—This specimen was deposited from a jet of coal gas at a high temperature in a coke oven.

* *e.* Boghead coal. (*Torbanite, Torbane Hill Mineral.*)

Note.—This specimen was presented by Professor Attfield. It bears the impression of a Sigillaria. It is a specimen of the mineral from which paraffin oil was first obtained for commercial purposes. An analysis of this specimen by Prof. Attfield, yielded 36 per cent. of crude paraffin oil.

f. Brown coal. (*Lignite.*)

Note.—This specimen came from Germany. It was presented by Prof. Attfield. According to his analysis, it yields by distillation paraffin oil at the rate of 60 gallons per ton.

The term lignite is sometimes improperly applied to brown coal. Strictly speaking, lignite is intermediate between wood and brown coal, being distinguished from all varieties of coal by yielding acetic acid and acetate of ammonium, instead of an ammoniacal liquor. See *Ure, Dict. Mines*, vol. ii., p. 870; vol. i., p. 497.

g. Wood charcoal, from willow wood.
Ditto, from acacia wood.

Note.—These specimens illustrate the kind of wood charcoal used for medicinal purposes, for which woods containing a small percentage of mineral matter are necessary.

h. Animal charcoal. (*Bone Black, Carbo Animalis, B.P.*)

i. Ditto, purified. (*Carbo Animalis Purificatus, B.P.*)

7. BISULPHIDE. CS_2. (*Carbonic Disulphide, Sulpho-carbonic Acid.*)

a. Commercial specimen.

b. Purified by digestion with copper filings.

c. Purified, and free from disagreeable odour.

8. DICHLORIDE. CCl_4. (*Tetrachloride of Carbon, Bichloride of Carbon, Carbonic Chloride, Perchlorinated Chloride of Methyl, Perchloroformene.*)

a. Pure.

CHLORINE. Cl.

9. Hydrate. $Cl_5 H_2 O$.

a. Preserved in a hermetically sealed tube.

Note.—This specimen was prepared and presented by Dr. A. Senier.

10. Perchloric Acid. $H Cl O_4$.

† *a.* Dilute acid.

BROMINE. Br.

11. Bromine.

a. Commercial specimen.

IODINE. I.

12. Kelp.

a. Seaweed ash.

b. Ditto, prepared in Ireland.

13. Iodine.

a. Crude iodine, prepared in Scotland.

b. Ditto, prepared in Chili.

c. Resublimed in crystals.

14. Iodic Acid. $H I O_4$.

† *a.* In crystals.

FLUORINE. F.

15. Silico-fluoric Acid. $4H F Si F_4$. (*Hydro-fluosilicic Acid.*)

a. Aqueous solution.

SULPHUR. S.

16. Crystalline.

a. Native sulphur in crystals.

Note.—This variety is of frequent occurrence in collections of Indian drugs.

b. Crystals obtained by sublimation. (*Pseudomorphic Sulphur.*)

Note.—When first prepared these crystals were translucent; their opacity is due to their becoming split up internally into minute crystals, which have the crystalline form of specimen *a*.

17. Amorphous.

a. Crude sulphur.

Note.—This specimen consists of native sulphur partially purified by fusion.

b. Sulphur condensed on alum heaps during the combustion of alum shale.

Note.—For alum shale see the central case containing the minerals of the alkaline metals and of the alkaline earths.

SULPHUR.

c. Sublimed sulphur, in powder. (*Flowers of Sulphur, Sulphur sublimatum, B.P.*)

d. Ditto, washed. (*Sulphur lotum.*)

Note.—This specimen differs only from specimen *c* in having been washed with water to remove traces of sulphurous or sulphuric acid.

e. Sulphur fused into sticks. (*Roll Sulphur, Stone Brimstone, Sulphur in rotulis, Sulphur in bacculis.*)

f. Sulphur, precipitated. (*Sulphur præcipitatum, B.P., Pure Milk of Sulphur.*)

g. Ditto. (*Sulphur præcipitatum, P.L.*, 1746, *Common Milk of Sulphur.*)

Note.—This article was official in the London Pharmacopœias until the year 1809, when it was replaced by the pure article represented by specimen *f*. Specimen *g* owes its satiny lustre to minute crystals of sulphate of calcium, which it contains in large quantity. See *P. J.* [2], vol. ix., p. 537.

h. Electro-positive sulphur.

Note.—This specimen was made by precipitating a solution of hyposulphite of sodium with hydrochloric acid. It differs from ordinary sulphur in being insoluble in bisulphide of carbon, and in being soluble in bisulphide of potassium; but this peculiarity is lost by age.

i. Black sulphur. (*Sulphur Vivum, Horse Brimstone.*)

Note.—This is a very impure substance.

18. CHLORIDE. S_2Cl_2. (*Protochloride of Sulphur, Bisulphide of Chlorine, Sulphur Monochloride.*)

a. Liquid.

Note.—This specimen is probably a mixture of S_2Cl_2 and SCl_4.

19. IODIDE. S_2I_2. (*Sulphur Iodidum, B.P.*)

a. Commercial specimen.

Note.—When prepared, this specimen was of a greyish black colour, but has lost iodine on exposure to the air, and consequently is indefinite in composition.

20. HYPOCHLORIDE. (*Hypochlorite of Sulphur.*)

a. Powder.

Note.—This is an indefinite compound of chloride of sulphur and sulphur. It is liable to explode spontaneously. See *P.J.* [3], vol. viii., p. 38.

21. SULPHUROUS ANHYDRIDE. SO_2.

a. Condensed gas in a hermetically sealed glass tube.

Note.—This specimen was condensed by means of a freezing mixture. It was presented by Messrs. Hopkin and Williams.

22. SULPHUROUS ACID. (*Acidum Sulphurosum. B.P.*)

a. Aqueous solution.

Note.—For remarks concerning the manufacture of this acid, see *P. J.* [1], vol. xviii., p. 512.

23. Sulphuric Anhydride. $S O_3$. (*Sulphuric Oxide, Trioxide of Sulphur, Anhydrous Sulphuric Acid.*)
    a. In white acicular crystals.

    Note.—This specimen was presented by Messrs. Hopkin and Williams.

24. Sulphuric Acid. (*Oil of Vitriol, Vitriolic Acid.*)
    a. Commercial acid, impure. Sp. gr., 1·843.
    b. Purified. (*Acidum Sulphuricum, B.P.*)
    c. Glacial sulphuric acid. (*Hydrate of Sulphuric Acid.*)

    Note.—This specimen has a sp. gr. of 1·78. At 47° F. this hydrate forms large prismatic crystals. Formula $H_2 S O_4 H_2 O$.

    d. Fuming sulphuric acid. (*Nordhausen Sulphuric Acid.*)

SELENIUM. Se.

25. Metalloid.
    † *a.* Crystalline.
    † *b.* Amorphous.

    Note.—Specimen *b* consists of a medallion made of amorphous selenium in honour of Berzelius, the discoverer of this element, and bears an impression of his bust upon it.

    For remarks upon the allotropism of selenium, see *P. J.* [1], vol. xvi., p. 169.

26. Selenious Acid. $H_2 Se O_3$.
    † *a.* Crystals.

    Note.—The red tint of this specimen is due to the presence of free selenium. The crystals have deliquesced slightly although efflorescent in dry air.

27. Selenic Acid. $H_2 Se O_4$.
    † *a.* Liquid.

TELLURIUM. Te.

28. Metalloid.
    † *a.* In small nodules.

29. Telluride of Bismuth.
    † *a.* Native, in small crystals.

    Note.—See also a specimen in the central case, No. 8.

BORON. B.

30. Metalloid.
    † *a.* Crystals.
    † *b.* Amorphous.

31. Boracic Anhydride. $B_2 O_3$.
    a. Obtained by heating boracic acid.

32. Boracic Acid. $H_3 B O_3$. (*Boric Acid, Homberg's Sedative Salt.*)
    a. Crude, obtained from the lagoons of Tuscany.

Boracic Acid.

b. Purified by crystallization from alcohol.

c. Ditto, by recrystallization from water.

SILICON. Si.

33. Metalloid.

† *a.* In crystals.

† *b.* Amorphous.

34. Silicic Anhydride. SiO_2. (*Silica, Silicic Acid, Silicic Oxide.*)

a. Precipitated.

Note.—This specimen was obtained by passing gaseous fluoride of silicon into water.

For various specimens of crystallized silica, see the collection of minerals in case No. 8, in the centre of the Chemical Museum.

b. Prepared by calcination of flint.

PHOSPHORUS. P.

35. Crystalline.

a. Commercial specimen, fused into sticks.

b. Ditto, coated with white opaque phosphorus.

c. Ditto, ditto, red ditto.

d. Ditto, ditto, black ditto.

36. Amorphous.

a. Commercial specimen. (*Red Amorphous Phosphorus.*)

b. Pure, for medicinal purposes.

c. Impure, partially decomposed into phosphatic acid.

37. Phosphoric Anhydride. P_2O_5. (*Pentoxide of Phosphorus, Anhydrous Phosphoric Acid, Phosphoric Oxide.*)

a. Commercial specimen.

38. Phosphoric Acid. HPO_3. (*Glacial Phosphoric Acid, Metaphosphoric Acid.*)

a. Commercial specimen.

* *b.* Very fine specimen, presented by Mr. Morson.

39. Phosphoric Chloride. PCl_5. (*Pentachloride of Phosphorus, Perchloride of Phosphorus.*)

a. Commercial specimen.

MONAD METALS.

POTASSIUM. K.

40. Metal.

a. Preserved from oxidation in Persian naphtha.

41. Acetate. $KC_2H_3O_2$. (*Potassæ Acetas, B.P., Diuretic Salt.*)

a. In fused masses.

42. Bin-antimoniate. $K_4Sb_2O_7$. (*Calx Antimonialis.*)

a. Powder.

43. Potassium Arsenite. $K H_2 As O_3$. (*Potassium Binarseniate, Potassium Dihydric Arseniate, Macquer's Salt.*)
    a. Crystals.

44. Borotartrate.
    a. Pseudo-crystalline scales.

45. Bromide. K Br.
    a. Crystals, a commercial specimen.
    b. Ditto, deliquescent.
    c. Ditto, in the form of small cubes.
    d. Ditto, in large opaque cubes.
    e. Ditto, in hollow tetrahedrons.
    f. Ditto, in large crystals. Presented by Messrs. Atkinson & Co.
    * *g.* A mass of fine crystals. Presented by Messrs. Hopkin & Williams.

    Note.—Specimen *b* probably owes its deliquescent character to the presence of carbonate of potassium. Specimens *c* and *d* probably contain some iodide of potassium, since specimens of the bromide containing that salt usually form finer crystals. See *P. J.* [1], vol. xvii., p. 259.

46. Carbonate. $K_2 C O_3$.
    a. Impure. (*Pearlash.*)
    b. Purified. (*Salt of Tartar, Salt of Wormwood, Subcarbonate of Potash.*)
    c. Deliquesced. (*Oil of Tartar per deliquium.*)

47. Bicarbonate. K H C O_3. (*Hydric Potassic Carbonate, Acid Carbonate of Potassium.*)
    a. Crystals, commercial specimen.
    b. Ditto, fine specimen.

    Note.—For fig. of crystal, see *Per. Mat. Med.*, vol. i., p. 496. *Watts, Dict. Chem.*, vol. i., p. 792.

48. Chlorate. K Cl O_3. (*Oxymuriate of Potash, Kali Chlorinicum, Ph. Ger.*)
    a. Crystals, commercial specimen.
    b. Ditto, fine specimen.
    c. Ditto, chemically pure.

    Note.—For fig. of crystal, see *Per. Mat. Med.*, vol. i., p. 511.

49. Perchlorate. K Cl O_4.
    a. Crystals.

    Note.—These crystals are different in shape from those of the chlorate. See *Gmelin, Chemistry*, vol. iii., p. 62; and for fig., vol. i., pt. i., figs. 53, 54.

50. Chloride. K Cl. (*Muriate of Potash, Febrifuge or Digestive Salt of Sylvius, Diuretic Sal Ammoniac, Regenerated Sea Salt.*)

POTASSIUM CHLORIDE.

a. Native. (*Carnallite.*)

b. Pure, prepared from kelp.

Note.—The mineral carnallite is so called from its flesh colour. For analysis of it, see *Dana, Mineralogy*, p. 118.

51. CHROMATE. $K_2 Cr O_4$. (*Yellow Chromate of Potash, Salt of Chrome, Neutral or Monochromate of Potassium.*)

a. Crystals.

b. In coarse powder.

Note.—Specimen *b* contains traces of the sulphate and chlorate. For fig. of crystal, see *Gmelin, Chemistry*, vol. i., pt. i., fig. 77; and vol. iv., p. 144, for the description.

52. BICHROMATE. $K_2 Cr O_4 Cr O_3$. (*Red Chromate of Potash, Acid Chromate of Potassium, Potassic Dichromate.*)

a. Crystals, a commercial specimen, not quite pure.

b. Ditto, pure.

* *c.* A fine mass of crystals, presented by Mr. Greenhough.

53. CITRATE. $K_3 C_6 H_5 O_7$. (*Tribasic or Neutral Citrate of Potash, Sal Absinthii Citratum.*)

a. Granular Powder (*Potassæ Citras, B.P.*)

b. Crystals.

54. CYANIDE. K Cy.

a. Fused, impure.

b. Ditto, purified.

c. Crystals.

55. FERRATE. $K_2 Fe O_4$.

a. Impure, amorphous.

56. FERRICYANIDE. $K_6 Fe_2 Cy_{12}$. (*Red Prussiate of Potash, Ferricyanuret of Potassium.*)

a. Crystals.

b. Ditto, coated with Prussian blue.

Note.—The coating of Prussian blue was probably caused by exposure of the crystals to sunlight while they were still damp. For fig. of crystal see *Gmelin, Chemistry*, vol. i., pt. i., fig. 66; and vol. vii., p. 470.

57. FERROCYANIDE. $K_4 Fe Cy_6$.

a. Commercial specimen.

b. Columnar mass of large crystals.

Note.—Specimen *b* was presented by Mr. Reid, in October, 1842. For fig. of the crystal, see *Per. Mat. Med.*, vol. i., p. 532, fig. 85, and wooden model in the central case in this Museum.

58. HYDRARGYRO-CYANIDE. $K_2 Hg Cy_4$.

a. Crystals.

59. HYDRARGYRO-IODIDE. $2(K I Hg I_2) 3H_2 O$.

a. Crystals. (*Iodo-Hydrargyrate of Potassium.*)

60. Potassium Iodide. KI. (*Hydriodate of Potash.*)

a. Pure, in prismatic crystals.

b. Ditto, in opaque cubes.

c. A mass of large crystals, presented by Messrs. G. Atkinson & Co.

Note.—Specimens *a* and *c* have a yellowish tinge, from the presence of free iodine. A little carbonate of potassium, when present, prevents discoloration, which always takes place when the pure iodide is exposed to light. See *P. J.* [3], vol. iv., p. 669. Specimen *b* owes its opacity to excess of acid. See *Note by Mr. Southall*, *P. J.*, *l. c.*

61. Iodate. KIO_3.

a. Crystals, freed from iodide by alcohol.

62. Manganate. K_2MnO_4.

a. Fused. (*Chameleon Mineral.*)

63. Permanganate. $K_2Mn_2O_8$.

a. Crystals, a commercial specimen.

b. Ditto, pure, prepared by Mr. Siebold.

Note.—For the method by which specimen *b* was prepared, see *P. J.*, [3], vol. vi., p. 441.

64. Nitrate. KNO_3. (*Nitre, Saltpetre, Prismatic Nitre.*)

a. Crude.

b. A commercial specimen.

c. Pure.

* *d.* Very large crystals.

e. Fused, in flat circular cakes. (*Sal Prunella, Crystal Mineral, Nitrum Tabulatum.*)

f. Ditto, in small globes. (*Sal Prunella Balls.*)

Note.—Specimen *c* is the kind used in the preparation of gunpowder, for the manufacture of which it must be very pure. For fig. of the crystals, see *Per. Mat. Med.*, vol. i., p. 540.

65. Nitrite. KNO_2.

a. Fused, impure.

b. Purified by solution in alcohol.

Note.—Specimen *a* probably contains some nitrate.

66. Osmiate. $K_2OsO_4, 2H_2O$.

† *a.* In powder.

67. Oxalate. $K_2C_2O_4, 2H_2O$.

a. Crystals.

68. Binoxalate. $KHC_2O_4, 2H_2O$. (*Dioxalate of Potassium, Dipotassic Oxalate, Salt of Sorrel.*)

a. Crystals.

Note.—This is the salt found in wood sorrel (*Oxalis Acetosella, L.*), five hundred parts of the plant yielding about four parts of the salt. See *Per. Mat. Med.*, vol. iii., pt. ii., p. 414.

69. Potassium Quadroxalate. $KHC_2O_4,H_2C_2O_4,2H_2O$. (*Tetroxalate of Potassium, Salt of Sorrel, Sal Acetosella, Essential Salt of Lemons.*)
    a. Crystals.

70. Sulphate. K_2SO_4. (*Sal Polychrest, Sal de Duobus, Kali vitriolatum.*)
    a. Crude, obtained from kelp.
    b. Purified.
    c. In small crystals.

    Note.—For fig. of crystals, see *Per. Mat. Med.*, vol. i., p. 503, figs. 78-80.

71. Bisulphate. $KHSO_4$. (*Acid Sulphate of Potassium, Hydric Potassic Sulphate.*)
    a. Fused. (*Sal Enixan.*)
    b. In acicular crystals. (*Anhydrous Bisulphate of Potash.*)
    c. In flattened rhombic crystals.

    Note.—Specimen *b* consists of crystals which, if left in their mother-liquor, disappear and give place to crystals like those of specimen *c*. *Fownes, Chemistry*, p. 326.

72. Sulphide. (*Sulphuret of Potassium, Hepar Sulphuris, Liver of Sulphur.*)
    a. Fused.
    b. Ditto, oxidized and deliquesced.

    Note.—This substance is not a definite chemical compound, but consists in variable proportion of the sulphides with sulphate and thiosulphate of potassium. See *Fownes, Chemistry*, p. 327.

73. Monosulphide. K_2S.
    a. Crystals.

    Note.—This salt is probably not a pure monosulphide. See *Fownes, Chemistry*, p. 326.

74. Sulphocarbolate. $KC_6H_5SO_4$. (*Sulphophenate of Potassium.*)
    a. Crystals.

75. Sulphocyanide. KCyS. (*Sulphocyanide of Potassium.*)
    a. Crystals.

76. Tartrate. $K_2C_4H_4O_6$. (*Neutral Tartar, Soluble Tartar, Kali Tartarizatum, Bibasic Tartrate of Potash, Sal Vegetabile.*)
    a. Crystals.
    b. Granular powder.

    Note.—For fig. of crystal, see *Per. Mat. Med.*, vol. i., p. 549, fig. 89.

77. Bitartrate. $KHC_4H_4O_6$. (*Acid Tartrate of Potash.*)
    a. Crystals, impure. (*Crude Argol.*)
    b. Ditto, recrystallized. (*White Argol.*)
    c. Powder. (*Cream of Tartar.*)

SODIUM. Na.

78. Metallic.
    a. In pellets, preserved from oxidation in Persian naphtha.
    b. Fused, in a hermetically sealed glass tube.

79. Acetate. $Na\,C_2\,H_3\,O_2, 3H_2\,O$.
    a. Impure, in large crystals.
    b. Pure, in crystals.
    c. Pure, in acicular crystals.

    Note.—Specimen *c* closely resembles the sulphates of zinc and magnesium in appearance. For peculiarities in the crystallization of this salt, see *Gerhardt, Chemistry*, vol. i., p. 11.

80. Antimoniate. $Na_2\,H_2\,Sb_2\,O_7, 6H_2\,O$. (*Metantimoniate of Sodium.*)
    a. Powder.

81. Arsenate. $Na_2\,H\,As\,O_4, 12H_2\,O$. (*Arsenate of Sodium, Disodic Arsenate.*)
    a. Crude.
    b. Pure, in crystals. (*Sodæ Arsenias, B. P.*)
    c. Ditto, dried at 300° F.

    Note.—This salt also crystallizes with seven molecules of water of hydration. When effloresced it also retains seven equivalents of water. See *Attfield, Chemistry*, p. 181; *Fownes, Chemistry*, p. 483. Specimen *c* is the form in which the salt is directed to be used in the *British Pharmacopœia* in order to secure uniformity of strength in the liquor sodæ arsenitis.

82. Biborate. $Na_2\,B_4\,O_7, 10H_2\,O$; possibly a double Metaborate, $2Na\,B\,O_2, 2H\,B\,O_2, 9H_2\,O$.
    a. Native. (*Tincal.*)
    b. Pure, in crystals. (*Prismatic Borax.*)
    c. Pure, in crystals. (*Octahedral Borax.*)

    Note.—Specimen *c* contains less water of crystallization than specimen *b*, and is crystallized in a different form. See *Watts, Dict. Chem.*, vol. i., p. 647. For fig. of crystal, see *Royle, Mat. Med.*, p. 158.

83. Carbonate. $Na_2\,C\,O_3, 10H_2\,O$. (*Soda, Washing Soda, Salt of Soda.*)
    a. Impure. (*Barilla, Scotch Soda.*)

    Note.—Barilla is the ash left after the incineration of *Salsola soda* and other maritime plants.

    The following specimens illustrate the manufacture of Carbonate of Sodium *from common salt.* See *Fownes, Chemistry*, p. 333.
    a. Black ash.
    b. Residuum after lixiviating black ash.

SODIUM CARBONATE.

c. Soda ash, or British alkali. (*Anhydrous Carbonate of Sodium.*)

d. Ditto, ground.

e. Ditto, purified.

f. Yellow alkali.

g. Carbonate of sodium in crystals, purified.

h. Ditto, exsiccated.

Note.—For fig. of crystal, see *Per. Mat. Med.*, vol. i., p. 560; *Phillips, Transl. Pharm.*, 1851, p. 359.

84. SESQUICARBONATE.

† *a.* Native. (*Natron, Trona.*)

Note.—This mineral is the nitre of Scripture spoken of in Prov. xxv. 20. The word translated *nitre*, should have been rendered *natron.*

85. BICARBONATE. $NaHCO_3$. (*Hydric Sodic Carbonate. Acid Carbonate of Sodium.*)

a. Efflorescence from Carbonate of Sodium.

b. Pure.

c. Ditto. *B. P.*, 1864.

* *d.* Fine specimen of crystals of the carbonate, coated with an efflorescence of bicarbonate.

Note.—Specimen d will be found in the central window ledge of the Chemical Museum.

86. CHLORATE. $NaClO_3$.

a. Pure, in crystals.

87. CHLORIDE. NaCl. (*Common Salt, Muriate of Soda.*)

a. Native. (*Rock Salt, Sal Gemmæ, Sal Fossilis.*)

* *b.* Ditto, fine specimen.

c. In hard cubical crystals. (*British Bay Salt.*)

d. In minute crystals. (*Table Salt, Culinary Salt.*)

e. In hollow pyramidal crystals. (*Maldon Salt.*)

f. In crystalline masses. (*Bay Salt, Sal Marinus, Sal Niger.*)

g. In crystalline powder, prepared from kelp.

Note.—Specimen *e* consists of crystals which form on the surface of the brine during evaporation, the apex of the pyramid being first formed. Some tolerably perfect specimens of these crystals may be seen in the case containing the glass models of crystalline forms (Case 9). See *Per. Mat. Med.*, vol. i., p. 586. Specimen *c* was obtained by slow evaporation, and specimen *d* by rapid evaporation of the brine of brine springs. Specimen *f* was made from sea water.

88. HYDRATE. NaHO. (*Caustic Soda.*)

a. Crude, in tabular pieces.

b. Purified.

c. Pure, from Sodium.

89. Sodium Hypophosphite. $Na\,P\,H_2\,O_2$.
    a. In granular powder.

90. Hyposulphate. $Na_2\,S_2\,O_6$. (*Dithionate of Sodium.*)
    a. Crystals.

91. Hyposulphite. $Na_2\,S_2\,O_3, 5H_2\,O$. (*Thiosulphate of Sodium, Sulphosulphate of Sodium, Antichlor.*)
    a. Crystals, a commercial specimen.
    b. Ditto, purified. (*Hyposulphite of Soda, B. P.*)

92. Lactate. $Na\,H\,C_3\,H_4\,O_3$.
    a. In semi-crystalline, mamillated pieces.

93. Nitrate. $Na\,N\,O_3$. (*Cubic Nitre, Chili Saltpetre.*)
    a. Native. (*Caliche.*)
    b. Impure, in crystals.
    c. Pure ditto.

    Note.—Specimen *a* came from Peru. See *P. J.* [3], vol. vi., p. 264.

94. Nitrite. $Na\,N\,O_2$.
    a. Impure, fused.

    Note.—This salt is rarely free from nitrate.

95. Nitro-prusside. $Na_2\,(N\,O)\,Fe\,Cy_5, 2H_2\,O$. (*Nitro-ferrocyanide of Sodium.*)
    a. Crystals.

    Note.—See *Fownes, Chemistry*, p. 855.

96. Oxide. $Na_2\,O$. (*Sodium Monoxide, Anhydrous Soda.*)
    a. Anhydrous, made from sodium.

97. Phosphate. $Na_2\,H\,P\,O_4, 12H_2\,O$. (*Tribasic Phosphate of Soda, Disodic Orthophosphate.*)
    a. Crystals.
    b. In larger crystals.

    Note.—Specimen *b* contains some sulphate and carbonate. Crystals containing these impurities are generally larger than those of the pure salt. For fig. of crystal, see *Phillips, Transl. Pharm.*, 1851, p. 362.

98. Ammonio-phosphate. $Na\,(N\,H_4)\,H\,P\,O_4, 4H_2\,O$. (*Microcosmic Salt, Phosphorous Salt, Sodium, Ammonium, and Hydrogen Phosphate.*)
    a. Crystals.

99. Pyrophosphate. $Na_4\,P_2\,O_7, 10H_2\,O$.
    a. Granular powder. (*Tetrasodic Pyrophosphate.*)
    b. Crystals.

100. Silicate. (*Soluble Glass, Water Glass.*)
    a. Crude, in a fused mass.
    b. Pure.

    Note.—This substance varies in composition.

101. Sodium Stannate. $Na_2 Sn O_3, 3H_2 O$.
   a. Crystals.

102. Sulphate. $Na_2 S O_4, 10H_2 O$. (*Glauber's Salt, Sal Mirabile.*)
   a. Native.
   b. Pure, in crystals.
   c. Ditto, effloresced.

   Note.—For fig. of crystal, see *Per. Mat. Med.*, vol. i., p. 579; *Phillips, Transl. Pharm.*, 1851, p. 365.

103. Sulphite. $Na_2 S O_3, 7H_2 O$.
   a. Crystals.

104. Bisulphite. $Na H S O_3$.
   a. Crystals.

105. Sulphocarbolate. $Na C_6 H_5 S O_4$. (*Sulphophenate of Sodium.*)
   a. Crystals.

106. Sulphovinate. $Na C_2 H_5 S O_4$. (*Sulphoethylate of Sodium.*)
   a. Powder.

107. Tartrate. $Na_2 C_4 H_4 O_6, 2H_2 O$.
   a. Crystals.

108. Bitartrate. $Na H C_4 H_4 O_6, H_2 O$. (*Acid Tartrate of Sodium.*)
   a. Crystals.

109. Potassio-Tartrate. $K Na C_4 H_4 O_6, 4H_2 O$. (*Rochelle Salt, Seignette Salt.*)
   a. Crystals. 1st crystallization.
   b. Ditto. 2nd ditto.
   c. Ditto. 3rd ditto.
   d. Ditto. 4th ditto.

   Note.—The majority of these crystals are only half crystals of the typical form. Some tolerably perfect crystals will be found in the case containing glass models of crystals (Case 9). For fig. of crystals, see *Per. Mat. Med.*, vol. i., p. 598; *Phillips, Transl. Pharm.*, 1851, p. 364. The above specimens *a*, *b*, illustrate the manufacture of Rochelle salt from argol.

110. Tungstate. $Na 2W O_4$.
   a. Impure.
   b. Pure, in crystals.

   Note.—These specimens consist of the normal salt.

111. Valerianate. $Na C_5 H_9 O_2$.
   a. In white crystalline pieces.

AMMONIUM. $N H_4$.

112. Acetate. $N H_4 C_2 H_3 O_2$.
   a. Crystals.

113. Ammonium Benzoate. $NH_4C_7H_5O_2$.
a. Crystallized.

114. Bromide. NH_4Br.
a. Crystallized, pure.

115. Carbonate. $N_4H_{16}C_3O_8$. (*Sesquicarbonate of Ammonium, Smelling Salts, Volatile Salt, Salt of Hartshorn.*)
a. In crystalline lumps, impure.
b. Ditto, purified.
c. Impure solution, prepared from the destructive distillation of bones.
d. Ditto, from coal gas.

Note.—This salt is never very definite in composition, but always contains varying proportions of carbonic acid and ammonia.

116. Bicarbonate. NH_4HCO_3.
a. In crystalline masses.
b. In powder.

117. Chloride. NH_4Cl. (*Hydrochlorate of Ammonia, Sal Ammoniac, Muriate of Ammonia.*)
a. In crystalline masses.
b. In crystalline powder.

Note.—Specimen *b* was obtained by evaporating a solution with constant stirring.

18. Molybdate. $(NH_4)_2MoO_4$. (*Neutral Molybdate of Ammonium.*)
a. In crystalline powder.

Note.—This specimen was examined by Mr. N. T. Carrington, and was found to be the neutral salt, the salt usually found in commerce being the acid salt, NH_4HMoO_4. See *P. J.* [3], vol. v., pp. 362, 376. The specimen in the Museum is the one alluded to by Mr. Davies on p. 375.

19. Nitrate. NH_4NO_3. (*Nitrum Flammans, Nitrum Semivolatile.*)
a. Crystals.
b. Ditto, a very fine specimen, presented by Messrs. Hopkin & Williams.

Note.—Specimen *a* is opaque, from having been dried at a temperature of 300° F. See *Per. Mat. Med.*, vol. i., p. 471.

20. Oxalate. $(NH_4)_2C_2O_4, 2(H_2O)$.
a. In acicular crystals.

121. Phosphate $(NH_4)_2HPO_4$. (*Diammonic Phosphate, Neutral Phosphate of Ammonium.*)
a. In tabular crystals.

Note.—This specimen has an alkaline reaction.

122. Ammonium Sulphate $(NH_4)_2\,S\,O_4$. (*Oxysulphide of Ammonium, Normal Sulphate of Ammonium, Glauber's Secret Sal Ammoniac.*)
   a. Crystallized, impure.
   b. Ditto, ditto.
   c. Ditto, purified.

Note.—Specimen *a* was obtained from the ammoniacal liquor formed during the destructive distillation of bones; specimen *b*, from the ammoniacal liquor obtained in the process of purifying coal gas.

123. Sulphocarbolate. $NH_4\,C_6H_5\,S\,O_4$. (*Sulphophenate of Ammonium.*)
   a. Crystallized.

124. Sulphocyanide. $NH_4\,Cy\,S$. (*Sulphocyanate of Ammonium.*)
   a. In yellow crystals:

Note.—This specimen is impure, the colour being probably due to the presence of mellone, which is formed by decomposition of the salt.

125. Valerianate. $NH_4\,C_5H_9\,O_2$. (*Valerate of Ammonium.*)
   a. A deliquescent crystalline mass.

LITHIUM. L.

126. Metal.
   † *a*. Preserved in Persian naphtha.

127. Carbonate. $L_2\,C\,O_3$.
   a. Amorphous, in powder.

128. Citrate. $L_3\,C_6H_5\,O_7$.
   a. In crystalline masses.

CÆSIUM. Cs.

129. Chloride. Cs Cl.
   † *a*. Crystallized.

RUBIDIUM. Rb.

130. Chloride. Rb Cl.
   † *a*. Crystallized.

SILVER, or ARGENTUM. Ag.

131. Metallic.
   † *a*. Beaten into very thin sheets. (*Silver Leaf.*)
   † *b*. Pure, in small pieces.

132. Chromate. $Ag_2\,Cr\,O_4\,Cr\,O_3$. (*Acid Chromate of Silver.*)
   † *a*. Dark-brown crystalline powder.

133. Nitrate. $Ag\,N\,O_3$.
   † *a*. Crystals.

SILVER NITRATE.

† *b*. Fused, in sticks.

Note.—The crystals much resemble those of potassic chlorate in appearance, but are more transparent and heavier.

134. OXIDE. Ag_2O. (*Argentic Oxide, Monoxide of Silver.*)

† *a*. Brown powder.

DYAD METALS.

BARIUM. Ba.

135. CARBONATE. $BaCO_3$.

a. Native. (*Witherite.*)

b. In powder, impure, precipitated by soda.

c. Ditto, purified, precipitated by ammonia.

136. CHLORATE. $Ba\,2Cl\,O_3, H_2O$.

a. Crystallized.

137. CHLORIDE. $BaCl_2, 2H_2O$.

a. Crystallized, impure.

b. Ditto, purified.

138. FERRATE. $BaFeO_4$.

a. In powder of a purplish red colour.

Note.—This specimen was prepared by Professor Redwood.

139. NITRATE. $Ba\,2NO_3, 5H_2O$. (*Nitrate of Baryta.*)

a. Crystallized, impure.

b. Ditto, purified.

140. OXIDE. BaO. (*Monoxide of Barium.*)

a. Anhydrous, in powder.

b. Hydrated in crystals, BaH_2O_2. (*Hydrate of Baryta.*)

141. PEROXIDE. BaO_2. (*Dioxide of Barium.*)

a. In powder.

142. SULPHATE. $BaSO_4$.

a. Native. (*Heavy Spar, Barytes.*)

b. Precipitated. (*Blanc Fixé.*)

Note.—Specimen *b* represents the form in which sulphate of barium is used as a substitute for white lead in paint.

STRONTIUM. Sr.

143. CARBONATE. $SrCO_3$.

a. Native, in crystallized masses. (*Strontianite.*)

b. In powder, precipitated by ammonia.

144. CHLORIDE. $SrCl_2$. (*Muriate of Strontia.*)

a. Crystallized.

145. NITRATE. $Sr\,2NO_3, 5H_2O$.

a. Crystallized.

b. Exsiccated, as used by pyrotechnists.

146. Strontium Oxide. $Sr\,O$.

a. Anhydrous, prepared from the nitrate by heat.

b. Hydrated, in crystals. $Sr\,H_2\,O_2,\,8H_2\,O$.

147. Sulphate. $Sr\,S\,O_4$.

a. Native, in crystalline masses. (*Celestine.*)

CALCIUM. Ca.

148. Acetate. $Ca\,(C_2\,H_3\,O_2)_2$.

a. Impure, obtained in the manufacture of acetic acid from the destructive distillation of wood.

b. Purified.

149. Borate.

a. Native, in crystalline nodules. (*Hayescine, Borocalcite, Hydroborocalcite.*)

Note.—This specimen came from Singapore. It also contains some borate of sodium. See *Amer. Journ. Sc.*, vol. xlvi., p. 377; vol. xlvii. p. 215, 1846; *Dana, Mineralogy*, p. 599.

150. Butyrate. $Ca\,(C_4\,H_7\,O_2)_2$.

a. In amorphous masses, impure.

b. Crystallized, pure.

151. Carbonate. $Ca\,C\,O_3$.

a. Native. (*White Marble.*)

b. Ditto. (*Black Marble.*)

c. Ditto. (*Chalk.*)

d. Ditto, ditto, prepared by elutriation. (*Prepared Chalk, Creta præparata, B.P.*)

e. Ditto, prepared in China.

f. Ditto, precipitated from the chloride of calcium. (*Precipitated Chalk.*)

g. Ditto, in crystalline powder.

Note.—Specimen *g* is a heavier powder than specimen *f*, and was prepared by using concentrated solutions, and allowing the precipitate to remain for some time in the mother-liquor.

152. Sodio-Carbonate.

a. Native. (*Gay Lussite.*)

Note.—For analysis, see *Ann. Ch. Phys.*, vol. xxxi., p. 270; and *Dana, Mineralogy*, p. 706.

153. Chloride. $Ca\,Cl_2$.

a. Anhydrous, impure.

b. Ditto, pure, dried at 400° F. (*Calcii Chloridum, B.P.*)

c. Crystallized.

d. Fused, pure.

154. Calcium Citrate. $Ca\,C_6\,H_5\,O_7, H_2\,O$. (*Citrate of Lime.*)
a. Anhydrous.

155. Hypochlorite. $Ca\,Cl_2 + Ca\,Cl_2\,O_2$. (*Chloride of Lime, Chlorinated Lime, Calx Chlorata, B.P.*)
a. In powder.
Note.—The chemical composition of this substance varies with age and exposure to the atmosphere.

156. Hypophosphite. $Ca\,2H\,P\,O_2$.
a. Granular powder.

157. Lactate. $Ca\,(C_3\,H_5\,O_3)_2, 5H_2\,O$.
a. In powder.
b. In mamillated crusts.

158. Malate. $Ca\,C_4\,H_4\,O_5$.
a. In powder.

159. Acid Malate. $Ca\,C_4\,H_4\,O_5, C_4\,H_6\,O_5$.
a. Crystallized.

160. Oxide. $Ca\,O$.
a. Anhydrous, in amorphous masses. (*Quicklime.*)
b. Hydrated, in powder. $Ca\,H_2\,O_2$. (*Slacked Lime.*)

161. Phosphate. $Ca_3\,2P\,O_4$.
a. In powder, impure. (*Bone Earth.*)
Note.—This specimen contains some carbonate of calcium.
b. In powder, freed from carbonate. (*Calcis Phosphas, B.P.*)

162. Phosphide. $Ca_2\,P_2$. (*Phosphuret of Calcium.*)
a. Amorphous.

163. Sulphate. $Ca\,S\,O_4$.
a. Native. (*Gypsum.*)
b. Ditto, dried at 228° F. (*Plaster of Paris.*)
Note.—For Selenite, Satin Spar, and other minerals containing calcic sulphate, see the central case containing minerals (*Case No.* 8).

164. Sulphocarbolate. $Ca\,(C_6\,H_5\,S\,O_4)_2$. (*Sulphophenate of Calcium.*)
a. Crystals.
† *b.* Very perfect crystals.
Note.—Specimen *b*, consisting of doubly oblique prisms, was prepared by Mr. T. H. Hustwick. *It will be found in the collection of perfect crystals in the central case containing glass models of crystals* (*Case No.* 9).

165. Tartrate. $Ca\,C_4\,H_4\,O_6$.
a. In powder.

ALUMINIUM. Al.

166. METALLIC.
   a. In the form of sheet and wire.

167. CHLORIDE. Al_2Cl_6.
   a. Anhydrous, pure.

168. OXIDE. Al_2O_3.
   a. Anhydrous, pure.
   b. Hydrated, pure.
   c. Native. (*Corundum.*)
   d. Files made of corundum.
   e. Ditto. (*Emery.*)

169. SULPHATE. $Al_2 3SO_4, 9H_2O$.
   a. Commercial, impure.
   b. Pure.
   c. Crystals formed on an alum heap during combustion.

170. AMMONIO-SULPHATE. $Al_2 3SO_4, (NH_4)_2SO_4, 24H_2O$.
   a. Crystallized. (*Ammonia Alum.*)
   * *b.* A large mass of fine crystals. (Presented by Messrs. Hopkin & Williams.)

Note.—Specimen b will be found in a special glass stand in the north window of this Museum. For perfect crystals, see specimens in Case No. 9.

171. POTASSIO-SULPHATE. $Al_2 3SO_4, K_2SO_4, 24H_2O$.
   a. Crystallized. (*Potash Alum.*)
   b. Ditto, coloured with Armenian bole. (*Commercial Roche Alum.*)
   c. Ditto. (*True Roche Alum, Alum Rupellum, Roman Alum.*)

Note.—The name Roman Alum, is also applied to a white variety. See *Per. Mat. Med.*, vol. i., p. 664. On the same page will be found a figure of the crystalline form of alum. In specimen *c*, the colouring is seen to form part of the substance of the crystals, while it is only external, and easily removed by washing in specimen *b*.

GLUCINUM, OR BERYLLIUM. Be.

172. CARBONATE. $BeCO_3$.
   † *a.* In powder.

173. OXIDE. BeO.
   † *a.* In powder.

174. SILICATE. Be_2SiO_4.
   a. In powder. (*Limoges Beryl.*)

CERIUM. Ce.

175. METALLIC.
   † *a.* Small nodules.

176. Cerium Nitrate. $Ce\,2N\,O_3$.
a. Crystallized.

177. Oxalate. $Ce\,C_2\,O_4, 3H_2\,O$. (*Cerii Oxalas, B.P.*)
a. Powder.

LANTHANIUM. La.

178. Sulphate. $La\,S\,O_4, 3H_2\,O$.
† *a.* Crystalline powder.

DIDYMIUM. Di.

179. Sulphate. $Di\,S\,O_4, 2H_2\,O$.
† *a.* Crystalline Powder.

MAGNESIUM. Mg.

180. Metallic.
a. In the form of wire and ribbon.

181. Carbonate. $(Mg\,C\,O_3)_3\,Mg\,O, 5H_2\,O$. (*B.P.*)
a. In powder. (*Light Carbonate of Magnesia.*)
b. Ditto. (*Heavy Carbonate of Magnesia.*)
c. In cubes.
d. In crystals, having the composition $Mg\,C\,O_3, 3H_2\,O$.

Note.—Specimen *d* consists of crystals deposited from a solution of the acid carbonate. For fig., see *Per. Mat. Med.*, vol. i., p. 654. The composition of magnesic carbonate in powder is not constant.

* *e.* Native, a fine specimen, presented by Messrs. Huskisson & Co.

Note.—For analysis, etc., see *Dana, Mineralogy*, p. 685. *For specimens of Dolomite (native calcic carbonate of magnesium), see the central case containing minerals (Case No. 8).*

182. Chloride. $Mg\,Cl_2$.
a. Anhydrous, as used for preparing magnesium.
b. Crystallized, impure.
c. Ditto, purified.
d. Ditto, fused.

183. Lactate. $Mg\,(C_3\,H_5\,O_3)_2, 2H_2\,O$.
a. In powder.

184. Oxide. $Mg\,O$.
a. In powder. (*Light Magnesia, B.P., Light Calcined Magnesia.*)
b. Ditto. (*Magnesia, B.P., Heavy Calcined Magnesia.*)

185. Silicate.
a. Native, prepared for use in trade.
b. Ditto, in powder.

Note.—For native specimen of this substance, and other minerals containing magnesic silicate, see the central case containing minerals (Case No. 9).

186. Magnesium Sulphate. $Mg\,S\,O_4, 7H_2\,O$.

a. Crystallized, in large crystals.

b. Ditto, in small acicular crystals, impure. (*Epsom Salt.*)

c. Ditto, purified. (*Refined Epsom Salt.*)

Note.—Specimen *a* much resembles in appearance ordinary commercial specimens of oxalic acid. For fig., see *Per. Mat. Med.*, vol. i., p. 656; *Phillips, Transl. Pharm.*, 1851, p. 327.

187. Sulphite. $Mg\,S\,O_3$.

a. Crystallized.

188. Sulphocarbolate. $Mg\,(C_6\,H_5\,S\,O_4)_2$. (*Sulphophenate of Magnesium.*)

a. Crystallized.

ZINC. Zn.

189. Metallic.

a. Granulated.

b. Powdered.

190. Acetate. $Zn\,C_2\,H_3\,O_2$.

a. Commercial specimen.

b. Long well-formed large crystals.

191. Benzoate. $Zn\,2C_7\,H_5\,O_2$.

a. Acicular crystals.

Note.—This substance much resembles in appearance crystallized oxide of antimony.

192. Butyrate. $Zn\,(C_4\,H_7\,O_2)_2$.

a. Pure crystalline powder.

193. Carbonate. $Zn\,C\,O_3$.

a. Pure precipitated.

194. Chloride. $Zn\,Cl_2$.

a. Fused, impure.

b. Ditto, freed from iron and other impurities.

195. Chromate. $Zn\,Cr\,O_4$.

a. In yellow powder.

196. Lactate. $Zn\,C_3\,H_4\,O_3$.

a. White, minutely crystalline, mamillated crust.

197. Oxide. $Zn\,O$.

a. Prepared by combustion of the metal. (*Hubbuck's Oxide of Zinc.*)

b. Prepared by calcining the carbonate. (*Zinci Oxidum, B.P.*)

c. Impure. (*Tutia Præparata, Cadmia Fornacum, Tutty Powder.*)

Note.—Specimen *c* consists of the sublimate which collects in the flue during the roasting of zinc ores. It usually contains cadmium. See *Per. Mat. Med.*, vol. i., p. 766.

198. Zinc Sulphate. $Zn S O_4, 7 H_2 O$.
   a. Crystallized, impure.
   b. Ditto, pure.

Note.—It is impossible to distinguish this salt by sight from some specimens of magnesic sulphate and sodic acetate.

199. Sulphocarbolate. $Zn (C_6 H_5 S O_4)_2$.
   a. Crystallized.
   * *b.* A fine mass of crystals. Presented by Messrs. Hopkin & Williams.

200. Sulphide. $Zn S$.
   a. White powder.

201. Valerianate. $Zn (C_5 H_9 O_2)_2$.
   a. Pearly crystalline powder.

CADMIUM. Cd.

202. Metallic.
   a. Cylindrical sticks.

203. Bromide. $Cd Br_2$.
   a. Prismatic crystals.

204. Carbonate. $Cd C O_3$.
   a. White powder.

205. Chloride. $Cd Cl_2$.
   a. Crystalline powder.

206. Iodide. $Cd I_2$.
   a. Pearly crystalline scales.

Note.—This specimen has become slightly discoloured from the action of light.

207. Sulphide. $Cd S$.
   a. In yellow powder.

COPPER. Cu.

208. Metallic.
   a. Pure.
   b. Turnings.
   c. Precipitated.

209. Acetate. $Cu (C_2 H_3 O_2)_2 H_2 O$.
   a. Crystals.
   b. Powdered.

210. Acetate, Basic. $2Cu (C_2 H_3 O_2)_2 Cu O, 6H_2 O$. (*Subacetate of Copper.*)
   a. Crystals.
   * *b.* Ditto, a column of crystals.

COPPER ACETATE.

c. Powdered. (*Verdigris.*)

Note.—Specimen *b* is a mixture of several basic acetates of copper, prepared by subjecting copper plates to the action of acetic acid.

211. ARSENATE. $Cu_3 As O_4$. (*Arseniate of Copper.*)

a. Green powder.

212. ARSENITE. $Cu H As O_3$. (*Scheele's Green.*)

a. Light-green powder.

213. CARBONATE. $Cu C O_3$, $Cu H_2 O_2$, $H_2 O$.

a. Greenish powder.

Note.—This specimen was prepared from the sulphate by precipitation with sodic carbonate. For native carbonate (malachite), see the central case, No. 9.

b. Blue powder. (*Verditer.*)

Note.—This specimen was prepared from the nitrate by precipitation with calcic carbonate. Formula $2 Cu C O_3$, $Cu H_2 O_2$.

214. CHLORIDE. $Cu Cl_2$.

a. Green crystals.

215. CHROMATE. $Cu Cr O_4$, $5H_2 O$.

a. Brown powder.

216. IODIDE. Cu I.

a. Pale dirty-brown powder.

217. LACTATE. $Cu C_3 H_4 O_3$, $H_2 O$.

a. Dark-green crystalline crusts.

218. NITRATE. $Cu (N O_3)_2$, $3H_2 O$.

a. Blue crystals.

b. Green powder. $Cu_3 N O_3 H_2 O$. (*Basic Nitrate of Copper.*)

219. OXIDE, CUPROUS. $Cu_2 O$. (*Red Oxide of Copper, Suboxide of Copper.*)

a. Reddish-yellow powder.

Note.—This specimen was prepared by the process given by *Böttger, Journ. Pharm. et Chem.*, vol. xc., p. 163.

220. OXIDE CUPRIC. Cu O. (*Black Oxide of Copper, Copper Monoxide.*)

a. Black powder.

221. SULPHATE. $Cu SO_4$.

a. Crystals, prepared from copper pyrites. (*Commercial Sulphate of Copper, Blue Stone.*)

b. Ditto, purified from iron, etc.

c. A small column of very transparent crystals, presented by Mr. E. Richardson.

COPPER SULPHATE.

Note.—For very perfect crystals of this salt, see the central case, No. 9. For fig. of the crystals, see *Watts, Dict. Chem.*, vol. ii., p. 158, figs. 313, 314, 315.

d. Anhydrous, in greenish-white powder.

222. AMMONIO-SULPHATE. $Cu\ 2N\ H_3\ S\ O_4, 6H_2\ O$.

a. Dark-blue crystalline powder.

b. In large crystals.

223. SULPHIDE. $Cu\ S$. (*Protosulphide of Copper, Cupric Sulphide.*)

a. Blackish-green powder.

Note.—For native sulphides of copper, see central case, No. 9.

224. SULPHITE. $Cu_2\ S\ O_3$. (*Cuprous Sulphite.*)

a. Maroon-coloured powder.

225. SULPHO-CARBOLATE. $Cu\ (C_6\ H_5\ S\ O_4)_2$.

a. Dark-green crystals.

MERCURY. Hg.

226. METALLIC.

a. Pure.

b. Ditto, "killed" with prepared chalk. (*Hydrargyrum cum Creta, B.P.*)

† *c.* Iron bottle in which mercury is imported.

† *d.* Wooden ditto, from China.

227. ACETATE, MERCUROUS. $Hg\ C_2\ H_3\ O_2$. (*Proto-acetate of Mercury.*)

a. Small white scaly crystals.

228. ACETATE, MERCURIC. $Hg\ (C_2\ H_3\ O_2)_2$.

a. Brilliant micaceous crystals.

229. BROMIDE, MERCUROUS. $Hg\ Br$.

a. White powder.

230. BROMIDE, MERCURIC. $Hg\ Br_2$. (*Bibromide of Mercury.*)

a. Acicular crystals, deposited from alcoholic solution.

Note.—When deposited from aqueous solution, this salt crystallizes in silvery laminæ.

231. CHLORIDE, MERCUROUS. $Hg\ Cl$. (*Subchloride of Mercury, Calomel, Submuriate of Mercury, Hydrargyrum Subchloridum, B.P., Hydrargyrum Chloridum, P.L., Hydrargyrum Muriaticum Mite.*)

a. White powder.

232. CHLORIDE, MERCURIC. $Hg\ Cl_2$. (*Bichloride of Mercury, Corrosive Sublimate, Hydrargyrum Perchloridum, B.P.*)

a. Crystalline masses.

233. AMMONIO-CHLORIDE. $NH_2\ Hg\ Cl$.

a. White powder. (*White Precipitate, Hydrargyrum Ammoniatum, B.P.*)

234. Mercuric Cyanide. $HgCy_2$. (*Bicyanide of Mercury.*)
   a. White prismatic crystals.

235. Iodide, Mercurous. HgI. (*Proto-iodide, Green Iodide of Mercury.*)
   a. Greenish-yellow powder. (*Hydrargyri Iodidum, P.L.; Hydrargyri Iodidum Viride, B.P.*)

236. Iodide, Mercuric. HgI_2. (*Red Iodide of Mercury, Biniodide of Mercury.*)
   a. Bright red crystalline powder. (*Hydrargyri Iodidum Rubrum, B.P.*)
   b. Prismatic crystals, prepared by sublimation.

237. Nitrate, Mercurous. $Hg_2(NO_3)_2, 2H_2O$. (*Protonitrate of Mercury.*)
   a. Crystallized.
   b. Crystalline powder, a basic salt $3Hg_2O, N_2O_5, 3H_2O$.

Note.—For means of distinguishing between the protonitrate and the basic salt, see *Fownes, Chemistry*, p. 405.

238. Oxide, Mercurous. Hg_2O. (*Protoxide, Suboxide, or Grey Oxide of Mercury.*)
   a. Greenish-black powder.

239. Oxide, Mercuric. HgO. (*Monoxide of Mercury, Red Oxide of Mercury, Red Precipitate.*)
   a. Red crystalline powder.
   b. Orange-red powder, levigated.
   c. Ochraceous powder, prepared by precipitation from mercuric chloride. (*Hydrargyri Oxydum Flavum, B.P. App.*)

240. Sulphate, Mercuric. $HgSO_4$.
   a. White crystalline powder.

241. Sulphate, Basic. $3HgOSO_3$. (*Yellow Subsulphate of Mercury.*)
   a. Bright-yellow powder. (*Turbith Mineral.*)

242. Sulphide. HgS. (*Bisulphuret of Mercury.*)
   a. Crystalline lumps, prepared by sublimation.
   b. Powdered. (*Vermilion, Cinnabar.*)

Note.—For specimens of native cinnabar, see central case, No. 8.

243. Sulphide with Sulphur.
   a. Black powder. (*Ethiops Mineral.*)

244. Sulphocyanate. $Hg(CNS)_2$. (*Sulphocyanide of Mercury.*)
   a. White powder.

Note.—For preparation of this salt, see *Watts, Dict. Chem.*, vol. v., p. 508.

TRIAD METALS.

THALLIUM. Tl.

245. METALLIC.

† *a*. Fused in a hermetically sealed tube, to show the silvery metallic lustre.

246. ACETATE. $Tl\,C_2\,H_3\,O_2$.

† *a*. In pearly crystalline lumps.

247. ANTIMONIATE. $Tl\,Sb_2\,O_6$. (*Antimoniate of Thallium.*)

† *a*. White powder.

248. BENZOATE. $Tl\,C_7\,H_5\,O_2$.

† *a*. White crystalline laminæ.

249. BROMIDE. Tl Br.

† *a*. Pale yellowish-white powder.

250. CARBONATE. $Tl\,C\,O_3$.

† *a*. Dirty-white laminated crystals.

251. CHROMATE. $Tl_2\,Cr\,O_4$.

† *a*. Yellow powder.

252. BICHROMATE. $Tl_2\,Cr\,O_4\,Cr\,O_3$.

† *a*. Orange-yellow powder.

253. CHLORATE. $Tl\,Cl\,O_3$.

† *a*. White crystalline powder.

254. CHLORIDE. Tl Cl.

† *a*. White powder.

255. SESQUICHLORIDE. $Tl_4\,Cl_6$.

† *a*. Minute sulphur-coloured crystalline scales.

256. PLATINO-CHLORIDE. $2Tl\,Cl, Pt\,Cl_4$.

† *a*. Buff-coloured powder.

257. IODIDE. Tl I.

† *a*. Sulphur-coloured powder.

258. MOLYBDATE. $Tl_2\,Mo\,O_4$.

† *a*. White powder.

259. NITRATE. $Tl\,N\,O_3$.

† *a*. Small white shining prismatic crystals.

260. OXALATE. $Tl_2\,C_2\,O_4$.

† *a*. White shining acicular crystals.

261. PEROXIDE. $Tl_2\,O_3$.

† *a*. Puce-coloured powder.

† *b*. Ditto, impure.

Note.—Specimen *b* consists of the "flue dust," obtained in roasting thalliferous iron pyrites, containing from one-sixth to eight per cent. of the metal. See *Watts, Dict. Chem.*, vol. v., p. 742.

262. Thallium Picrate. $Tl C_6 H_2 (N O_2)_3 O$. (*Carbazotate of Thallium.*)
† *a.* Yellow acicular crystals.

263. Silicate. $Tl Si O_2$.
† *a.* White powder.

264. Sulphate. $Tl_2 S O_4$. (*Thallous Sulphate.*)
† *a.* Small white prismatic crystals.

Note.—These crystals are very similar in appearance to those of strychnia.

265. Sulphate with Aluminium Sulphate. $Tl Al S O_4$, $12 H_2 O$. (*Thallium Alum.*)
† *a.* Octahedral crystals.

266. Sulph-antimoniate. $3 Tl_2 S Sb_2 S_5$.
† *a.* Reddish-brown powder.

267. Antimonio-tartrate. $2 Tl Sb, C_4 H_4 O_7$. (*Thallio-tartrate of Antimony.*)
† *a.* White prismatic crystals.

Note.—These crystals are very similar to those of the sulphate in shape and general appearance, but differ in having numerous minute transverse striæ.

268. Bitartrate. $Tl_2 C_4 H_4 O_6$.
† *a.* Transparent prismatic crystals.

269. Tungstate. $Tl_2 W O_4$.
† *a.* White powder.

Note.—The above series of specimens of Thallium compounds was presented by Messrs. Hopkin and Williams. For an account of the literature of Thallium, see *Journ. Chem. Soc.*, vol. xvii., pp. 112–152.

INDIUM. In.

270. Metallic.
† *a.* Small piece of the metal in sheet.

GOLD, or AURUM. Au.

271. Metallic.
† *a.* Beaten into very thin sheets. (*Gold Leaf.*)

272. Chloride, Auric. $Au Cl_3$. (*Terchloride of Gold.*)
† *a.* Brownish-yellow crystals.

273. Sodio-chloride. $Na Cl Au Cl_3$.
† *a.* Orange-yellow crystals.

274. Oxide, Auric. $Au_2 O_3$. (*Teroxide of Gold.*)
† *a.* Pale-brown powder.

Note.—This oxide, when freshly prepared, is of a chestnut-brown colour, but becomes partially reduced and of a paler tint by exposure to light.

275. Gold Stannate.

† *a.* Dark-purple powder. (*Purple of Cassius.*)

Note.—The composition of this substance is not exactly known.

TETRAD METALS.

PLATINUM. Pt.

276. Metallic.

† *a.* Native, in small grains.

† *b.* In foil and wire.

† *c.* In greyish spongy lumps, reduced from the ammonio-chloride. (*Spongy Platinum.*)

† *d.* Intensely black powder, very finely divided by chemical means. (*Platinum Black.*)

277. Chloride, Platinic. $Pt Cl_4$.

† *a.* Deliquescent yellowish-brown granules.

278. Ammonio-chloride. $2 N H_4 Cl Pt Cl_4$.

† *a.* Yellow crystalline powder.

PALLADIUM. Pd.

279. Metallic.

† *a.* In foil and wire.

† *b.* In dark-grey powder. (*Palladium Sponge.*)

280. Oxide. Pd O.

† *a.* Black powder. (*Palladous Oxide, Monoxide of Palladium.*)

RHODIUM. Rh.

281. Metallic.

† *a.* In silvery porous lumps. (*Rhodium Sponge*).

IRIDIUM. Ir.

282. Metallic.

† *a.* Small grey pieces without metallic lustre. (*Iridium Sponge.*)

283. Iridic Oxide. $Ir O_2$. (*Dioxide of Iridium.*)

† *a.* Bluish-black powder.

OSMIUM. Os.

284. Metallic.

† *a.* Dark-grey granular powder. (*Osmium Sponge.*)

TIN. Sn.

285. Metallic.

a. Grained tin.

b. Granulated tin.

c. Tin foil.

286. Tin Chloride. $Sn Cl_2$. (*Stannous Chloride, Dichloride of Tin.*)
a. Anhydrous, in grey lumps.
b. Hydrated, in crystals. $Sn Cl_2, 2 H_2O$. (*Tin Salt.*)
c. Ditto, pure.

287. Iodide. $Sn I_2$.
a. Crystals.

288. Oxide. Sn O. (*Stannous Oxide. Monoxide of Tin.*)
a. Black powder.

289. Dioxide. $Sn O_2$.
a. Native, in sandy grains. (*Stream Tin Ore.*)

Note.—For specimens of tin-stone or cassiterite, which is a native oxide of tin, see Case No. 8.

Note.—Specimen *a* contains zircon and spinelle, as well as oxide of tin.

b. Yellowish-grey powder. (*Putty Powder.*)

Note.—This specimen was prepared by heating tin in contact with air.

c. In white powder, pure, hydrated. $Sn O_2, 2 H_2 O$.

290. Bisulphide. $Sn S_2$. (*Mosaic Gold, Aurum Musivum.*)
a. Pearly crystalline scales.

TITANIUM. Ti.

291. Oxide. $Ti O_2$. (*Titanic Acid.*)
† *a.* White powder.

LEAD. Pb.

292. Metallic.
a. With crystalline surface.
b. In thin sheets.
c. Granulated, obtained in Pattinson's process of desilvering lead.

293. Acetate. $Pb (C_2 H_3 O_2)_2, 3H_2 O$. (*Plumbic Acetate.*)
* *a.* Mass of crystals.
* *b.* Ditto, of larger crystals.
c. Crystalline lumps, commercial specimen, not quite pure. (*Sugar of lead.*)
d. Crystals, pure. (*Plumbi Acetas, B.P.*)

294. Carbonate. $Pb C O_3$. (*White Lead.*)
a. White powder.
b. Specimen illustrating the formation of the carbonate from bars of the metal.

295. Lead Chloride. $PbCl_2$.
   a. White crystalline powder, precipitated from the acetate by common salt.
   b. Acicular crystals.

296. Oxychloride.
   a. White powder. $PbCl_2 PbO$. (*Pattinson's White Oxychloride of Lead.*)
   b. Yellow powder. $PbCl_2 7PbO$. (*Turner's Yellow. Patent Yellow.*)

Note.—See *Fownes, Chemistry*, p. 450.

297. Chromate. $PbCrO_4$.
   a. Yellow powder. (*Chrome Yellow, Lemon Yellow, Leipzig Yellow, Paris Yellow.*)

298. Dichromate. Pb_2CrO_4. (*Dichromate of Lead.*)
   a. Orange powder. (*Chrome Orange.*)
   b. Red powder. (*Chrome Red.*)

Note.—Specimen *a* was prepared by boiling chrome yellow with lime water. Specimen *b*, by adding chrome yellow to fused potassic nitrate. See *Watts, Dict. Chem.*, vol. i., p. 934.

299 Iodide. PbI_2.
   a. Golden-yellow powder. (*Plumbi Iodidum, B.P.*)
   b. Ditto, crystalline scales.

300. Molybdate. (*Wulfenite.*)
   a. Native, in sandy grains.

Note.—For analyses, etc., see *Dana, Mineralogy*, p. 607.

301. Nitrate. $Pb(NO_3)_2$.
   a. Opaque crystals. (*Plumbi Nitras, B.P.*)
   b. Transparent ditto.
   * *c.* Mass of opaque crystals.

302. Nitrate, Basic. $PbNO_3$. (*Diplumbic Nitrate.*)
   a. Crystalline grains.

303. Oxide, Basic. Pb_2O. (*Suboxide of Lead.*)
   a. Pale-grey powder, prepared from the monoxide by heat in a closed vessel.

304. Oxide. PbO. (*Litharge. Monoxide of Lead.*)
   a. Reddish crystalline scales.
   b. Reddish powder.
   c. Ditto. (*Massicot.*)

305. Triplumbic Tetroxide. Pb_3O_4.
   a. Red powder. (*Red Lead.*)

306. Dioxide. PbO_2. (*Peroxide of Lead.*)
   a. Puce-coloured powder.

307. Lead Tartrate. $Pb\,C_4\,H_4\,O_6$.
   a. White powder.

IRON. Fe.

308. Metallic.
   a. Small rods.
   b. Iron turnings.
   c. Iron filings.
   d. Powder, reduced by hydrogen from the oxide. (*Ferrum Redactum, B.P. Reduced Iron.*)

   Note.—Reduced iron often contains some magnetic oxide.

309. Peracetate. $Fe_2\,(C_2\,H_3\,O_2)_6$. (*Ferric Acetate.*)
   a. Yellowish-brown lumps.

310. Proto-arsenate. $Fe_3\,As_2\,O_8$. (*Ferrous Arsenate.*)
   a. Powder of a pale dingy green colour. (*Ferri Arsenias, B.P.*)

   Note.—This salt is usually partially oxidized.

311. Carbonate. $Fe\,C\,O_3$ (*Ferrous Carbonate.*)
   a. Dark green lumps. (*Ferri Carbonas Saccharata, B.P.*)

   Note.—This preparation always contains some peroxide of iron.

312. Protochloride. $Fe\,Cl_2,\,4\,H_2\,O$. (*Ferrous Chloride, Dichloride of Iron.*)
   a. Green crystals.

313. Perchloride. $Fe_2\,Cl_6$.
   a. Brownish-yellow crystalline masses.
   b. Dark-red crystals, prepared by sublimation.

314. Citrate.
   a. Pseudo-crystalline scales.

315. Ammonio-citrate. (*Ferri Ammonio-citras, B.P.*)
   a. Pseudo-crystalline scales.

316. Potassio-citrate.
   a. Pseudo-crystalline scales.

317. Quino-citrate. (*Citrate of Iron and Quinine, Ferri et Quinæ Citras, B.P.*)
   a. Pseudo-crystalline scales.

318. Quino-citrate with Strychnia. (*Citrate of Iron, Quinine, and Strychnine.*)
   a. Pseudo-crystalline scales.

319. Citrate with Quinetum. (*Citrate of Iron and Quinetum.*)
   a. Pseudo-crystalline scales.

IRON CITRATE WITH QUINETUM.

Note.—This specimen is a citrate of the mixed alkaloids of cinchona bark.

The last six specimens are uncrystallizable, and are not definite chemical compounds.

320. FERROCYANIDE. $Fe_4 Fcy_3$.

a. Amorphous masses. (*Prussian Blue.*)

321. IODIDE. $Fe I_2$. (*Ferri Iodidum, B.P.*)

a. Crystalline masses, of a bluish-green colour.

Note.—This salt generally contains a little peroxide.

322. LACTATE. $Fe C_3 H_4 O_3$.

a. Crystallized.

323. OXALATE. $Fe C_2 O_4$.

a. Chamois-yellow powder.

324. OXIDE, MAGNETIC. $Fe_3 O_4$.

a. Scales detached during the forging of wrought iron.

Note.—These scales consist principally of magnetic oxide, with some of the metal.

b. Brownish-black powder. (*Ferri Oxidum Magneticum, B.P. Ferri Oxidum Nigrum.*)

325. PEROXIDE. $Fe_2 O_3$

a. Purplish-red powder. *Venetian Red, Jewellers' Rouge, Colcothar, Crocus Martis.*)

b. Dark rusty-brown powder.

c. Pale brownish-red powder.

d. Armenian bole.

Note.—Specimen *a* was prepared by the calcination of ferrous sulphate; specimen *b* is readily soluble in hydrochloric acid, and specimen *c* not entirely so, probably on account of containing some basic salt. The latter much resembles in colour some specimens of sulphide of antimony. Specimen *d* consists of clay, coloured naturally by ferric oxide.

326. PROTOPHOSPHATE. $Fe_3 2 P O_4$. (*Ferri Phosphas, B.P. Ferrous Phosphate.*)

a. Powder of a slate-blue colour.

Note.—When prepared without access of air, this salt is white; when blue, it contains some ferric oxide.

327. PERPHOSPHATE. $Fe_2 2 P O_4$. (*Ferric Phosphate.*)

a. White powder.

328. PYROPHOSPHATE.

a. Pseudo-crystalline scales.

Note.—This preparation consists of a compound of ferric phosphate with citrate of ammonium. It much resembles in appearance the citrate of iron and quinine, but has generally a bluish-green tint.

329. SULPHATE. $Fe S O_4, 7 H_2 O$.

a. Crystals. (*Green Copperas, Green Vitriol.*)

IRON SULPHATE.

b. Ditto, pure. (*Ferri Sulphas, B.P.*)

c. Granulated, by precipitation with alcohol.

d. Exsiccated. (*Ferri Sulphas Exsiccata, B.P.*, 1867.)

330. PERSULPHATE. $Fe_2(SO_4)_3$.

a. Pale-yellow powder.

331. SULPHOCARBOLATE. $Fe(C_6H_5SO_4)_2$.

a. Green crystals.

332. POTASSIO-TARTRATE. (*Ferrum Tartaratum, B.P.*)

a. Pseudo-crystalline scales.

NICKEL. Ni.

333. METALLIC.

† *a.* Small cubes, as met with in commerce.

† *b.* Pure.

334. CHLORIDE. $NiCl_2$.

† *a.* Anhydrous, in yellow powder.

† *b.* Ditto, in greenish-yellow crystalline powder.

† *c.* Acicular crystals.

Note.—The greenish tint of specimen *b* is due to the presence of cobalt.

335. OXIDE. NiO.

† *a.* Hydrated, impure, of a dirty green colour.

† *b.* Ditto, pure, of an apple-green colour.

336. PHOSPHATE. $Ni_3 2PO_4$.

† *a.* Powder.

337. SULPHATE. $NiSO_4, 7H_2O$.

† *a.* Small green prismatic crystals.

COBALT. Co.

338. METALLIC.

† *a.* Small cubes, as met with in commerce.

† *b.* Pure.

339. CARBONATE. $2CoCO_3, 3Co(H_2O_2), H_2O$.

† *a.* Pinkish powder.

Note.—This substance is a mixture of the carbonate and hydrate

340. CHLORIDE. $CoCl_2$. (*Dichloride of Cobalt, Cobaltous Chloride.*)

† *a.* Crystallized, impure.

† *b.* Ditto, pure.

Note.—Specimen *a* contains nickel.

341. AMMONIO-CHLORIDE. $CoCl_2, 6NH_3, H_2O$. (*Chloride of Roseo-Cobaltia, Claudet's salt.*)

† *a.* Crystallized.

342. Cobalt Nitrate. $Co(NO_3)_2$.

† *a*. Crystallized.

343. Oxide. Co_3O. (*Monoxide of Cobalt, Cobaltous Oxide.*)

† *a*. Grey powder.

344. Sesquioxide. Co_2O_3. (*Cobaltic Oxide.*)

† *a*. Black powder.

† *b*. Impure, mixed with sand. (*Zaffre.*)

Note.—Specimen *b* consists of the ore mixed with sand, roasted, and powdered.

MANGANESE. Mn.

345. Metallic.

† *a*. Small pellets.

Note.—This specimen was prepared by Professor Redwood.

346. Carbonate. $MnCO_3$.

a. Impure, a commercial specimen.

b. Pure, in powder.

347. Chloride. $MnCl_2$. (*Manganous Chloride*).

a. Pink crystals.

348. Oxide. Mn_2O_3. (*Red Oxide of Manganese, Sesquioxide of Manganese.*)

a. Powder.

Note.—This oxide occurs native in braunite and hydrated in manganite, for specimens of which, see Case No. 8 in this Museum.

349. Peroxide. MnO_2. (*Black Oxide of Manganese, Dioxide of Manganese.*)

a. Powder.

Note.—This oxide occurs native as pyrolusite, for a specimen of which, see Case No. 8.

350. Phosphate. $Mn_3 2PO_4$.

a. Pale pink powder.

351. Sulphate. $MnSO_4$. (*Manganous Sulphate.*)

a. Pink crystals.

PENTAD METALS.

ANTIMONY, or STIBIUM. Sb.

352. Metallic.

a. Commercial specimen.

† *b*. Large crystalline cake. (*French Regulus of Antimony.*)

353. Chloride. $SbCl_3$. (*Butter of Antimony, Trichloride of Antimony, Antimonous Chloride.*)

a. White crystalline mass, pure.

b. Dark-red liquid, an impure solution.

Note.—This liquid is prepared by decomposing native sulphide of antimony by hydrochloric acid. It contains iron and other impurities.

354. Antimony Oxychloride. (*Powder of Algaroth.*)

a. A white powder.

Note.—This is a mixture of the chloride and oxide in uncertain proportions.

355. Trioxide. Sb_2O_3.

a. Acicular crystals.

Note.—This specimen was prepared by Professor Redwood. It was obtained by burning antimony in the bottom of a large red-hot crucible.

a. Pale greyish-white powder. (*Antimonii Oxidum, B.P.*)

c. Ditto, mixed with phosphate of calcium. (*Pulvis Antimonialis, B.P.*)

356. Pentoxide. Sb_2O_5. (*Antimonic Oxide.*)

a. Anhydrous, a greyish-white powder.

b. Hydrated, in white powder. (*Antimonic Acid.*)

357. Tersulphide. Sb_2S_3.

a. Anhydrous, in crystalline lumps, having a metallic lustre. (*Crude Antimony.*)

Note.—This specimen consists of the ore purified by fusion. For fine specimens of the ore, see the central case, No. 8.

b. The purified ore, powdered. (*Black Antimony.*)

c. Roasted and fused. (*Liver of Antimony.*)

d. Ditto, containing less sulphide and more oxide. (*Glass of Antimony.*)

e. Purplish-red sandy powder. (*Crocus of Antimony.*)

Note.—Specimens *c* and *d* are very similar in appearance, but may be distinguished thus: Liver of antimony is opaque, and when rubbed gives a brownish-red powder; while glass of antimony is translucent, and by transmitted light of a garnet-red colour; when scratched, it gives a whitish powder. Crocus of antimony consists of the scoria obtained in reducing antimony, in powder.

f. Hydrated, of a dark red-brown colour. (*Antimonium Sulphuratum, B.P.*)

Note.—According to Moss, the *B.P.* process does not yield an orange-red powder. See *P. J.* [3], vol. iii., pp. 443–446. The commercial article generally consists of the yellow pentasulphide with excess of sulphur.

g. Hydrated, of a bright red-brown colour. (*Kermes Mineral, Pulvis Carthusianorum.*)

Note.—For various methods of preparing mineral kermes, see *Gmelin, Chemistry*, vol. 4, pp. 340–352; also *Per. Mat. Med.*, vol. i., pp. 734–737.

358. Pentasulphide. Sb_2S_5.

a. Orange-red powder, containing some oxide. (*Golden Sulphuret of Antimony, Antimonii Oxysulphuratum, P. L.*, 1851.

Note.—This specimen has a reddish tint, probably owing to the presence of a small quantity of the tersulphide.

359. Antimony Potassio-tartrate. $2\,KSb,C_4H_4O_7$. (*Tartar Emetic.*)

a. Crystallized, in colourless efflorescent crystals.

Note.—For fig. of the crystals, see *Per. Mat. Med.*, vol. i., p. 743, fig. 132; *Phillips, Transl. Pharm.*, 1851, p. 260.

ARSENIC. As.

360. Metallic.

a. Commercial specimen.

b. Pure.

361. Iodide. AsI_3.

a. Small, deep-red, shining, crystalline scales.

362. Arsenous Oxide. As_2O_3. (*White Arsenic, Arsenous Acid.*)

a. Stratified lumps.

Note.—This specimen has much the appearance of pieces of white potsherd.

b. White flat pieces, bearing crystals on the surface.

Note.—This specimen came from Bissoe arsenic works in Cornwall.

c. Crystalline powder of a greyish colour.

Note.—This specimen is impure; it came from a tin-smelting house.

d. Pure, in white crystalline powder.

363. Arsenic Peroxide. $As_2O_5,3H_2O$. (*Arsenic Acid, Peroxide of Arsenic.*)

a. Dirty-white porous lumps.

b. Solution.

364. Sulphide. As_2S_2. (*Realgar, Disulphide of Arsenic.*)

a. Deep-red lumps, with a conchoidal fracture and vitreous lustre.

b. A Chinese carving in realgar.

Note.—Specimen *b* may be found under a shade in the east window of the Chemical Museum.

365. Trisulphide. As_2S_3. (*Orpiment.*)

a. Orange-yellow lumps.

b. Golden-yellow powder.

BISMUTH. Bi.

366. Metallic.

a. Crystalline masses.

367. Carbonate. $2(Bi_2CO_3)H_2O$. (*Bismuthi Carbonas, B.P.*)

a. White powder.

368. Nitrate. $Bi(NO_3)_3\,5H_2O$.

a. Crystals.

369. Subnitrate. $BiONO_3,H_2O$. (*Bismuthi Subnitras, B.P.*)

a. White powder. (*Bismuthum Album, B.P.*, 1864.)

370. Oxide, Bismuthous. Bi_2O_3. (*Trioxide of Bismuth.*)
a. Yellow powder.

371. Oxide, Bismuthic Bi_2O_5. (*Pentoxide of Bismuth.*)
a. Reddish powder.

VANADIUM. V.

372. Vanadate of Ammonium. NH_4VO_3.
† *a.* White powder.

COLUMBIUM, or NIOBIUM. Nb.

373. Oxide. Nb_2O_5. (*Niobic Acid.*)
† *a.* White powder.

HEXAD METALS.

CHROMIUM. Cr.

374. Metallic.
† *a.* Small pellets.
Note.—This specimen was prepared by Professor Redwood.

375. Chloride. Cr_2Cl_6. (*Chromic Chloride, Trichloride of Chromium.*)
a. Violet crystalline laminæ.
Note.—This specimen was prepared and presented by Mr. Baldock.

376. Oxide. Cr_2O_3. (*Chromic Oxide, Sesquioxide of Chromium.*)
a. Anhydrous, a green crystalline powder.
b. Ditto, resembling small green tea in appearance.
c. Hydrated, prepared by precipitation.
Note.—Specimen *a* was prepared by heating potassic dichromate; and specimen *b* by igniting ammonic dichromate.

377. Trioxide. CrO_3. (*Chromic Acid.*)
a. Crystallized.

URANIUM. U.

378. Metallic.
† *a.* Pure.

379. Ammonio-carbonate. $(NH_4)_2, UO_2, 4CO_3$. (*Ammonio-uranic Carbonate, Carbonate of Uranyl and Ammonium.*)
a. Yellow crystalline crusts.

380. Nitrate. $UO_2(NO_3)_2, 6H_2O$.
a. Crystallized.

381. Oxide. UO_3. (*Uranic Oxide, Uranyl Oxide.*)
a. Reddish yellow powder.
b. Specimen of glass coloured by uranate of sodium.

382. URANOSO-URANIC OXIDE. U_3O_8.

a. Blackish powder.

Note.—This oxide is the chief constituent of pitchblende. For a specimen of it, see Case No. 8.

383. SODIUM URANATE. $Na_2O, 2UO_3$.

a. Yellowish powder. (*Uranium yellow.*)

TUNGSTEN, OR WOLFRAM. W.

384. OXIDE. WO_3. (*Tungstic Acid.*)

a. Impure, a yellow powder.

b. Pure ditto.

c. Hydrated, a white powder. ($WO_3, 2H_2O$.)

Note.—Specimen *c* was precipitated from a cold dilute alkaline solution.

MOLYBDENUM. Mo.

385. METALLIC.

† *a*. Small pellets.

386. OXIDE. MoO_3. (*Molybdic Acid.*)

a. Impure.

b. Pure, in white powder.

387. SULPHIDE. MoS_2. (*Molybdenite, Native Sulphide of Molybdenum.*)

a. Black scale-like laminæ with a metallic lustre.

Note.—For native molybdate of lead, see Lead salts.

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388. *Series of Specimens illustrating* STANFORD'S *Process for Manufacturing Seaweed Products.*

(1) LAMINARIA DIGITATA, *Lamour.* (*Oar Weed, Tangle, Sea Girdles.*)

a. Cylindrical portion of frond. (*Drift Weed, or Tangle.*)

b. Ditto, cut up ready for charring.

c. Charcoal made from *b*.

d. Ditto, lixiviated.

e. Flattened portion of frond. (*Cut Weed, Red Wrack.*)

f. Charcoal made from *e*.

g. Ditto, lixiviated.

(2) FUCUS VESICULOSUS, *L.* (*Cut Weed, Bladder Wrack.*)

a. Frond.

b. Charcoal made from *a*.

c. Ditto lixiviated.

(3) FUCUS SERRATUS, *L.* (*Cut Weed, Black Wrack.*)

a. Frond.

b. Charcoal made from *a*.

c. Ditto, lixiviated.

(4) FUCUS NODOSUS, *L.*

a. Frond.

b. Charcoal made from *a.*

c. Ditto, lixiviated.

Note.—Laminaria digitata is often designated Oar Weed. It differs from the fuci mentioned above, in having a cylindrical portion or stem divided into numerous ribbon-like pieces, and in its brown colour. Fucus nodosus has black, narrow, compressed fronds with single bladders. F. vesiculosus has a flattened frond with bladders in pairs, one being on each side of the midrib. F. serratus has flattened fronds serrated at the edge, and without bladders.

(5) TAR.

(6) PITCH.

(7) COKE.

(8) KELP.

(9) BROMINE.

(10) IODINE.

a. Crude.

b. Resublimed.

(11) POTASSIUM ACETATE.

(12) „ BROMATE, crystallized.

(13) „ BROMIDE, crystallized.

(14) „ CARBONATE.

a. Pure.

b. Anhydrous.

(15) „ BICARBONATE, crystallized.

(16) „ CHLORIDE.

a. Crude, crystallized.

b. Pure, crystallized.

(17) „ CYANIDE, fused.

(18) „ IODATE, crystallized.

(19) „ IODIDE, crystallized.

(20) „ NITRATE, crystallized.

(21) „ SULPHATE.

a. Crude, crystallized.

b. Pure.

(22) „ BISULPHATE, crystallized.

(23) SODIUM CHLORIDE.

Note.—For an account of the method by which various products are manufactured from Kelp, see *Pharm. Journ.* [2], iii., p. 495.

The above specimens will be found in Case 4 in the Chemical Museum.

ORGANIC COMPOUNDS.

HYDROCARBONS.

PARAFFIN OR MARSH GAS SERIES. C_nH_{2n+2}

a. Solid paraffin, from turf and peat, crude.

b. Ditto, purified.

c. Liquid paraffin, from seaweed, crude.

d. Ditto, purified.

e. Barbadoes tar, genuine.

f. Ditto, spurious.

g. Rangoon petroleum.

h. Petroleum from Zante.

Note.—This specimen was "collected from a pitch well in the south-eastern part of the island of Zante, on Sept. 13, 1818, by Wm. Allen, F.R.S., first president of the Pharmaceutical Society of Great Britain, and was presented to the Society by his executors in 1852." See *Life of William Allen, Lond.*, 1846.

i. Pennsylvanian petroleum, crude.

j. Ditto, purified.

k. Shale grease.

l. Shale spirit, crude.

m. Shale residue.

Note.—The above paraffins are none of them of definite composition, but consist of a mixture of various members of the series typified by the formula C_nH_{2n+2}. See *Fownes, Chemistry*, p. 548.

TERPENE SERIES. C_nH_{2n-4}

389. TEREBENTHENE.

a. French oil of turpentine.

Note.—This specimen turns the plane of polarisation to the left. It was obtained from Pinus Pinaster, *Sol.*

390. AUSTRALENE. (*Austra-terebenthene.*)

a. English oil of turpentine.

Note.—This specimen rotates the plane of polarisation to the right. It was prepared from the turpentine of *Pinus palustris*, Mill, and *Pinus Tæda*, L.

391. TEREBENE.

a. Colourless liquid.

Note.—This specimen has no action on polarised light. It was prepared from oil of turpentine by treatment with strong sulphuric acid.

392. TERPIN HYDRATE. $C_{10}H_{16}, 3H_2O$. (*Turpentine Camphor, Hydrate of Turpentine Oil.*)

a. Brown rhombic crystals.

393. TERPIN. $C_{10}H_{16}, 2H_2O$.

Hydrocarbons.

a. White slender acicular crystals.

394. CAOUTCHOUCINE.

a. Brownish oily liquid.

Note.—This liquid, according to Greville Williams, is a mixture of the two polymeric hydrocarbons caoutchin, $C_{10}H_{16}$ and isoprene, C_5H_8.

395. COOROONGITE. (*Mineral Caoutchouc*).

a. Blackish, slightly elastic, solid.

BENZENE SERIES. H_nC_{2n-6}.

a. Coal tar.

b. Wood tar. (*Stockholm Tar.*)

c. Light oil of tar, sp. gr. 0·945.

d. Heavy oil of tar, sp. gr. 1·002.

Note.—Specimen *b* and *c* were prepared by Professor Redwood.

e. Eblanin. $C_5H_8O_2$. (*Pyroxanthin.*)

Note.—This specimen was prepared by the action of hydrate of potassium upon heavy oil of wood tar. See *Watts, Dict. Chem.*, vol. iv., p. 776.

f. Pitch.

g. Asphalt, from an Egyptian mummy.

Note.—The above specimens, with the exception of Eblanin, are indefinite mixtures of various hydrocarbons belonging chiefly to the aromatic group represented by the formula C_nH_{2n-6}. The asphalt obtained from mummies is used by artists as a brown water-colour. This specimen was presented by Messrs. Hearon, Squire, and Francis.

396. BENZENE. C_6H_6. (*Bicarburet of Hydrogen, Benzole, Benzine.*)

a. Impure, from coal-tar oil.

b. Purified, by crystallization at 10° Fahr.

397. NITRO-BENZENE. $C_6H_5(NO_2)$. (*Oil of Mirbane, Artificial Oil of Almonds.*)

a. Yellowish oily liquid, crude.

b. Purified.

Note.—For means of distinguishing this liquid from essential oil of almonds, see *Attfield, Chemistry.*

398. DINITRO-BENZENE. $C_6H_4(NO_2)_2$.

a. In acicular crystals.

Note.—In this specimen the crystals, which were originally white, have become of a brown colour.

399. TOLUENE. C_7H_8. (*Toluol, Methyl-Benzene, Hydride of Benzyl, Benzoene Dracyl, Hydride of Tolyl or Toluenyl.*)

a. Volatile colourless liquid.

400. XYLENE. C_8H_{10}. (*Xylol, Dimethyl-Benzene.*)

a. Colourless volatile liquid.

Note.—For uses, etc., see *P. J.* [3], vol. ii., p. 625.

Hydrocarbons.

401. CYMENE. $C_{10}H_{14}$. (*Cymol, Camphogen, Hydride of Thymyl, Hydride of Cymyl.*)
   a. Prepared from the volatile of oil of cummin.
   b. Prepared from coal tar.

CINNAMENE SERIES. C_nH_{2n-8}.

402. CINNAMENE. C_8H_8. (*Styrolene, Cinnamol, Styrol.*)
   a. Colourless oily liquid.
   b. Colourless refractive solid.

Note.—Specimen *b* was prepared from liquid storax; it has assumed the solid appearance of meta-cinnamene.

NAPHTHALENE SERIES. C_nH_{2n-18}.

403. NAPHTHALENE. $C_{10}H_8$.
   a. Micaceous crystalline plates.

Note.—This specimen was obtained from coal tar.

404. NAPHTHALENE BICHLORIDE. $C_{10}H_8Cl_2$.
   a. Crystallized.

ANTHRACENE SERIES. C_nH_{2n-18}

405. ANTHRACENE. $C_{14}H_{10}$.
   a. Crude, of a brownish colour.
   b. Purified, in white pearly scales.

Note.—Specimen *b* has become tinged with purple from exposure to light.

406. ANTHRAQUINONE. $C_{14}H_8O_2$.
   a. In yellowish acicular crystals.
   b. In slender crystals.

Note.—Specimen *b* was prepared in the laboratory of the Society by Mr. E. Richardson.

MONATOMIC ALCOHOLS AND ETHERS.

ETHYLIC SERIES. CH_{2n-1}.

407. METHYL HYDRATE. $CH_3(HO)$.
   a. Crude.
   b. Purified (Dr. Hasting's pyroxylic spirit).
   c. Ditto, by Eschwege's process.
   d. Methylated ethylic alcohol.

Note.—For manufacture of pyroxylic spirit, see *P. J.* [1], vol. x., pp. 31, 69, 135, 196, 300; vol. ix., p. 455; [2], vol. iv., p. 233; for Eschwege's process, see *P. J.* [2], vol. vii., p. 175.

408. METHYL IODIDE. CH_3I.
   a. Reddish volatile liquid.

Monatomic Alcohols.

409. Methyl Salicylate. $CH_3\,C_7\,H_5\,O_3$. (*Oil of Wintergreen.*)
   a. Pale yellow volatile liquid.

   Note.—This is the volatile oil obtained from Gaultheria procumbens, L. Salicylate of methyl is found also in the bark of Betula lenta, L.

410. Ethyl Acetate. $C_2\,H_5\,C_2\,H_3\,O_2$. (*Acetic Ether*).
   a. Impure.
   b. Purified.

411. Ethyl Butyrate. $C_2\,H_5\,C_4\,H_7\,O_2$. (*Butyric Ether, Essence of Pineapple.*)
   a. Colourless volatile liquid.

   Note.—This ether has a strong pineapple odour and taste.

412. Ethyl Bromide. $C_2\,H_5\,Br$. (*Hydrobromic Ether.*)
   a. Reddish volatile liquid.

413. Ethyl Chloride. $C_2\,H_5\,Cl$. (*Hydrochloric Ether, Chloric Ether, Sweet Spirit of Salt.*)
   a. Colourless volatile liquid.

   Note.—The name chloric ether is often erroneously applied to a solution of chloroform in ethylic alcohol.

414. Ethyl Formate. $C_2\,H_5\,C\,H\,O_2$. (*Formic Ether.*)
   a. Colourless volatile liquid.

415. Ethyl Hydrate. $C_2\,H_5\,H\,O$. (*Ethylic Alcohol, Spirit of Wine.*)
   a. Rectified spirit of wine.
   b. Proof spirit. (*Spiritus tenuior.*)
   c. Absolute alcohol.

416. Ethyl Iodide. $C_2\,H_5\,I$. (*Hydriodic Ether.*)
   a. Reddish volatile liquid.

417. Ethyl Nitrite. $C_2\,H_5\,N\,O_2$
   a. Pure.
   b. Impure solution in alcohol. (*Sweet Spirit of Nitre, Spiritus Ætheris Nitrosi.*)

418. Ethyl Oxalate. $(C_2\,H_5)_2\,C_2\,O_4$
   a. Colourless volatile liquid.

419. Ethyl Oxide. $(C_2\,H_5)_2\,O$. (*Ether, Sulphuric Ether.*)
   a. Colourless volatile liquid. sp. gr. ·735.
   b. Ditto. sp. gr. ·720.
   c. Ditto. Absolute ether.

   Note.—Specimen *a* is of the strength directed in the P. P. Specimen *b* is the ordinary ether of commerce, and specimen *c* is free from ethylic alcohol and water, which are usually present in variable proportions in ordinary ether.

Monatomic Alcohols.

420. Ethyl Pelargonate. C_2H_5, $C_9H_{17}O_2$. (*Pelargonic Ether, Œnanthic Ether, Oil of Cognac.*)

a. A yellowish volatile liquid.

Note.—Impure brandy and whiskey are said to owe their flavour chiefly to this ether. The alcoholic solution is used to give the flavour of quinces to confectionery. See *Redwood, Supplt.*, p. 724.

421. Ethyl Acid Sulphate. $C_2H_5HSO_4$. (*Sulphovinic Acid, Ethylsulphuric Acid.*)

a. Colourless oily liquid.

Note.—For sulphovinate of sodium, see the sodium salts.

422. Propyl Hydrate. C_3H_8HO. (*Propylic Alcohol.*)

a. Colourless volatile liquid.

423. Butyl Hydrate. C_4H_9HO. (*Tetrylic Alcohol, Quartyl Alcohol, Butyl Alcohol.*)

a. Colourless volatile liquid.

424. Amyl Acetate. $C_5H_{11}C_2H_3O_2$.

a. Colourless volatile liquid.

Note.—A solution of this ether in alcohol forms the essence of pear used in flavouring confectionery.

425. Amyl Butyrate. $C_5H_{11}C_4H_7O_2$.

a. Colourless volatile liquid.

426. Amyl Chloride. $C_5H_{11}Cl$.

a. Colourless volatile liquid.

427. Amyl Formate. $C_5H_{11}CHO_2$.

a. Colourless volatile liquid.

Note.—Both the butyrate and formate have a fruity flavour. See *Juries' Report, Int. Exhib.* 1862, p. 113.

428. Amyl Hydrate. $C_5H_{11}HO$. (*Quintyl Alcohol, Amylic Alcohol, Fusel Oil.*)

a. Impure.

b. Purified.

429. Amyl Hydride. $C_5H_{12}H$. (*Quintane.*)

a. Colourless volatile liquid. sp. gr. ·638.

Note.—See *P. J.* (1) xvi., p. 604.

430. Amyl Nitrate. $C_5H_{11}NO_3$.

a. Volatile colourless liquid.

431. Amyl Nitrite. $C_5H_{11}NO_2$. (*Amyl Nitris, B. P. App.*)

a. Yellowish volatile liquid.

432. Amyl Valerianate.

a. Colourless volatile liquid.

Note.—The spirituous solution forms the essence of apple used in confectionery.

Monatomic Alcohols.

433. Œnanthyl Hydrate. $C_7 H_{15} H O$. (*Œnanthylic Alcohol, Septyl or Heptyl Alcohol.*)

a. Colourless volatile liquid.

434. Capryl Hydrate. $C_8 H_{17} H O$. (*Caprylic Alcohol, Octyl Alcohol.*)

a. Colourless volatile liquid.

435. Cetyl Hydrate. $C_{16} H_{33} H O$. (*Cetylic Alcohol, Ethal, Sexdecylic Alcohol.*)

a. White fatty solid.

Note.—This specimen is probably impure. See *Fownes, Chemistry*, p. 610.

436. Cetyl Palmitate. $C_{16} H_{33} C_{16} H_{31} O_2$. (*Spermaceti.*)

a. Solid white crystalline fat.

Note.—Spermaceti contains also some laurostearin,

437. Ceryl Cerotate. $C_{27} H_{55} C_{27} H_{53} O_2$. (*Pe-la, Chinese Insect Wax.*)

a. Hard white crystalline fat.

438. Myricyl Palmitate. $C_{30} H_{61} C_{16} H_{31} O_2$. (*Myricin.*)

a. Fatty solid.

Note.—This substance is the portion of beeswax insoluble in boiling alcohol.

VINYLIC SERIES. $C_n H_{2n-1}$.

439. Allyl Sulphocyanate. $C_3 H_5 Cy S$.

a. Volatile pungent liquid. (*Volatile Oil of Mustard.*)

Note.—This liquid probably contains some sulphide of allyl. See *Pharmacographia*, p. 63.

440. Menthyl Hydrate. $C_{10} H_{19} H O$. (*Menthylic Alcohol, Stearoptene of Peppermint Oil.*)

a. Crude, in acicular crystals, from Japan.

b. Ditto, sublimed at 210° F.

Note.—Specimen *b* was prepared and presented by Messrs. Morson & Son. The crude article is said to be adulterated with sulphate of magnesia, which it closely resembles in appearance. *Watts, Dict. Chem.*, vol. iii., p. 880.

BENZYLIC SERIES. $C_n H_{2n-7}$.

441. Benzyl Hydrate. $C_7 H_7 H O$. (*Benzoic Alcohol, Benzyl Alcohol.*)

a. Aromatic colourless liquid.

442. Phenyl Hydrate. $C_6 H_5 H O$. (*Phenylic Alcohol, Carbolic Acid, Phenic Acid, Coal-tar Creosote.*)

a. Crystallized in a large glass receiver.

b. Ditto, from the volatile oil of Andromeda Leschenaultii.

c. Liquid.

Diatomic Alcohols.

Note.—Specimen *a* was presented by Professor Crace Calvert as a remarkably pure sample. Specimen *b* was prepared by Mr. J. Broughton. See *P. J.* (3) vol. ii., p. 284.

443. TRINITRO-PHENOL. $C_6 H_3 (N O_2)_3 O$. (*Picric Acid, Carbazotic Acid.*)

a. Yellow crystals.

444. THYMYL HYDRATE. $C_{10} H_{13} H O$. (*Thymylic Alcohol, Thymol, Thymylic Acid.*)

a. Very fine crystal.
b. Small crystals.
c. Ditto.
} From the Oil of Ptychotis Ajowan, D.C.

Note.—Specimen *a* consists of a single crystal nearly two inches square, and was presented by Messrs. Wright, Layman, and Umney. Specimen *b* was purchased in a bazaar at Bombay, under the name of *ajwain ka-phul*, by Mons. C. Chantre; and specimen *c* was prepared from the oil of Monarda punctata, L., and was presented under the name of Monarda camphor, by Mr. M. Procter, jun., of Philadelphia.

CINNYLIC SERIES. $C_n H_{2n-8}$.

445. CINNYL CINNAMATE. $C_9 H_9 (C_9 H_7 O_2)$. (*Styracine.*)

a. Small silky crystals.

Note.—This is the substance which forms a kind of efflorescence on the surface of Styrax Calamita.

446. CHOLESTERINE. $C_{26} H_{43} H O$.

a. Small shining crystalline plates.

DIATOMIC ALCOHOLS AND ETHERS.

ETHENE SERIES. $C_n H_{2n}$.

447. METHENE CHLORIDE. $C_2 H Cl_3$. (*Bichloride of Methylene.*)

a. Colourless volatile heavy liquid.

448. ETHENE CHLORIDE. $C_2 H_4 Cl_2$. (*Dutch Liquid, Dichloride of Ethylene.*)

a. Volatile colourless liquid.

449. ETHERINE.

a. White slender prismatic crystals.

ORCIN SERIES. $C_n H_{2n-6}$.

450. RESORCIN. $C_6 H_4 (H O)_2$.

a. Yellowish crystalline powder.

451. SALIGENIN. $C_7 H_6 (H O)_2$. (*Salicylic Alcohol.*)

a. In crystalline scales, not quite white.

Note.—Presented by Dr. Attfield.

Triatomic Alcohols.

452. Guaiacol. $C_7 H_6 (H O)_2$.

a. Brownish oily liquid.

Note.—For method of preparation, see *P. J.* (3) vol. iii., p. 23. This specimen was presented by Messrs. Hopkin and Williams.

453. Creasol. $C_8 H_8 (H O)_2$. (*Creosote, Oil of Tar.*)

a. Nearly colourless oily liquid.

TRIATOMIC ALCOHOLS AND ETHERS.

METHENYL. SERIES. $C_n H_{2n-1}$.

454. Methenyl Bromide. $C H Br_3$ (*Bromoform.*)

a. Reddish volatile heavy liquid.

455. Methenyl Chloride. $C H Cl_3$. (*Chloroform, Perchloride of Formyl.*)

a. Volatile colourless heavy liquid.

456. Methenyl Iodide. $CH_3 I$. (*Iodoform.*)

a. Yellow crystalline scales.

457. Propenyl Hydrate. $C_3 H_5 (HO)_3$. (*Glycerine, Propenyl Alcohol.*)

a. Pure. (*Price's Patent Glycerine.*)

b. Ditto. (*Crystallized Glycerine.*)

Note.—Specimen *b* was solid when received, but has become fluid by keeping.

458. Propenyl Trilaurate. $C_3 H_5 (C_{12} H_{24} O_2)_3$. (*Laurostearin.*)

a. Green semi-solid fat. (*Oil of Bay.*)

Note.—This substance contains other propenyl compounds besides the trilaurate.

459. Propenyl Trimyristicate. $C_3 H_5 (C_{14} H_{27} O_2)_3$. (*Myristin.*)

a. White crystalline solid.

Note.—This specimen was obtained from the expressed oil of nutmegs. It occurs also in Dika bread, and several vegetable oils and fats. See *Catalogue*, p. 23, No. 128.

460. Propenyl Trioleate. $C_3 H_5 (C_{18} H_{33} O_2)_3$. (*Olein.*)

a. Almond Oil.

b. Olive oil.

c. Pure Olein.

Note.—Almond oil consists almost entirely of pure olein; the fluid part of olive oil at 32° F. is the same, the solid part consisting chiefly of tripalmitin.

461. Propenyl Tripalmitate. $C_3 H_5 (C_{16} H_{31} O_2)_3$. (*Palmitin.*)

a. Japan wax.

Note.—This substance consists chiefly of tripalmitin. See Palmitic Acid.

Carbohydrates.

462. PROPENYL TRISTEARATE. $C_3H_5(C_{18}H_{35}O_2)_3$. (*Stearin.*)

a. Cocum butter.

Note.—This substance contains more than half its weight of stearin, the remainder consisting of olein.

PYROGALLOL SERIES. C_nH_{2n-8}

463. PYROGALLOL. (*Pyrogallic Acid.*)

a. Silky acicular crystals.

TETRATOMIC ALCOHOLS.

464. ERYTHRITE. $C_4H_6(HO)_4$. (*Erythromannite, Phycite, Erythroglucin.*)

a. Colourless prismatic crystals.

PENTATOMIC ALCOHOLS.

465. QUERCITE. $C_6H_7(HO)_5$.

a. Transparent monoclinic crystals.

Note.—Both these alcohols are saccharine substances. See *Fownes, Chemistry*, p. 628–630.

HEXATOMIC ALCOHOLS.

466. MANNITE. $C_6H_8(HO)_6$.

a. Prismatic colourless crystals.

b. A cone of mannite, from Tuscany.

Note.—Specimen *b* was presented by Mr. J. M. Broad, who brought it from Florence.

CARBOHYDRATES.

CELLULOSES. $C_6H_{10}O_5$.

467. STARCH. $C_{18}H_{30}O_{15}$. (*Fecula, Amidin.*)

a. Obtained from maize.

468. DEXTRINE. $C_{12}H_{20}O_{10}$. (*British Gum.*)

a. Fawn coloured powder.

b. White powder.

Note.—Specimen *a* yields a better mucilage than *b*.

469. INULIN. $C_{18}H_{30}O_{15}$. (*Alantin, Sinistrin, Menyanthin, Dahlin, Synantherin.*)

a. Obtained from dandelion root.

470. CELLULIN. $C_{18}H_{30}O_{15}$. (*Cellulose.*)

a. Cotton.

Note.—The hairs surrounding cotton seeds consist of nearly pure cellulin.

Carbohydrates.

471. DINITRO-CELLULIN. $C_{18} H_{28} (N O_2)_2 O_{15}$. (*Soluble Guncotton, Pyroxylin.*)
   a. Commercial specimen.
   b. Solution in a mixture of ether and alcohol (*Collodium, B.P.*)
   c. Ditto, mixed with castor oil. (*Collodium Flexile, B.P.*)

GLUCOSES. $C_6 H_{12} O_6$.

472. DEXTROSE. $C_6 H_{12} O_6$. (*Glucose, Dextroglucose.*)
   a. Prepared from starch. (*Starch Sugar.*)
   b. Prepared from rags. (*Rag Sugar.*)
   c. Prepared from honey. (*Honey Sugar.*)
   d. Prepared from grapes. (*Grape Sugar.*)
   e. Prepared from diabetic urine. (*Diabetic Sugar.*)

473. LEVULOSE. $C_6 H_{12} O_6$.
   a. Obtained from cane sugar.

SACCHAROSES. $C_{12} H_{22} O_{11}$.

474. SACCHAROSE. $C_{12} H_{22} O_{11}$. (*Cane Sugar, Diglucosic Alcohol.*)
   a. Crystallized, obtained from the sugar cane.
   b. Ditto, obtained from beet root.
   c. Ditto, obtained from the sugar maple.

Note.—For other specimens, see *Mat. Med. Catalogue*, p. 15, No. 74 and p. 156, No. 641.

   d. Amorphous. (*Barley Sugar.*)
   e. Ditto, restored to a minutely crystalline state (*Saccharum penidium.*)

475. MELITOSE. $C_{12} H_{22} O_{11}$.
   a. Impure. (*Eucalyptus Manna.*)

Note.—See also *Mat. Med. Catalogue*, p. 46, No. 244.

476. LACTOSE. $C_{12} H_{22} O_{11}, H_2 O$. (*Sugar of Milk, Lactin*).
   a. Crystallized.

477. MYCOSE. $C_{12} H_{22} O_{11}, 2 H_2 O$. (*Sugar of Ergot.*)
   a. Crystallized, prepared from ergot.

Note.—Presented by Mr. F. M. Rimmington.

478. TREHALOSE. $C_{12} H_{22} O_{11}, 2 H_2 O$.
   a. Impure. (*Trehala Manna*).

Note.—See also *Animal Mat. Med. Catalogue*, p. 258, No. 796.

GLUCOSIDES.

479. ÆSCULIN. $C_{21} H_{24} O_{13}$. (*Gelseminic Acid.*)
   a. In crystals.

Note.—This substance was prepared from the bark of the horse-chestnut tree (Æsculus Hippocastanum, *L.*). *For a solution of it, see the specimens illustrating fluorescence, on the east side of the Chemical Museum.*

Glucosides.

480. Amygdalin. $C_{20} H_{27} NO_{11}, 3H_2 O$.

a. Crystalline powder.

Note.—Obtained from bitter almonds by treatment with alcohol. It is resolvable into glucose, hydrocyanic acid and hydride of benzoyl.

481. Arbutin. $C_{24} H_{32} O_{14}, H_2 O$.

a Acicular crystals.

Note.—Obtained from the leaves of *Arbutus, Uva-ursi.* It is resolvable by acids into hydrokinone and glucose.

482. Colocynthin. $C_{56} H_{84} O_{23}$. ?

a. Powder.

Note.—This glucoside is resolvable, according to Walz, into colocynthein and glucose. See *Pharmacographia*, p. 264.

483. Convolvulin. $C_{34} H_{56} O_{16}$. (*Scammonin.*)

a. Powder.

Note.—This specimen was prepared from the Museum specimen of Tampico jalap, by a student in the laboratory of the Society, who found that 100 grains of dense heavy root yielded 7·56 grains; and 100 grains of light root yielded 11·35 grains of resin, entirely soluble in ether.

b. Prepared from Scammony.

Note.—Convolvulin is the jalapin of Gmelin (see *Handbook*, xvi., p. 405) and of Mayer. It is also the jalapin usually met with in English commerce. See *Pharmacographia*, p. 401. It is distinguished from the jalapin of Vera Cruz jalap by being soluble in ether.

c. Pure, in vitreous colourless scales.

d. Brownish extractive, prepared from jalap resin.

484. Coumarin. $C_9 H_6 O_2$.

a. In opaque white crystals.

Note.—The exact chemical constitution of this body not having been satisfactorily settled, it is placed here for convenience only.

485. Cubebin. $C_{33} H_{34} O_{10}$.

a. Small crystals.

486. Digitalin. $C_{27} H_{45} O_{15}$.

a. In porous mamillated masses.

Note.—This glucoside is resolvable into digitaliretin and glucose.

487. Elaterin. $C_{20} H_{28} O_5$.

a. Crystalline powder.

Note.—This body does not always yield glucose by treatment with acids, and is probably not a true glucoside. See *Attfield, Chemistry*, p. 468.

488. Glycyrrhizin. $C_{24} H_{36} O_9$. ?

a. Yellowish powder.

Note.—This substance when pure is insipid. It possesses the properties of an acid, and occurs, combined with ammonia, in the root. See *P. J.* (3), vol. vi., p. 53, *Pharmacographia*, p. 159.

Glucosides.

489. JALAPIN. $C_{31}H_{30}O_{16}$.

a. Powder.

Note.—This glucoside is insoluble in ether. It is resolvable into crystallizable jalapinol and glucose.

490. MECONIN. $C_{10}H_{10}O_4$. (*Opianyl.*)

a. Small prismatic crystals.

b. A magnificent specimen crystallized in a glass basin.

Note.—Specimen *b* was presented by Messrs. Morson & Son.

491. PHLORIDZIN. $C_{21}H_{24}O_{10}$, $2H_2O$.

a. Silky crystals.

Note.—Obtained from the root bark of apple and cherry trees. It is resolvable into phloretin and glucose.

492. PICROTOXIN. $C_{12}H_{14}O_5$.

a. Crystalline powder.

Note.—This substance reduces cupric oxide like the sugars, but to a much smaller extent. *Pharmacographia*, p. 31. Its constitution not having been as yet satisfactorily ascertained, it is placed among the glucosides for convenience only.

493. PIPERIN. $C_5H_{10}N$, $C_{12}H_9O_3$.

a. Yellowish crystals.

Note.—This substance is sometimes considered as a weak alkaloid, but it has no action on litmus paper, and does not unite directly with acids. It has the constitution of a piperate of piperidia. See *P. J.* [3], vol. vi., p. 315.

494. SALICIN. $C_{13}H_{18}O_7$.

a. Crystalline powder.

b. Saligenin.

Note.—Salicin is resolvable into saligenin and glucose. Saligenin is a diatomic phenol-alcohol; see p. 211.

495. SAMADERIN.

a. Deliquescent yellowish powder.

Note.—This specimen was presented by Dr. De Vrij, who obtained it from the bark of *Samadera indica*, Gærtn. He supposes it to be a glucoside. Its formula is not yet ascertained. See *P. J.* [3], vol. ii., p. 645. Examined by Mr. Hutchinson, student in the laboratory, its solution proved neutral to test paper, and yielded no precipitate with perchloride of platinum, iodohydrargyrate of potassium, or biniodide of potassium, but a granular precipitate with perchloride of gold, and a light yellow one with phosphomolybdic acid. Fehling's copper solution was not precipitated by it unless it had been previously boiled with an acid.

496. SANTONIN. $C_{15}H_{18}O_3$.

a. Small crystalline scales.

Note.—Santonin is resolvable into santoniretin and glucose. See *Pharmacographia*, p. 349; *Attfield, Chemistry*, p. 472.

Aldehydes.

497. Scoparin. $C_{21} H_{22} O_{10}$.

a. Pale yellow powder.

Note.—This substance is described in *Pharmacographia*, p. 149, as an indifferent or somewhat acid body.

ALDEHYDES.

ACETIC SERIES. $C_n H_{2n} O$.

498. Acetic Aldehyde. $C_2 H_4 O$.

a. Pure, a colourless liquid.

499. Aldehyde-ammonia. $N H_4 C_2 H_3 O$. (*Ammonium Aldehydate.*)

a. Brownish crystals.

Note.—This specimen was colourless when first obtained.

500. Acetal. $C_6 H_{14} O$.

a. Colourless liquid.

Note—This liquid is a compound of aldehyde with ethyl oxide.

501. Chloral. $C_2 H (Cl_3) O$. (*Trichlorinated Aldehyde*).

a. Anhydrous, an oily liquid.

b. Hydrated, in crystals. (*Liebrich's Chloral Hydrate.*)

c. Ditto, in crystalline cakes. (*Chloral Hydrate.*)

502. Butyl Chloral. $C_4 H_5 (Cl_3) O$. (*Croton Chloral.*)

a. White crystalline powder.

Note.—For method of manufacture, see *Watts, Dict. Chem. Supplt.*, i., p. 513; *P. J.* [3], vol. ii., pp. 425, 434. The croton chloral of commerce has lately been found to consist of butyl chloral; see *P. J.* [3], vol. vi., p. 666.

FURFUROL SERIES. $C_n H_{2n-6} O_2$.

503. Furfurol. $C_5 H_4 O_2$. (*Aldehyde of Pyromucic Acid.*)

a. Brownish aromatic liquid.

Note.—The odour of this liquid has been compared to that of oil of cassia. When pure the liquid is pale yellow. This specimen is some of the first made in this country, and was prepared by the late Mr. Morson, at the request of a customer, that he should distil together some sulphuric acid and bran, in order to produce a liquid for medicinal use in skin diseases.

BENZOIC SERIES. $C_n H_{2n-8} O$.

504. Benzoic Aldehyde. $C_7 H_6 O$. (*Essential Oil of Bitter Almonds.*)

a. Obtained from bitter almonds by distillation with water.

b. Ditto, freed from hydrocyanic acid.

505. Salicylic Aldehyde. $C_7 H_6 O_2$. (*Salicylol, Salicylous acid, Hydride of Salicyl.*)

a. Fragrant, colourless liquid. (*Oil of Meadowsweet.*)

Aldehydes.

CINNAMIC SERIES. $C_n H_{2n-10} O$.

506. CINNAMIC ALDEHYDE. $C_7 H_4 O$.

a. Nearly pure. (*Oil of Cinnamon.*)

b. Ditto. (*Oil of Cassia.*)

507. VANILLIN. $C_7 H_5 (C H_3) O_3$.

a. White powder, prepared from coniferin.

Note.—This specimen is some of the first introduced into this country It is not pure vanillin, but contains a proportion of sugar, in which state it was first offered in English commerce. Vanillin is placed here, because it is regarded as the aldehyde of protocatechuic acid in which one molecule of hydrogen is replaced by methyl. See *Attfield, Chemistry*, 6th edition, p. 406.

KETONES.

508. ACETONE. $C_3 H_6 O$.

a. Colourless liquid.

Note.—For the difference between aldehydes and ketones, see *Fownes, Chemistry*, p. 751.

MONOBASIC ACIDS.

ACETIC SERIES, $C_n H_{2n} O_2$.

509. FORMIC ACID. $H C H O_2$.

a. Colourless fluid, with a pungent odour.

b. Ditto, sp. gr. 1·020.

Note.—Specimen *a* is concentrated; *b* is of the strength used in medicine.

510. ACETIC ACID. $H C_2 H_3 O_2$.

a. Glacial acetic acid, solid at 50° Fahr.

b. Acidum Aceticum Fortius, B.P.

511. BUTYRIC ACID. $H C_4 H_7 O_2$.

a. Colourless liquid, with a fetid odour.

512. VALERIANIC ACID. $H C_5 H_9 O_2$. (*Valeric Acid.*)

a. Colourless oily liquid.

513. CAPROIC ACID. $H C_6 H_{11} O_2$.

a. Colourless oily liquid, with a fetid odour.

514. ŒNANTHYLIC ACID. $H C_7 H_{13} O_2$.

a. Colourless oily liquid.

515. MYRISTIC ACID. $H C_{14} H_{27} O_2$. (*Myristicin.*)

a. Pearly tabular crystalline scales.

Note.—This specimen was prepared by Professor Fluckiger, from crystalline matter obtained during the distillation of oil of nutmeg. See *P. J.* [3], vol. v., p. 136; small specimens of the myristicates of sodium and barium are enclosed in the same bottle.

Monobasic Acids.

516. Palmitic Acid. $HC_{16}H_{31}O_2$.

a. Commercial specimen.

b. Crystalline cakes, melting point 132° to 140° Fahr.

c. Crystalline cakes, melting point 140.8° Fahr.

Note.—Specimen *b* is a finely crystallized cake of the "Best Palm Stearine" of commerce, and specimen *c* is nearly pure. These specimens were presented by Mr. J. Wilson, manager of Price's Patent Candle Co.

517. Margaric Acid.

a. Pearly crystalline scales.

Note.—This specimen is probably a mixture consisting chiefly of stearic and palmitic acids. It is the margaric acid of Chevreul.

518. Stearic Acid. $HC_{18}H_{35}O_2$.

a. Pearly crystalline scales, melting point 155° Fahr.

Note.—This specimen was presented by Mr. J. Wilson, manager of Price's Patent Candle Co., and is as pure chemically as possible.

519. Oleic Acid. $HC_{18}H_{33}O_2$.

a. Colourless oily liquid, pure.

LACTIC SERIES, $C_nH_{2n}O_3$.

520. Lactic Acid. $HC_3H_5O_3$.

a. Pure, concentrated, sp. gr. 1·210.

b. Diluted, for medicinal purposes, sp. gr. 1·030.

KINIC SERIES. $C_nH_{2n-2}O_6$.

521. Kinic Acid. $HC_7H_{11}O_6$. (*Quinic Acid.*)

a. Crystals.

BENZOIC SERIES, $C_nH_{2n-8}O_2$.

522. Benzoic Acid. $HC_7H_5O_2$.

a. Crystals.

b. Ditto.

c. Ditto, from elephant's urine.

Note.—Specimen *a* was obtained from Palambang benzoin, a sample of which will be found in the Materia Medica Collection, No. 361.*o*. Specimen *b* was obtained from hippuric acid, prepared from urine.

523. Benzoic Chloride. C_7H_5OCl. (*Benzoyl Chloride.*)

a. Colourless pungent liquid.

524. Hippuric Acid. $HC_9H_8NO_3$. (*Benzamidacetic Acid.*)

a. White acicular crystals.

Note.—Specimens 523 and 524 are placed here for the sake of convenience.

OXYBENZOIC SERIES, $C_nH_{2n-8}O_3$.

525. Salicylic Acid. $HC_7H_5O_3$.

a. Crystalline powder, not quite pure.

Bibasic Acids.

b. White crystalline powder.

Note.—This specimen was prepared from carbolic acid; it is of a pinkish colour.

GALLIC SERIES. $C_n H_{2n-11} O_5$.

526. Gallic Acid. $H C_7 H_5 O_5$. (*Dioxysalicylic Acid. Trioxybenzoic Acid.*)

a. A commercial specimen.

b. In nearly white acicular crystals.

c. A fine specimen. Presented by Messrs. Morson & Son.

CINNAMIC SERIES, $C_n H_{2n-10} O_2$.

527. Cinnamic Acid. $HC_9 H_7 O_2$.

a. Crystalline scales.

BIBASIC ACIDS.

MUCIC SERIES. $C_n H_{2n-1} O_8$.

528. Mucic Acid. $H_2 C_6 H_9 O_8$.

a. White powder.

SUCCINIC SERIES, $C_n H_{2n-2} O_4$.

529. Oxalic Acid. $H_2 C_2 O_4$.

a. Commercial specimen.

b. Large rhombic prisms.

c. Small acicular crystals, pure.

Note.—Specimen *c* much resembles ordinary Epsom salts in appearance.

530. Succinic Acid. $H_2 C_4 H_4 O_4$.

a. Crystallized.

531. Suberic Acid. $H_2 C_8 H_{12} O_4$.

a. Crystalline powder.

532. Sebacic Acid. $H_2 C_{10} H_{16} O_4$. (*Sebic Acid.*)

a. Pearly crystalline scales.

MALIC SERIES. $C_n H_{2n-2} O_5$.

533. Malic Acid. $H_2 C_4 H_4 O_5$.

a. Deliquescent prismatic crystals.

TARTARIC SERIES. $C_n H_{2n-2} O_6$.

534. Tartaric Acid. $H_2 C_4 H_4 O_6$. (*Dextro-tartaric Acid.*)

a. Crystals.

535. Racemic Acid. $H_2 C_4 H_4 O_6$. (*Para-tartaric Acid.*)

a. Crystals.

Tribasic Acids and Cyanogen Acids.

Note.—This specimen is part of the racemic acid produced by Kestner between 1820 and 1824. It was exhibited in 1851 at the International Exhibition, and was purchased at its close by Professor Redwood, by whom this specimen were presented to the Society. For distinctive characters of the crystals, see *Fownes, Chemistry*, p. 736.

CAMPHORIC SERIES, $C_n H_{2n-4} O_4$.

536. CAMPHORIC ACID. $H_2 C_{10} H_{14} O_4$.
a. Crystalline powder.

PHTHALIC SERIES. $C_n H_{2n-10} O_4$.

537. PHTHALIC ACID. $H_2 C_8 H_4 O_4$. (*Orthophthalic Acid, Alizaric, or Naphthalic Acid.*)
a. Pale yellowish powder.

TRIBASIC ACIDS.

TRICARBALLYLIC SERIES. $C_n H_{2n-4} O_7$.

538. CITRIC ACID. $H_3 C_6 H_5 O_7$.
a. Crystals.

ACONITIC SERIES. $C_n H_{2n-6} O_6$.

539. ACONITIC ACID. $H_3 C_6 H_3 O_6$. (*Citridic Acid, Equisetic Acid.*)
a. Pale fawn-coloured powder.

MECONIC SERIES. $C_n H_{2n-10} O_7$.

540. MECONIC ACID. $H_3 C_7 H O_7$.
a. Impure, in acicular crystals.
b. Pure, in acicular crystals.

ACID CYANOGEN COMPOUNDS.

541. HYDROCYANIC ACID. H Cy. (*Hydrogen Cyanide, Prussic Acid.*)
a. Colourless liquid. (*Scheele's Prussic Acid.*)
b. Colourless liquid. (*Acidum Hydrocyanicum dilutum, B.P.*)

Note.—Specimen *a* contains 5 per cent. of anhydrous acid, and specimen *b*, 2 per cent.

542. HYDROFERROCYANIC ACID. $H_4 Fe'' Cy_6$. (*Hydrogen Ferrocyanide.*)
a. White powder.

543. CYANURIC ACID. $C_3 H_3 N_3 O_3$.
a. Small prismatic crystals.

COMPOUND AMMONIAS OR AMINES.

544. TRIMETHYLAMINE. $N(CH_3)_3$.

a. Solution.

Note.—This liquid has been lately used in the treatment of rheumatism. It is this organic base which gives the peculiarly fishy odour to herring brine and to the leaves of Chenopodium olidum, *Curt.*, and in a slight degree to ergot of rye. See *P. J.* [3], vol. iii., pp. 661–671.

545. TRIMETHYLAMINE HYDROCHLORATE. $N(CH_3)_3 HCl$.

a. In small cubical crystals.

546. AMYLAMINE. $NH_2(C_5H_{11})$.

a. A colourless liquid with an ammoniacal odour.

547. AMYLAMINE HYDROCHLORATE. $NH_2(C_5H_{11})HCl$.

a. In crystalline scales.

Note.—This substance has been tried in typhoid fever. See *P. J.* [3], vol. iv., p. 490. This specimen was presented by Messrs. Robbins & Co.

BASES OBTAINED FROM COAL TAR.

548. ANILINE. C_6H_7N. (*Monophenylamine, Kyanol, Benzidam, Phenamide.*)

a. Brownish oily liquid.

Note.—When first prepared this base was colourless, but has become darkened by exposure to light.

549. ANILINE CHLORIDE. $C_6H_6(Cl)N$. (*Chloraniline.*)

a. Blackish granular powder, crude.

550. ANILINE SULPHATE. $(C_6H_7)_2H_2SO_4$.

a. Grey granular powder, crude.

551. TOLUIDINE. $C_7H_7NH_2$. (*Amidotoluene, Para-toluidine.*)

a. Crude, in brownish micaceous crystals.

BASES OBTAINED FROM ALDEHYDES.

552. FURFURINE. $C_{15}H_{12}N_2O_3$.

a. Brown crystalline powder.

Note.—This specimen was prepared by Professor Fownes, from furfurol made by the late Mr. T. N. R. Morson. See *Furfurol*, p. 217.

553. FURFURINE NITRATE. $C_{15}H_{12}N_2O_3NO_3$.

a. Brownish crystals.

Note.—This specimen was also prepared by Professor Fownes.

NATURAL ORGANIC BASES, ETC.

554. ACONITINE. $C_{30}H_7NO_7$. ?

a. White opaque lumps.

Alkaloids.

555. Apomorphine Hydrochlorate. $C_{17}H_{17}NO_2HCl$.
   a. In acicular crystals.

556. Atropine. $C_{17}H_{23}NO_3$.
   a. Small acicular crystals.

557. Atropine Sulphate. $(C_{17}H_{23}NO_3)_2H_2SO_4$.
   a. White granular pieces.

558. Bebeerine Hydrochlorate. $C_{19}H_{21}NO_3HCl$. (*Bibirine Hydrochlorate.*)
   a. Dirty-white granular crusts.

559. Bebeerine Sulphate. $(C_{19}H_{21}NO_3)_2H_2SO_4$.
   a. Dark brown pseudo-crystalline scales.

560. Berberine. $C_{21}H_{19}NO_5$.
   a. In yellowish powder.

Note.—For other specimens see the Hanbury Collection. For identity of this alkaloid with buxine and pelosine see *P. J.* [2], vol. xi., p. 192.

561. Brucine. $C_{22}H_{26}N_2O_4$.
   a. In minute acicular crystals.

562. Brucine Sulphate. $(C_{22}H_{26}N_2O_4)_2H_2SO_4$.
   a. In nearly white crystalline powder.

563. Capsicine.
   a. Dark brown pungent oily liquid.

Note.—This substance is the capsicine of commerce. It is a complex body, consisting chiefly of volatile oil and resin. Pure capsicin occurs in crystalline scales. See *Pharmacographia*, p. 408.

564. Cinchonine. $C_{20}H_{24}N_2O$.
   a. White crystalline powder.

565. Cinchonine Hydrochlorate. $C_{20}H_{24}N_2OHCl$.
   a. In minute acicular crystals.

Note.—This substance is very similar in appearance to sulphate of quinine.

566. Cinchonine Sulphate. $(C_{20}H_{24}N_2O)_2H_2SO_4$.
   a. Sparkling crystalline powder.
   b. Prismatic crystals.

567. Cinchonidine. $C_{20}H_{24}N_2O$. (*The Quinidine of Winckler & Leers.*)
   a. Minute sparkling crystals.

Note.—This specimen consists of the cinchonidine of Pasteur. See *Pharmacographia*, p. 321. *P. J.* [3], vol. iv., p. 671.

568. Codeine. $C_{18}H_{21}NO_3$.
   a. In rather large octahedral crystals.

Note.—For fig. of crystals see *P. J.* [1], vol. vi. p. 561

569. Coniine. $C_8H_{15}N$. (*Cicutine.*)
   a. Brown oily liquid.

Alkaloids.

570. Coniine Hydrobromate. $C_8 H_{15} NHBr$.

a. Transparent six-sided tabular crystals.

Note.—This specimen was presented by Messrs. Morson & Son. The crystals are neutral, and do not appear to be deliquescent, as is sometimes stated. Some very perfect crystals may be seen in the central case in this museum, in which crystalline forms are illustrated.

571. Delphine. $C_{24} H_{35} NO_2$.

a. Nearly white powder.

572. Emetine. $C_{20} H_{30} N_2 O_5$?

a. Pale brown powder.

Note.—When pure, emetine is colourless. For formulæ suggested for the alkaloid, see *Pharmacographia*, p. 335.

573. Menispermine. $C_{18} H_{12} NO_2$.

a. White crystalline powder.

574. Morphine. $C_{17} H_{19} NO_3$.

a. White acicular crystals.

575. Morphine Acetate. $C_{17} H_{19} NO_3, HC_2 H_3 O_2$.

a. Pale fawn-coloured powder.

576. Morphine Hydrochlorate. $C_{17} H_{19} NO_3 H Cl$.

a. White powder.

577. Morphine Iodide. $C_{17} H_{19} NO_3 H I$.

a. Crystalline powder.

578. Morphine Valerianate. $C_{17} H_{19} NO_3, HC_5 H_9 O_2$.

a. Pale brown powder.

579. Narcotine. $C_{22} H_{23} NH_7$.

a. Impure, in prismatic needles.

b. Pure.

Note.—The basic properties of this substance are very feeble; although freely soluble in acids, it does not for the most part form crystallizable salts with them and is neutral to test paper.

580. Narceine. $C_{23} H_{29} NH_9$.

a. Acicular crystals.

581. Papaverine. $C_{21} H_{21} NH_4$.

a. Yellowish crystalline powder.

582. Pilocarpine Nitrate. $C_{23} H_{35} N_4 O_4 HNO_3$.

a. In tufts of acicular crystals.

583. Pilocarpine Phosphate. $C_{23} H_{35} N_4 O_4 HPO_3$.

a. White crystalline scales.

Note.—These specimens were presented by Mr. A. W. Gerrard, who was the first to prepare the alkaloid in this country. See *Journ. Chem. Soc.*, *Oct.* 1876, p. 367. *P. J.* [3], vol. v., p. 965.

584. Quinidine. $C_{20} H_{24} N_2 O_2$.

a. White amorphous pieces.

Alkaloids.

585. Quinidine Sulphate. $(C_{20}\,H_{24}\,N_2\,O_2)_2\,H_2\,S\,O_4$.
a. White silky crystals.

586. Quinine. $C_{20}\,H_{24}\,N_2\,O_2$.
a. A white granular powder.

587. Quinine Acetate. $C_{20}\,H_{24}\,N_2\,O_2\,H\,C_2\,H_3\,O_2$.
a. Minute acicular crystals.

588. Quinine Arsenate. $(C_{20}\,H_{24}\,N_2\,O_2)_3\,H_3\,As\,O_4$.
a. Minute acicular crystals.

589. Quinine Citrate. $(C_{20}\,H_{24}\,N_2\,O_2)_3\,H_3\,C_6\,H_5\,O_7$.
a. Minute acicular crystals.

590. Quinine Ferrocyanide. $(C_{20}\,H_{24}\,N_2\,O_2)_4\,H_4\,Fe\,Cy_6$.
a. Pale green powder.

591. Quinine Hydrate. $C_{20}\,H_{24}\,N_2\,O_2,\,H_2\,O$.
a. White amorphous pieces.

592. Quinine Hydrochlorate. $C_{20}\,H_{24}\,N_2\,O_2\,H\,Cl$.
a. Silky crystals.

593. Quinine Hydriodate. $C_{20}\,H_{24}\,N_2\,O_2\,H\,I$.
a. Pale yellow powder.

594. Quinine Kinate. $C_{20}\,H_{24}\,N_2\,O_2\,H\,C_7\,H_{12}\,O_6$.
a. Dark brown extractiform pieces.

595. Quinine Phosphate. $C_{20}\,H_{24}\,N_2\,O_2\,H\,P\,O_3$.
a White acicular crystals.

596. Quinine Sulphate. $(C_{20}\,H_{24}\,N_2\,O_2)_2\,H_2\,S\,O$.
a. Silky crystals.

597. Quinine Acid Sulphate. $C_{20}\,H_{24}\,N_2\,O_2\,H_2\,S\,O_4$.
a. Crystalline lumps, slightly discoloured.

598. Quinine Tartrate. $(C_{20}\,H_{24}\,N_2\,O_2)_2\,H_2\,C_4\,H_4\,O_6$.
a. Small acicular crystals.

599. Quinine Valerianate. $C_{20}\,H_{24}\,N_2\,O_2\,H\,C_5\,H_9\,O_2$.
a. Minute acicular crystals.
b. Flattened prisms slightly discoloured.
c. White granular powder.

600. Quinoidine. (*Amorphous Quinine, Chinoidine.*)
a. Amorphous black extractiform mass.

Note.—This substance consists of quinine and other alkaloids of Cinchona bark in the amorphous state.

601. Solanine. $C_{43}\,H_{69}\,NO_{16}$.
a. White powder.

Note.—This body is not a pure alkaloid, but a conjugated compound of an alkaloid, solanidine, $N_{25}\,H_{39}\,NO$, with sugar. See *Pharmacographia*, p. 405.

Alkaloids and Amides.

602. STRYCHNINE. $C_{21} H_{22} N_2 O_2$.
a. Prismatic crystals.

603. STRYCHNINE ACETATE. $C_{21} H_{22} N_2 O_2 H C_2 H_3 O_2$.
a. Crystalline powder.

604. STRYCHNINE ARSENITE. $(C_{21} H_{22} N_2 O_2)_3 H_3 As O_3$.
a. Acicular crystals.

605. STRYCHNINE HYDROCHLORATE. $C_{21} H_{22} N_2 O_2 H Cl$.
a. Silky crystals.

606. STRYCHNINE HYDRIODATE. $C_{21} H_{22} N_2 O_2 H I$.
a. Acicular crystals.

607. STRYCHNINE NITRATE. $C_{21} H_{22} N_2 O_2 HNO_3$.
a. Shining acicular crystals

608. STRYCHNINE SULPHATE. $(C_{21} H_{22} N_2 O_2)_2 H_2 SO_4$.
a. Minute cubical crystals.

609. METHYL-STRYCHNIA. $C_{21} H_{21} (CH_3) N_2 O_2$.
a. Yellowish prismatic crystals.

Note.—This alkaloid is stated to be non-poisonous. See *P. J.* [2], vol. i., p. 561.

610. THEBAINE. $C_{19} H_{21} NO_3$. (*Paramorphia.*)
a. Crystalline powder.

611. THEINE. $C_8 H_{10} N_4 O_2$.
a. Silky crystals, obtained from tea.
b. Ditto, obtained from coffee.
c. Ditto, obtained from guarana.

612. VERATRINE. $C_{32} H_{52} N_2 O_8$.
a. Amorphous white pieces.

AMIDES.

613. ACETAMIDE. $N H_2 (C_2 H_3 O)$.
a. White acicular crystals.

614. OXAMIDE. $N_2 H_4 (C_2 O_2)''$.
a. White powder.

615. UREA. $N_2 H_4 (C O)''$.
a. Colourless four-sided prisms.

Note.—This substance has the same empirical formula as carbamide, from which, however, it differs in its product of oxidation. It is placed here as having the composition of an amide.

616. ASPARAGIN. $N H_2 (C_4 H_6 N O_4)$.
a. Colourless, rather large crystals.

Note.—This body has the constitution of an amide of aspartic acid. For fig. of crystals, see *P. J.* [1], vol. vi., p. 560.

URIC ACID AND ITS OXIDATION PRODUCTS.

617. Uric Acid. $H_2C_5N_4H_2O_3$. (*Lithic Acid.*)

a. White powder.

b. Boa constrictor's excrement.

Note.—Specimen *b* consists almost entirely of uric acid and ammonic urate.

618. Allantoin. $C_4N_4H_6O_3$.

a. Brilliant prismatic crystals.

Note.—This specimen was prepared by the action of peroxide of lead on uric acid.

619. Alloxan. $C_4N_2H_2O_4$.

a. Rectangular prismatic crystals.

Note.—Obtained by the action of cold nitric acid on uric acid. The crystals have a purplish tint, acquired by exposure to light.

620. Alloxantin. $C_8N_4H_4O_7 + 3aq$.

a. Colourless oblique rhombic prisms.

Note.—Produced by the action of hot dilute nitric acid on uric acid.

621. Parabanic Acid. $C_3N_2H_2O_3$. (*Paraban.*)

a. Colourless thin prismatic crystals.

Note.—This substance results from the action of hot moderately strong nitric acid on uric acid.

622. Thionurate of Ammonium.

a. In colourless minute scaly crystals.

Note.—Formed by the action of sulphurous acid and ammonia on alloxan.

b. Recrystallized.

Note.—These crystals have a pink tint, which is assumed on re-crystallization, apparently by loss of one molecule of water at 100° Cent.

c. Crystalline powder, of a yellowish tint.

Note.—This yellowish colour is probably due to the presence of some xanthinine, which is formed when thionurate of ammonium is heated to 200° Cent.

623. Uramil. $C_4N_3H_5O_3$. (*Dial-uramide, Uramile.*)

a. White crystalline powder.

Note.—This substance is obtained by the action of hydrochloric acid on thionurate of ammonium.

624. Murexide. $C_8N_6H_8O_6 + aq$. (*Prout's Purpurate of Ammonia.*)

a. Square prismatic crystals.

Note.—These small crystals have a green metallic lustre, but by transmitted light are deep purplish red.

COLOURING PRINCIPLES, ETC.

625. Indigo. $C_{16}H_{10}N_2O_2$.

a. In deep blue lumps, with a coppery lustre.

b. Sublimed, in acicular crystals. (*Indigotine.*)

Colouring Principles.

626. Isatin. $C_{16} H_{10} N_2 O_4$.

a. Deep red prismatic crystals.

Note.—Prepared by treating indigo with sulphuric acid and bichromate of potassium.

627. Anilic Acid. $C_7 H_5 N O_5$.

a. White crystalline powder.

Note.—Formed by the action of boiling nitric acid on indigo.

628. Anthranilic Acid. $C_7 H_7 N O_2$. (*Phenyl-Carbamic Acid, Carbanilic Acid.*)

a. White powder.

629. Litmus.

a. Deep blue angular fragments.

Note.—Obtained from Roccella fuciformis, R. tinctoria, and R. Montagnei. See *Mat. Med. Catalogue*, p. 160, No. 133.

630. Alizarin. $C_{14} H_8 O_4$.

a. Bright red acicular crystals.

Note.—This specimen was prepared by sublimation.

631. Purpurin. $C_{14} H_8 O_5$.

a. Dark red acicular crystals.

Note.—Obtained from madder by treatment with alum and sulphuric acid.

632. Garancin.

a. Purplish powder.

Note.—Produced by the action of sulphuric acid upon madder.

633. Hæmatoxylin. $C_{16} H_{14} O_6$.

a. Small lumps consisting of radiating prismatic crystals.

Note.—Obtained from logwood. See *Mat. Med. Catalogue*, p. 86, No. 194.

634. Purree. (*Indian Yellow.*)

a. Yellow amorphous pieces.

Note.—This substance is said to be made from camel's urine. It is used in oil, and water-colour painting. It is stated to be a magnesia salt of euxanthic acid. See *P. J.* [1], vol. iv., p. 417.

635. Chrysammic Acid. $C_{14} H_8 N_4 O_{12}$.

a. Yellow powder.

Note.—Obtained by the action of nitric acid on aloes.

636. Chrysammate of Potassium. $K C_7 H N_2 O_6$.

a. Dark brown crystalline powder.

Note.—The crystals have a greenish metallic lustre, like that of murexide.

Colouring Principles.

637. Chrysophanic Acid. $C_{10} H_8 O_3$.

a. Brilliant golden scales.

b. Dull yellow nodules.

c. Bright yellow crystalline scales.

Note.—Specimen *a* was prepared by Mr. F. J. Hanbury from rhubarb; specimen *b* from Goa powder by benzol; and specimen *c* from Goa powder by sublimation; *b* and *c* were prepared by Mr. Postans. See *Mat. Med. Catalogue*, p. 33, No. 178; *P. J.* [3], vol. vii., p. 664.

ORGANIC COMPOUNDS.

DERIVED CHIEFLY FROM THE ANIMAL KINGDOM.

638. ALBUMEN. (*Albumin.*)

a. Prepared from serum of blood.

b. Prepared from eggs.

Note.—Specimen *b* has the property, when in the liquid state, of giving a precipitate when shaken with ether.

c. Vegetable albumen.

639. PROTEIN. (*Potassium Albuminate.*)

a. Whitish sandy powder.

640. CASEIN. (*Alkali Albuminate.*)

a. Obtained from milk.

641. FIBRIN.

a. Animal fibrin, obtained from fresh blood by stirring it.

b. Vegetable fibrin, obtained from oatmeal.

642. HÆMATIN. $C_{96}\ H_{102}\ N_{12}\ Fe_3\ O_{18}$.

a. Blackish extractiform substance.

643. PEPSIN.

a. Prepared from the stomach of the calf.

b. Prepared from the stomach of the pig.

Note.—Specimen *a* is a mixture of pepsin and starch such as is usually met with in commerce.

644. GELATIN.

a. Obtained from calves' feet.

b. Grenatin.

c. Vegetable gelatin. (*Gliadin, Gluten.*)

d. Ditto, prepared from seaweed in Japan. (*Gelose.*)

Note.—Specimen *c* was obtained from wheat gluten by treatment with boiling alcohol. For various kinds of natural gelatin, see Collection o *Animal Materia Medica*, p. 259, No. 800 to 817. For gelose, see *P. J.* (2) vol. i. p. 470; *Hanbury, Science Papers*, p. 207.

645. GLYCOCINE. (*Glycocoll.*)

a. White powder.

Note.—Obtained by the action of concentrated sulphuric acid on gelatin.

646. LEUCINE. (*Caseous Oxide, Amidocaproic Acid, Aposepedine.*)

a. White shining scales.

Note.—Obtained by the action of boiling solution of potassium hydrate on gelatin. (*Glycocine and leucine partly on account of their being derived from gelatine, and partly because of their anomalous nature,—being capable of acting either as acids or bases,—are more conveniently placed among the animal organic compounds than elsewhere.* See *Fownes, Chemistry*, pp. 895, 896.)

647. TYROSIN.

a. Acicular crystals.

Note.—Obtained from casein, horn, or cochineal, etc. See *Watts' Dict. Chem.*, vol. v., p. 930.

648. ERYTHROSIN.

a. Orange-red flakes.

Note.—Obtained by the action of nitric acid on tyrosin. See *Ann. Chem. et Pharm.*, vol. cxvi., p. 87.

649. GLYCOCHOLIC ACID. $C_{26}\ H_{43}\ N\ O_6$.

a. White acicular crystals.

Note.—Occurs in oxgall, combined with sodium or potassium.

650. CHOLIC ACID. $C_{24}\ H_{40}\ O_5$. (*Cholalic Acid.*)

a. White powder.

Note.—Obtained by the action of boiling solution of potassium hydrate on glycocholic acid.

651. TAUROCHOLIC ACID. $C_{26}\ H_{45}\ N\ S\ O_7$.

a. White powder.

Note.—This acid is one of the constituents of oxgall.

652. TAURIN.

a. In rather large transparent hexagonal prisms.

Note.—Obtained by the action of boiling alkali or acid on taurocholic acid. See Collection illustrating Crystallography, for some very perfect crystals of this substance.

653. PANCREATIN. (*Pancreatic Oil, Pancreatic Fluid.*)

a. Oily fluid.

Note.—This specimen was prepared by Professor Redwood.

654. CREATINE. $C_4\ H_9\ N_3\ O_2,\ 2H_2\ O$.

a. Prismatic crystals.

Note.—Obtained from the juice of meat, etc. It is a neutral substance.

655. CREATININE. $C_4\ H_7\ N_3\ O$.

a. Prismatic crystals.

Note.—Obtained from creatine by the action of strong acids. It is a strong base.

SPECIMENS ILLUSTRATING CRYSTALLOGRAPHY.

The following series of models are in glass boxes, showing in their interior, by means of wires of different colours, the chief forms derived from the typical crystal which the box represents. These forms are arranged in this list, as if commencing from the centre and proceeding to the outside of each glass box. For representations of these forms, see Per. Mat. Med., vol. i. p. 142–147. *The numbers in parentheses refer to the figures in that work:—*

656. I. Regular System. (*Tetrahedric, Monometric, Octohedral, Cubic, Equal-axed system.*)

a. Cube (Fig. 17) showing the following forms:—
Red, cube. (fig. 20.)
Yellow, octahedron. (fig. 18.)
Dark Blue,* rhombic dodecahedron. (fig. 19.)
Black line in glass itself, tetrahedron. (fig. 21.)

b. Cube.
Yellow, *octahedron.
White line in glass, tetrahedron.

c. Cube.
Red, cube.
Pale yellow, octahedron.
Dark blue, rhombic dodecahedron.
Orange, *trapezohedron.
Green, *four-faced cube.

d. Cube.
White, cube octahedron.
Green, macles.
Red, cube.
Yellow, *octahedron.
White and blue lines on the glass, tetrahedron.

Note.—In the above models some forms are more easily distinguished in model *a* than in *b*, *c*, or *d*, and *vice versa*; those which are most readily seen are marked with an asterisk in the list.

It will be observed that the same colour indicates the same form in each model; thus yellow is the colour used for the octahedron, red for the cube, orange for the trapezohedron, dark blue for the rhombic dodecahedron, and white on one side and dark blue or black on the opposite side for the tetrahedron. All the above models will also be observed to have three equal axes, each of which is at right angles to the others; these are indicated by the red wires in the centre of each cube.

In the same case with the glass models will be found tolerably perfect crystals, belonging to the cubical system, of the following substances:—

657. Cube. Iron Pyrites. (*Bisulphide of Iron.*)
Galena.
Iodide of Potassium.
Bromide of Potassium.

658. Octahedron.
Alum, small octahedra.
Ditto, a large octahedron.
Chrome alum, ditto.
Chrome alum and common alum crystallized together in one octahedron.

Note.—These remarkably fine octahedra were prepared and presented by Mr. W. Copney. See *P. J.* [1], vol. x., p. 536.

659. Dodecahedron.
Iron Pyrites.

660. Hollow Pyramids.
Chloride of Sodium.

Models in wood of the following crystalline forms, also belonging to the cubical system, will be found in the upper compartment of case No. 9:—

e. Octahedron.
f. Rhombic dodecahedron.
g. Trapezohedron.
h. Tetrahedron.

661. II. Square Prismatic System. (*Pyramidal system,* 2 *and* 1 *axed system.*)

a. Glass model (fig. 24), showing the following forms:—
White, short octahedron with square base.
Yellow, long octahedron with square base.
Black lines on the glass, square prism.

Note.—In this system the two horizontal axes, indicated by red wires, are equal in length, while the vertical one is either longer or shorter than the two horizontal axes; all three axes being at right angles to one another.

b. Crystal of Ferrocyanide of Potassium.

Note.—This is a short octahedron with a square base; the apex in this specimen is truncated.

c. Wooden model of Ferrocyanide of Potassium.
c. Wooden model of Mercurous Chloride.

Note.—For fig. of this model, see *Phillips' Transl. of Pharm.*, p. 310.

Crystallography.

d. Wooden model of Mercuric Cyanide.

Note.—For fig of this model, see *Per. Mat. Med.*, vol. i., p. 947, fig. 147. The specimens *c* and *d* will be found in the upper compartment of the central case, No. 9, facing the glass models.

662. III. Rhombohedric System. (*Hexahedral System. The* 3 *and* 1 *axed system.*)

a. Glass model (fig. 28), showing the following forms :—
White, rhombohedron, fig. 29.
Blue, hexagonal scalenohedron, fig. 32.
The whole of the model, hexagonal prism.

Note.—In this system there are three horizontal axes of equal length, at angles of 60° to each other, and one vertical axis, either longer or shorter than the other three, and placed at a right angle to them. In this, as in all other glass models, the axes are indicated by red wires.

b. Rhombohedron of Iceland Spar.

Note.—This specimen exhibits well the phenomenon of double refraction, as may be seen by looking at the single label placed beneath it.

c. Wooden model of an hexagonal prism.

d. Wooden model of a rhombohedron of Iceland Spar.

663. IV. Right Prismatic System. (*Prismatic Trimetric System.* 1 *and* 1 *axed system.*)

a. Glass model (fig. 35), showing the following forms :—
Yellow, octahedron with rhombic base (fig. 38).
Black lines on the glass, rhombic prism (fig. 39).
The whole of the model, rectangular prism (fig. 37).

Note.—In this system all three axes are unequal in length, and placed at right angles to each other.

b. Crystals and half-crystals of Potassio-tartrate of Sodium.

Note.—For fig. of these crystals, see *Phillips' Transl. Pharm.*, p. 364.

c. Rectangular prisms of Ferricyanide of Potassium.

d. Right rhombic prisms of Citric Acid.

Note.—For fig. of these crystals, see *Phillips' Transl. Pharm.*, p. 96.

e. Wooden model of Citric Acid. Two specimens.

Note.—One specimen resembles the crystals of the acid exhibited with the glass models in the central case, and the other is figured in *Phillips' Transl. Pharm.*, p. 96. They are right rhombic prisms.

f. Wooden model of Rochelle Salt. Two specimens.

Note.—These specimens represent a crystal and a half crystal; the latter being the most common form of the salt. For fig., see *Phillips' Transl. Pharm.*, p. 364, fig. 1, 2.

g. Wooden model of Nitrate of Potassium. Two specimens.

Note.—For fig. of one of these specimens, see *Per. Mat. Med.*, vol. i., p. 540, fig. 87.; the other model has one end of the right rhombic prism terminating in a hexahedral summit.

Crystallography.

h. Wooden model of Sulphate of Magnesium. (*Right rhombic prisms.*) Two specimens.

i. Very fine crystal, presented by Mr W. Copney.

Note.—For figures of these models, see *Phillips' Transl. Pharm.*, p. 327, fig. 1, 2. The specimen *i* is a large, nearly rectangular, prism (inclining to rhombic), with reversed dihedral summits. It was made by a process, of which the details will be found in *P. J.*, vol. x., p. 536.

j. Wooden model of Sulphate of Potassium. Three specimens.

Note.—For figs. of these specimens, see *Per. Mat. Med.*, vol. i., p. 503, figs. 78–81. The larger model, represented by fig. 80., is a compound crystal, as well as the smaller model (fig. 78), which bears a close resemblance to crystals of the prismatic system. The other model (fig. 78) is a right rhombic prism.

k. Wooden model of Sulphur, as it crystallizes in the native state. Two specimens.

Note.—For fig., see *Per. Mat. Med.*, vol. i., p. 353, fig. 55. This specimen is an acute rhombic octohedron. See also *Watts' Dict. Chem.*, vol. v., p. 530., fig. 782.

l. Wooden model of Potassio-tartrate of Antimony. (*Octahedron with a rhombic base.*)

Note.—For fig., see *Phillips' Transl. Pharm.*, p. 260.

m. Wooden model of Nitrate of Silver. (*Right rhombic prism.*)

Note.—For fig., see *Per. Mat. Med.*, vol. i., p. 507.

n. Wooden model of Bichloride of Mercury. (*Right rhombic prism.*)

Note.—For fig., see *Phillips' Transl. Pharm.*, p. 312.

o. Wooden model of Sulphate of Zinc. (*Right rhombic prism.*)

Note.—For fig., see *Phillips' Transl. Pharm.*, p. 378.

p. Wooden model of Bitartrate of Potassium. (*Right rhombic prisms.*) Two specimens.

Note.—For fig., see *Phillips' Transl. Pharm.*, p. 266, figs. 1, 2.

664. V. Oblique Prismatic System. (*Monoclinic system.*)

a. Glass model showing the following forms.

Yellow, oblique rhombic octahedron.

Black lines on the glass, oblique rhombic prism.

The whole of the model, oblique rectangular prism.

b. Crystal of Sugar. (*Oblique rhombic prism.*)

Note.—This specimen is a large perfect crystal, but is not quite transparent. Presented by Mr. W. W. Stoddart.

c. Wooden model of Sulphur, as crystallized after fusion and slow cooling.

Note.—For fig., see *Per. Mat. Med.*, vol. i., p. 353, fig. 56.

Crystallography.

d. Wooden model of Tartaric Acid. (*Oblique rhombic prisms.*) Two specimens.

Note.—For figs., see *Phillips' Transl. Pharm.*, p. 264, figs. 1, 2.

e. Wooden model of Bicarbonate of Potassium. (*Right oblique-angled prism.*) Two specimens.

Note.—For figs. and remarks upon the resemblance of the crystals to those of the right prismatic system, see *Phillips' Transl. Pharm.*, p. 346, fig. 1, 2.

f. Wooden model of Acetate of Lead. (*Right oblique-angled prism.*)

Note.—For fig., see *Phillips' Transl. Pharm.*, p. 333.

g. Wooden model of Chlorate of Potassium. (*Oblique rhombic prism.*)

Note.—For fig., see *Phillips' Transl. Pharm.*, p. 354.

h. Wooden model of Sulphate of Sodium. (*Oblique rhombic prism.*)

Note.—For fig., see *Phillips' Transl. Pharm.*, p. 365.

i. Wooden model of Borax. (*Oblique rhombic prism.*)

j. Wooden model of Sulphate of Iron. (*Oblique rhombic prism*).

Note.—For fig., see *Phillips' Transl. Pharm.*, p. 301.

k. Wooden model of Carbonate of Sodium. (*Oblique rhombic prisms.*) Two specimens.

Note.—For fig., see *Phillips' Transl. Pharm.*, p. 359, and *Watts' Dict. Chem.*, vol. i., p. 794.

l. Wooden model of Sugar. (*Oblique rhombic prism.*)

Note.—For fig., see *Watts' Dict. Chem.*, vol. v., p. 470, fig. 781.

665. VI. Doubly Oblique Prismatic System. (*Triclinic, or Anorthic system.*)

a. Glass model showing the following forms.
Yellow, doubly oblique octahedron.
Black lines on glass, doubly oblique prism.

b. Large crystals of Sulphate of Copper, presented by Mr. W. Copney.

c. Smaller ditto.

d. Crystals of Sulphocarbolate of Calcium.

Note.—Specimens *b*, *c*, and *d* are all oblique rhombic prisms. Specimen *d* consists of remarkably perfect crystals, made by Mr. T. H. Hustwick.

e. Wooden model of Sulphate of Copper.

Note.—For fig., see *Phillips' Transl. Pharm.*, p. 285.

COLLECTION OF MINERALS.

CARBON.

666. GRAPHITE. (*Plumbago, Blacklead.*)

a. Foliated. Two specimens.

Note.—Graphite often contains traces of silicum, aluminium, iron, magnesium, and calcium. See *Dana, Mineralogy*, 5th. ed., p. 24. Known from molybdena by its deflagrating on heated charcoal.

FLUORINE.

667. FLUOR SPAR. Ca F. (*Fluorite, Derbyshire Spar.*)

a. Amethyst variety, from Derbyshire. (*Blue John.*)

b. Green variety, from Cornwall. (*Chlorophane.*)

Note.—Used for the production of hydrofluoric acid. See *Dana, Mineralogy*, p. 124, for fig. of crystal, etc.

SULPHUR.

668. NATIVE SULPHUR.

a. Massive, from Dominica.

TELLURIUM.

669. FOLIATED TELLURIUM. (*Magyagite, Black Tellurium.*)

a. Three small specimens, from Transylvania.

Note.—This mineral has somewhat the appearance of some varieties of galena, but differs in being softer, so that it is easily cut by a knife into thin flexible laminæ; and it gives a greyish sublimate when heated in contact with air. This mineral consists chiefly of tellurium (15 to 30 per cent.) and lead, with small quantities of sulphur and lead and traces of silver and copper. See *Dana, Mineralogy*, p. 83.

BORON.

670. TINCAL. (*Native Borate of Soda.*)

a. In small crystals, from Thibet.

b. A very large crystal with rounded angles.

c. Massive, from Nevada.

671. BECHILITE. (*Hydrous Borate of Lime.*)

a. Massive, probably from Asia Minor.

Note.—This specimen is almost pure borate of calcium, and has the appearance of white marble.

672. HAYESCINE. (*Ulexite, Borocalcite, Hydro-borocalcite.*)

a. In rounded nodules, from Iquique in Peru.

Note.—This mineral consists almost entirely of the borates of calcium and sodium. The nodules, which are rather dirty externally, are formed of agglomerated snow-white, soft, acicular crystals. Yellowish prismatic crystals of glauberite (a double sulphate of sodium and calcium) are frequently found inside the nodules. See *Dana, Mineralogy*, p. 592.

SILICON.

673. QUARTZ. (*Rock Crystal.*)

a. Mass of large crystals.

b. Mass of smaller crystals.

c. Rose quartz, massive.

Note.—Specimens *b* and *c* were presented by Mr. H. Pound. They originally belonged to a collection made by Mr. J. K. Lord. For fig. of the crystals, see *Dana, Mineralogy*, p. 192.

PHOSPHORUS.

674. APATITE. (*Native Phosphate of Lime.*)

a. Massive. Two specimens. (*Phosphorite.*)

Note.—Used in making superphosphate manure, etc. See *Dana, Mineralogy*, p. 530.

SODIUM.

675. ALBITE. (*Soda Felspar.*)

a. Massive. Two specimens.

Note.—This mineral is a double silicate of aluminum and sodium, with traces of iron, magnesium, calcium, and Potassium.

676. NATROLITE. (*Zeolite.*)

a. In concretions of radiating acicular crystals.

Note.—This mineral consists chiefly of the silicates of aluminum and sodium, with traces of iron and calcium. See *Dana, Mineralogy*, p. 426.

LITHIUM.

677. LEPIDOLITE. (*Lithia Mica.*)

a. Grey variety. Three small specimens.

Note.—Lithia mica contains from one to five per cent. of lithia. For analysis, see *Dana, Mineralogy*, p. 315.

678. PETALITE.

a. Pink variety. Three small specimens.

Note.—This mineral contains from two to five per cent. of lithia. See *Dana, Mineralogy*, p. 229.

679. SPODUMENE.

a. Three small specimens.

Note.—Spodumene contains from 4 to 5 per cent. of lithia, sometimes rather more. See *Dana, Mineralogy*, p. 228.

SILVER.

680. NATIVE SILVER.

a. Crystallized, a small specimen.

681. ARGENTITE. (*Sulphuret of Silver, Silver Glance.*)

a. In small aggregated crystals.

Note.—This specimen consists of small tufts of crystal scattered over the surface of galena.

BARIUM.

682. WITHERITE. (*Carbonate of Baryta.*)

a. Translucent crystalline lumps.

Note.—Used in making plate glass and beetroot sugar. See *Dana, Mineralogy*, p. 697.

683. BARITE. (*Barytes, Heavy Spar, Cawk, Bolognan Spar.*)

a. A large tolerably perfect crystal.

b. A mass of translucent tabular crystals.

c. A mass of opaque tabular crystals.

d. Massive. (*Cawk.*)

e. Stalactitic, polished, containing sulphate of calcium from Matlock.

Note.—Specimen *a* is about four inches long and three inches broad, and two deep. Specimens *c* and *d* were presented by Mr. H. Pound. For a fig. of crystals, see *Dana, Mineralogy*, p. 616.

STRONTIUM.

684. STRONTIANITE. (*Strontian Spar, Carbonate of Strontian.*)

a. Crystallized. Two specimens.

Note.—Both Strontianite and Withenite frequently contain calcium carbonate. See *Dana, Mineralogy*, p. 699.

685. CELESTINE. (*Sulphate of Strontian.*)

a. Crystallized. Two small specimens.

Note.—These are very pure specimens from the Keuper marls at Bristol. See *Dana, Mineralogy*, p. 619.

CALCIUM.

686. CALCITE.

a. Rather large crystals, scarcely translucent.

b. Smaller crystals.

c. Tabular crystals, very white, presented by Mr. H. Pound.

Note.—Specimen *c* resembles in appearance the crystals of sulphate of barytes. *Dana, Mineralogy*, p. 670, fig. 553 *a*. Specimens *a* and *b* are more like those of rock crystal. *Dana, Mineralogy*, p. 672, fig. 569, from which they are easily distinguished by effervescing with acids.

d. Minute crystals, from oolite.

e. Massive, with a layer of gypsum on its surface.

Note.— For a fine rhombohedron of Iceland spar, see collection of crystalline forms in Case No. 9.

687. GYPSUM. (*Sulphate of Lime.*)

a. A large crystal, from Shotover Hill, Oxfordshire.

Note.—For other specimens see the case, No. 9, containing crystalline forms. For a fig. of crystal, see *Dana, Mineralogy*, p. 637, fig. 535.

b. Satin Spar.

c. Fibrous Gypsum.

d. Alabaster. (*Plaster Stone.*)

Note.—The name Satin Spar is also applied to fibrous carbonate of lime, which has a pearly lustre like that of specimen *b*. It may easily be distinguished from gypsum by effervescence with acids. See *Dana, Mineralogy*, p. 638.

ALUMINUM.

688. BAUXITE. (*Beauxite.*)

a. Massive, of a reddish tint. Two specimens.

Note.—This mineral consists of the hydrates of aluminum and iron. See *Dana, Mineralogy*, p. 176.

689. CRYOLITE.

a. In translucent masses, from Greenland.

Note.—Cryolite is a double fluoride of sodium and aluminum. Both these minerals and Bauxite, are used as sources of aluminum. See *Dana, Mineralogy*, p. 126.

690. WAVELLITE. (*Devonite, Subphosphate of Alumina.*)

a. In greenish globular concretions, having a radiated structure, from Barnstaple.

Note.—For description, etc., see *Dana, Mineralogy*, p. 576.

691. GIBBSITE. (*Hydrate of Alumina.*)

a. Massive.

Note.—See *Dana, Mineralogy*, p. 177.

692. ALUM SHALE.

a. From Whitby.

b. Fossils from the lower strata.

c. Fossils from the middle strata.

d. Fossils from the upper strata.

GLUCINUM, OR BERYLLIUM.

693. BERYL.

a. Four specimens of a pale green hue.

Note.—Beryl is a silicate of aluminum and glucinum with traces of iron, to which the greenish colour of some specimens is due.

CERIUM.

694. CERITE.

a. Massive, tinged here and there of a peach colour.

Note.—This mineral is a silicate of cerium, lanthanium, and didymium, and small quantities of those of iron and calcium. See *Dana, Mineralogy*, p. 413.

MAGNESIUM.

695. DOLOMITE. (*Magnesian Limestone.*)

a. Massive specimens, from Sunderland.

Note.—These specimens were presented by Mr. Smith. Several of them present an appearance like the vertebra of some animal. Dolomite is a carbonate of calcium and magnesium, and is used in preparing magnesia and magnesium salts. See *Dana, Mineralogy*, p. 682.

696. MAGNESITE. (*Native Carbonate of Magnesia.*)

a. Earthy, pure white.

† *b.* A fine specimen, presented by Messrs. Huskisson and Sons.

Note.—These specimens consist of almost pure carbonate of magnesium. See *Dana, Mineralogy*, p. 686.

697. BRUCITE. (*Hydrate of Magnesia, Native Magnesia.*)

a. Foliated.

Note.—This mineral usually contains traces of iron.

698. DIALLAGE.

a. Foliated, of a pale green tint.

Note.—Diallage is composed of the silicates of magnesium, calcium, and iron. See *Dana, Mineralogy*, p. 215.

699. MICA. (*Biotite, Hexagonal Mica, Uniaxial Mica.*)

a. In shining laminæ.

Note.—Biotite is chiefly a silicate of magnesium and aluminum, owing its brownish tint to a portion of the aluminum being replaced by iron.

700. ASBESTOS.

a. Massive, probably from Cornwall. (*Amphibole.*)

b. Fibrous, white. (*Amianthus.*)

Note.—Asbestos is a silicate of magnesium with varying proportions of other elements.

701. TALC. (*Soapstone, Steatite, Potstone.*)

a. Massive. (*French Chalk.*)

Note.—This mineral is a bisilicate of magnesium with traces of iron and aluminum.

702. MEERSCHAUM. (*Sepiolite.*)

a. Compact.

Note.—Meerschaum is an hydrated silicate of magnesium with traces of aluminum.

ZINC.

703. CALAMINE. (*Carbonate of Zinc, Smithsonite, Dry Bone.*)

a. Massive, from Cumberland.

b. Prepared, six specimens. (*Prepared Calamine.*)

Note.—This mineral consists chiefly of the carbonate of zinc and iron with traces of manganese and occasionally other elements. See *Dana, Mineralogy*, p. 692.

704. Electric Calamine. (*Silicate of Zinc.*)

a. Massive.

Note.—Electric calamine consists almost entirely of silicate of zinc. See *Dana, Mineralogy*, p. 408.

705. Blende. (*Sphalerite, Black Jack, Sulphuret of Zinc.*)

a. Crystalline, containing iron. (*Marmatite.*)

b. Ditto. (*Phosphorescent Blende.*)

Note.—The black colour of this mineral is due to sulphuret of iron. See *Dana, Mineralogy*, p. 48.

CADMIUM.

706. Cadmium Blende. (*Greenockite, Sulphuret of Cadmium.*)

a. Crystallized.

Note.—For fig. of crystals, see *Dana, Mineralogy*, p. 59.

COPPER.

707. Native Copper.

a. Massive, from South Australia.

708. Azurite. (*Blue Carbonate of Copper, Blue Malachite, Azure Copper Ore, Chessy Copper, Chessylite.*)

Note.—This mineral is distinguished from the phosphate of copper (*Azurite* of Jamieson) by having a blue streak, that of the phosphate being white. See *Dana, Mineralogy*, p. 572.

709. Malachite. (*Green Carbonate of Copper, Green Malachite.*)

a. Massive, cut and polished.

Note.—For varieties, see *Dana, Mineralogy*, p. 713.

710. Cuprite. (*Ruby Copper Ore, Octahedral Copper Ore.*)

a. Crystallized.

Note.—This mineral consists almost entirely of cuprous oxide; traces of selenium sometimes occur in it. *Dana, Mineralogy*, p. 133.

711. Bornite. (*Purple Copper Ore, Variegated Copper Ore, Peacock Copper Ore.*)

a. Massive.

Note.—This mineral is usually variegated with purple and copper-red and yellow. It contains sulphide of copper, with some sulphide of iron. See *Dana, Mineralogy*, p. 44.

712. Towanite. (*Chalcopyrite, Yellow Copper Ore, Copper Pyrites.*)

a. Massive.

Note.—Towanite contains less copper than Bornite and has a less specific gravity. It is also a mixture of the sulphides of copper and iron. See *Dana, Mineralogy*, p. 65.

713. Chalcocite. (*Copper Glance, Vitreous Copper, Redruthite, Sulphide of Copper.*)

a. Crystallized, from Cornwall.

Note.—This mineral contains sulphide of copper and a trace of iron. See *Dana, Mineralogy*, p. 5. It differs from tetrahedrite, or gray copper, in not giving a red sublimate when heated. See, l.c., p. 103.

714. Specimens illustrating the stages in the process of smelting ore.

a. Five specimens of roasted ore.

b. Pure metal in small nodules.

MERCURY.

715. Cinnabar. (*Sulphuret of Mercury.*)

a. Massive.

THALLIUM.

716. Thalliferous Iron Pyrites.

a. Massive.

Note.—This mineral is a sulphide of iron containing thallium and other metals. See *Dana, Mineralogy*, p. 63.

GOLD.

717. Native.

a. On quartz.

TIN.

718. Cassiterite. (*Tin Stone, Native Oxide of Tin.*)

a. Crystallized.

b. Massive, water worn. (*Stream Tin.*)

c. Pseudomorphic, after felspar.

Note.—Specimen *c* consist of three not quite perfect crystals. It probably came from Wheal Coates, near St. Agnes, Cornwall. See *Dana, Mineralogy*, p. 158.

719. Stannite. (*Tin Pyrites, Bell Metal Ore. Sulphuret of Tin.*)

a. Massive.

Note.—This mineral usually consists of the sulphides of tin, copper, iron, and zinc. See *Dana, Mineralogy*, p. 68.

TITANIUM.

720. Rutile. (*Red Schorl, Titanite, Native Oxide of Titanium.*)

a. Crystalline, of a reddish brown colour.

Note.—Rutile consists almost entirely of titanic acid, with traces of iron only. See *Dana, Mineralogy*, p. 160.

721. Nitride of Titanium.

a. Crystallized, of a copper-red colour.

Note.—This is a fine specimen of the crystals, deposited on a piece of the slag from an iron furnace.

LEAD.

722. MIMETITE. (*Arsenate of Lead.*)
- *a.* Crystallized, on psilomelane.
- *b.* Ditto, containing phosphoric acid (*Campylite, Phospho-arsenate of Lead*).

Note.—Specimen *b* was probably obtained from Cumberland. See *Dana, Mineralogy*, p. 537.

723. CERUSSITE. (*White Lead Ore, Carbonate of Lead.*)
- *a.* In slender white prismatic crystals.

724. CROCOITE. (*Chromate of Lead*).
- *a.* Forming a crystalline film on native arsenic.

Note.—For description and form of crystals, see *Dana, Mineralogy*, p. 629.

725. PYROMORPHITE. (*Phosphate of Lead, Green Lead Ore.*)
- *a.* Crystallized. Two specimens.

Note.—This mineral consists chiefly of phosphate, with some chloride of lead. See *Dana, Mineralogy*, p. 536.

726. GALENITE. (*Galena, Sulphide of Lead.*)
- *a.* Massive, in cubical pieces.
- *b.* Massive, surmounted with octahedra.
- *c.* In cubes, on fluorspar, from Himmelfarth mine, Freiberg.
- *d.* A specimen from Laxey, Isle of Man.

Note.—Specimen *e* was presented by Mr. E. L. Crow. It contains also copper and blende.

The following note is appended to the specimen: "This mine (Laxey) yields per month, from a depth of 215 fathoms, 120 tons of lead (each ton containing from fifty to sixty ounces of silver), thirty tons of copper, and from three to four hundred tons of blende."

For fig. of the crystals of galena, see *Dana, Mineralogy*, p. 40.

IRON.

727. PHARMACOSIDERITE. (*Arsenicated Iron Ore.*)
- *a.* Crystalline.

728. SIDERITE. (*Carbonate of Iron.*)
- *a.* Crystallized. (*Spathose Iron, Brown Spar.*)
- *b.* Massive, compact. (*Clay Iron Stone.*)
- *c.* Ditto, roasted.

729. MAGNETITE. (*Magnetic Iron Ore, Octahedral Iron Ore.*)
- *a.* Massive.
- *b.* In distinct octahedra. Eight crystals.

Note.—See *Dana, Mineralogy*, p. 149.

730. Hæmatite. (*Red Iron Ore, Red Oxide of Iron.*)

a. Crystallized, having a metallic lustre. Four specimens. (*Specular Iron Ore.*)

b. In concretions, having a radiated structure. (*Compact Columnar Hæmatite.*)

Ditto, from Pentuan.

d. Ditto, stratified with red ochre on the surface.

Note.—Hæmatite consists of anhydrous ferric oxide. See *Dana, Mineralogy*, p. 140. Specimen *a* contains 68·77 of metallic iron. It is mixed with crystals of smoky quartz.

731. Göthite. (*Brown Hæmatite, Brown Iron Stone.*)

a. In acicular crystals on quartz. (*Needle Iron Stone.*)

Note.—See *Dana, Mineralogy*, p. 169.

732. Limonite. (*Brown Hæmatite, Brown Ochre.*)

a. Massive, with a fibrous structure.

b. Stalactitic.

c. Mammillary.

Note.—Limonite consists chiefly of hydrated ferric oxide. See *Dana, Mineralogy*, p. 172.

733. Marcasite. (*Radiated Pyrites, Prismatic Iron Pyrites, Cocks-comb, Spear, and Cellular Pyrites.*)

a. A globular specimen.

Note.—This mineral is very liable to decomposition in damp air. It is a sulphide of iron. See *Dana, Mineralogy*, p. 175.

734. Pyrite. (*Iron Pyrites, Mundic, Bisulphuret of Iron.*)

a. A distinct cubical crystal.

b. Crystallized.

Note.—Some very perfect crystals of this mineral will be found among the specimens illustrating crystalline form in Case No. 9. For fig. of the crystals, see *Dana, Mineralogy*, p. 63.

735. Cast Iron.

a. Containing titanium.

Note.—This specimen was made from the black sand of South Australia. It was presented by Mr. Percy Wells.

NICKEL.

736. Kupfernickel. (*Niccolite, Arsenical Nickel.*)

a. Crystalline.

Note.—This mineral contains arsenate of nickel, with traces of iron and sulphur. See *Dana, Mineralogy*, p. 60.

737. Metallic Nickel.

a. Crude.

b. Refined. Four specimens.

Note.—One of the specimens of *b* has been hammered, to show the malleability of the metal.

COBALT.

738. SMALTITE. (*Grey Cobalt Ore, Tin White Cobalt.*)

a. Crystalline.

Note.—This mineral is a mixture of the arsenates of cobalt, iron, and nickel, with traces of copper. See *Dana, Mineralogy*, p. 70.

MANGANESE.

739. PYROLUSITE. (*Prismatic Manganese Ore, Gray Oxide of Manganese.*)

a. In small masses, having a radiate structure and metallic lustre. (*Polianite.*)

b. Ditto, impure. (*Varvicite.*)

Note.—See *Dana, Mineralogy*, pp. 166–171.

740. MANGANITE. (*Hydrated Oxide of Manganese.*)

a. Massive.

Note.—Manganite gives a brown or brownish-black streak, pyrolusite an almost pure black or a bluish-black streak. See *Dana, Mineralogy*, p. 170.

741. PSILOMELANE. (*Black Haematite, Black Iron Ore, Compact Black Manganese Ore.*)

a. Massive.

Note.—This mineral also gives a brownish-black streak, but is much harder than manganite. It usually contains manganese and barium oxides, with occasional traces of other metals. See *Dana, Mineralogy*, p. 180.

742. RHODONITE. (*Bisilicate of Manganese, Red Manganese.*)

a. Massive.

Note.—For description, etc., see *Dana, Mineralogy*, p. 225.

ANTIMONY.

743. ANTIMONITE. (*Stibnite, Antimony Glance, Sulphuret of Antimony.*)

a. A large specimen.

b. A smaller specimen, from Borneo.

c. Separated from the quartz by fusion.

d. French regulus of antimony.

Note.—Specimen *d* is an original, almost hemispherical cake, and has a crystallized surface. For fig. of crystal of antimonite and description, see *Dana, Mineralogy*, p. 29.

ARSENIC.

744. REALGAR. (*Red Sulphuret of Arsenic, Sandaraca*, Germ.)

a. Crystallized.

Note.—This specimen is slightly altered, to orpiment and arsenious acid, by exposure. See *Dana, Mineralogy*, p. 27.

BISMUTH.

745. METALLIC.

a. Crystallized and iridescent. Two small pieces.

VANADIUM.

746. VANADATE OF LEAD.

a. Forming a crust on Galena.

Note—For description, etc., see *Dana, Mineralogy*, p. 611. This specimen originally belonged to the late Professor Phillips.

COLUMBIUM, OR NIOBIUM.

747. COLUMBITE. (*Columbate of Iron, Niobite.*)

a. In crystalline fragments.

Note.—This mineral consists of the columbate and tantalate of iron and manganese, the columbic acid being usually twice as much atomically as the tantalic. It often contains also traces of tin, copper, calcium, and tungsten. See *Dana, Mineralogy*, p. 517.

CHROMIUM.

748. CHROMITE. (*Chrome Iron Ore.*)

a. Massive.

b. Ditto, from America.

Note.—This mineral usually occurs in serpentine. See *Dana, Mineralogy*, p. 154.

URANIUM.

749. URANITE. (*Torbernite, Phosphate of Uranium and Copper, Uran-mica, Uranglimmer.*)

a. Crystallized, from Cornwall.

b. Ditto, presented by Mr. H. Pound.

Note.—Uran-mica contains about 60 p. c. of uranium. For description, etc., see *Dana, Mineralogy*, p. 585.

750. URANINITE. (*Pitchblende, Protoxide of Uranium, Uratemnite, Uncleavable Uranium Ore.*)

a. Massive.

Note.—This mineral contains from 60 to 85 p. c. of uranium oxides, with traces of iron, calcium, magnesium, and silicon.

TUNGSTEN.

751. WOLFRAMITE. (*Wolfram, Tungstate of Iron and Manganese.*)

a. Crystallized.

Note.—See *Dana, Mineralogy*, pp. 601-603.

ANIMAL MATERIA MEDICA.

SUB-KINGDOM, PROTOZOA.

CLASS, RHIZOPODA.

ORDER, SPONGIDA.

SPONGIADÆ.

752. SPONGIA OFFICINALIS, *L.*

a. Horny or keratose skeleton. (*Turkey Sponge.*)

753. SPONGIA OFFICINALIS, *var.*

b. Horny skeleton. (*Honeycomb Sponge.*)

Note.—Both these specimens may be found on one piece of rock under a glass shade, in the north window, near the Hanbury Collection of Materia Medica. Specimen b. is one of the varieties of S. officinalis. See P. J. (3), vol. viii., pp. 106, 121.

c. Burnt sponge. (*Spongia Usta.*)

Note.—See *Per. Mat. Med.*, vol. ii., pt. ii., pp. 719–722.

SUB-KINGDOM, CŒLENTERATA.

CLASS, ACTINOZOA.

ORDER, ALCYONARIA.

GORGONIIDÆ.

754. GORGONIA FLABELLUM, *L.* (*Sea Fan.*)

a. Sclerobasis or horny axis.

755. GORGONIA PRETIOSA, *Ellis.* CORALLIUM RUBRUM, *Lam.* (*Red Coral.*)

a. Sclerobasis or stony axis.

b. Prepared coral.

Note.—For Analysis, etc., see *Per. Mat. Med.*, vol. ii., pt. ii., p. 723.

SUB-KINGDOM, ANNULOSA.

CLASS, ANNELIDA.

ORDER, HIRUDINEA.

HIRUDINIDÆ.

756. SANGUISUGA OFFICINALIS, *Sav.* (*Speckled Leech.*)

a. Preserved wet.

b. Model in wax of the alimentary canal.

c. A leech cut open, showing the multilocular stomach and sucking apparatus.

Hirudinidæ.

d. Showing the reproductive organs.

e. Ditto.

f. A leech cut open, showing the nervous system and internal transverse muscles.

g. Ditto, showing the lateral vessels and mucous glands.

h. Ditto, showing the three layers of muscles.

i. Two cocoons, the upper one showing the internal surface.

j. Cocoons and small leeches.

Note.—For fig. of dissections, see *Per. Mat. Med.*, vol. ii., pt. ii., pp. 729 to 731.

757. SANGUISUGA MEDICINALIS, *Sav.* (*Green Leech.*)

a. From Barbary.

b. From Spain.

CLASS, CRUSTACEA.

ORDER, DECAPODA.

ASTACIDÆ.

758. ASTACUS FLUVIATILIS, *Fab.* (*Crayfish.*)

a. Preserved wet.

b. "Crab's eyes" or "crab's stones."

Note.—Specimen *b* consists of the calcareous concretions found inside the animal when about to cast its shell, of which concretions two are then found in each animal, but disappear when the new shell is formed.

c. Prepared, in small annulated conical masses.

Note.—Specimen *c* was presented by Messrs. Allen & Co., Plough Court.

CANCRIDÆ.

759. CANCER PAGURUS, *L.* (*Common Crab.*)

a. Prepared crab's claws.

Note.—Presented by Messrs. Allen & Co.

CLASS, MYRIAPODA.

ORDER, ISOPODA.

ONISCIDÆ.

760. ONISCUS ASELLUS, *L.* (*Woodlouse.*)

a. Dried. (*Millepedes.*)

Note.—Formerly official in the London and Edinburgh Pharmacopœia, and used in jaundice, asthma, and scrofulous disorders as a resolvent, aperient, and diuretic. See *Lewis, Mat. Med.* 1734, pp. 425, 426.

CLASS, INSECTA.

ORDER, HEMIPTERA.

APHIDÆ.

761. APHIS PISTACIÆ, *L.*

a. Horn-shaped galls, from Calcutta.

Note.—These galls are hollow and horn-shaped, about the size of the little finger, and contain exuviæ of insects, like the Chinese galls. In taste and appearance they resemble the galls from Pistacia terebinthus. In the Indian Pharmacopœia they are stated to be known in India under the name of *Kakra-singhi*, and to grow upon Rhus succedanea, *L.* See *Pharm. Ind.*, p. 59; *P. J.* [2], vol. vi., p. 462. For fig., see *Hist. des Drogues.* 7ème ed., vol. iii., p. 501. *Moquin-Tandon, Med. Zoology*, p. 156.

762. APHIS PISTACIÆ, *L.*

a. Horn-shaped gall.

Note.—These galls are much larger than the last one, being six inches long; they are also more compressed. They are attached to a twig of the tree on which they grow, Pistacia terebinthus, *L.*, and are labelled apparently in the writing of Daniel Hanbury, "Galls of Pistacia Terebinthus." For fig., see *Hist. des Drogues*, vol. iii., p. 500.

763. APHIS SPECIES. ?

a. Pear-shaped galls.

Note.—These are reddish hollow galls, collected in Morocco, probably from Pistacia Atlantica, *Desf.* In that country they are called *Elleg.* See *P. J.* [3], vol. iii., p. 625.

b. Bokhara galls.

Note.—These galls are scarcely distinguishable from the last. They are said to grow in Affghanistan and Cabul, upon Pistacia Khinjuk, *Stocks*, and are imported into India under the name of *Gul-i-pista.* See *Pharm. Ind.*, p. 59; and for fig. of galls, *P. J.* [1], vol. iii., p. 387.

The above specimen consists of a few galls from Dr. Royle, and some presented by Mons. Chantre, which were offered in the London market as *Gul-i-pista*, in 1876.

764. APHIS SPECIES.

a. Obovate compressed galls. (*Cadooca-poo.*)

Note.—These galls are flattened or slightly convex, hollow, and obovate in outline. They are found occasionally mixed with the fruits of Terminalia Chebula, *Retz*, and are probably derived from that tree. See *Ind. Pharm.*, p. 89. *Technologist*, vol. i., p. 187.

765. APHIS CHINENSIS, *Bell.* (*Cauliflower Gall, Woo-pei-tsze.*)

a. Chinese galls.

Note.—These large, irregularly pear-shaped, tuberculated galls have a downy surface, and when broken open are seen to be quite hollow, and to have very thin, resinous walls. They yield 52 per cent. of tannin, or about 50 per cent. of beautifully white gallic acid. See *P. J.* [2], vol. ii. p. 509; [1], vol. xii., p. 445. For fig., see *P. J.* [1], vol. iii., p. 386.

Aphidæ.

[1], vol. x., p. 127; and for fig. of insect, *P. J.* [1], vol. vii., pp. 310, 311. *Moquin-Tandon, Med. Zoology*, p. 155.

They are said to be produced on the branches of Rhus semialata, *Murr.* See *Repert. für Pharm.*, 3^tte^ Reihe, Bd. v., Heft. i., p. 26, 1850; also *Hanbury Science Papers*, p. 266.

b. Japanese galls.

Note.—These galls, which are imported from Japan, are rather smaller than the Chinese galls, and of a browner colour. They are probably produced on a species of Rhus in Japan. For fig., see *Technologist*, vol. i., p. 183; vol. ii., p. 234.

COCCIDÆ.

766. Coccus Cacti, *L.* (*Cochineal Insect.*)

a. Insects *in situ*, preserved wet.

b. Ditto, preserved dry.

Note.—For fig. of the plant on which the insect feeds, and for figs. of the insect, see *Per. Mat. Med.*, vol. ii., pt. ii., pp. 758, 759.

c. Male and female insects with their cocoons.

d. Cocoons.

e. Silver grain cochineal, from Mexico.

f. Good commercial specimen.

g. Granilla.

h. Ditto, sifted and garbled.

i Cochineal garblings.

j. Black grain cochineal, from Honduras.

k. Ditto, inferior quality.

l. Ditto, granilla.

Note.—The black grain cochineal differs in having been dried by artificial heat, by which the white secretion with which they are covered is destroyed. Granilla consists of the very small insects. A white appearance is sometimes given to dark cochineal by means of powdered sulphate of barium. Specimen *b* was presented in the living state by Dr. Dyce Duckworth.

767. Coccus Lacca, *Kerr.*

a. Stick lac, with a portion of the leaves and stem of the plant on which it was found.

Note.—This specimen was slightly damaged during the sea voyage.

b. Light-coloured stick lac.

c. Stick lac, from Patna.

d. Ditto, from Siam.

e. Ditto, from Singapore.

f. Ruby Button lac.

g. Liver-coloured Button lac, from Bombay.

h. Orange-coloured Button lac, 1st quality.

Note.—The different qualities of Button lac are known in commerce as "bloods."

i. Garnet lac.

Coccidæ.

j. Liver lac.

k. Liver lac.

Note.—Specimen *k* is intermediate in character between liver and orange lac.

l. Orange lac, 1st quality.

m. Block orange lac.

Note.—Specimen *m* consists of the flakes agglomerated together.

n. Lac dye, in square cakes.

o. Lac lake.

768. Coccus Pe-la, *Westw.* Coccus Sinensis, *Westw.*

a. Insect wax, *in situ*, from near Ningpo, China.

Note.—This specimen of Chinese insect wax was presented by the late Daniel Hanbury. For fig. see *Science Papers*, Hanbury, p. 272; for description, *P. J.* [1], vol., xii. pp. 478–484.

Note.—This specimen is probably the one obtained by Dr. M'Cartee, of Ningpo, mentioned in *Science Papers*, p. 71. See also Catalogue of the Hanbury Herbarium.

ORDER, HYMENOPTERA.

CYNIPIDÆ.

769. Cynips tinctoria, *L.*; Cynips scriptorum, *Kirtz.* (*Levant Galls.*)

a. Aleppo galls. (*Blue or Green Galls.*)

b. Ditto. (*White Galls.*)

c. Roasted.

d. Ditto, in powder.

Note.—Specimen *b* consists of galls from which the insect has escaped and which contain less tannin than those which are gathered before the escape of the *cynips*.

e. Aleppo galls. ("*Minutes.*")

f. Ditto. (*Small Crowned Aleppo Galls.*)

Note.—Specimen *e* is probably the coriander gall mentioned by Pereira; see *Per. Mat. Med.*, vol. ii., part 1, p. 369. Specimen *f* differs very much in appearance from ordinary Aleppo galls, having a variegated or marbled appearance, and being crowned at the top with a circle of triangular tubercles which give the gall the aspect of a myrtaceous fruit. Internally it presents a transversely oval cavity containing the grub. It was presented by Prof. Guibourt. Both specimens *e* and *f* probably produced by a different species of cynips from that which yields the ordinary Aleppo gall. For fig. of specimen *f*, see *Hist. des Drogues*, 7ème ed., vol. ii., p. 292, fig. 431.

770. Cynips Kollari, *Hartig*; Cynips petioli, *L.*

a. English galls. (*Marble Galls, Devonshire Galls.*)

b. French galls.

c. German galls.

Cynipidæ.

d. Istria galls.

Note.—Specimens *a*, *b*, and *c* are very similar in size and character; but specimen *d* consists of smaller galls, which are somewhat pear-shaped, being contracted into a short stalk at the base. They are most likely produced by a distinct species of cynips. For fig. of the French galls, see *Hist. des Drogues*, 7ème ed., vol. ii., p. 295, figs. 438, 439; and *P. J.* [2], vol. i., p. 473. English galls grow upon Quercus pedunculata and Q. sessiflora, *Willd;* and the French galls upon Q. pedunculata in the north, and Quercus Ilex, *L.*, in the south of France. For fig., see *Entomologist*, vol. vii., p. 241. For description of insect, see *Entomologist*, vol. iv., p. 17, and vol. ix., p. 53. English galls have been found to contain, if gathered in August, 17 per cent. of tannin, or about three times as much as oak bark. See *P. J.* [2], vol. vii., p. 228; vol. iv. p. 520.

771 Cynips insana, *Westw.*

a. Large purplish galls. (*Bussorah Galls, Mecca Galls, Apples of Sodom, Mala insana.*)

Note.—These galls are more than an inch in diameter, soft and spongy in the interior, and have a varnished appearance externally. The leaf of the tree and a portion of the twig is attached to one of the galls, and appears to belong to Quercus cerris, *L.* These galls have been stated by some writers to be the apples of Sodom, mentioned by Josephus and others. A gall somewhat similar in appearance is produced in Europe on Quercus pyrenaica, *Willd*, by Cynips umbraculus, *Oliv.* See *Westwood's Insects*, vol. ii., p. 130. For fig. of the Bussorah gall, see *Per. Mat. Med.*, vol. ii., pt. 1, p. 347; *P. J.* [1], vol. viii., p. 423.

772. Cynips polycera, *Gir.*

a. Knoppern galls.

Note.—These galls have a very singular appearance and structure. They are broadly obconical in shape, and the broad base of the cone (*i.e.* the end farthest from the stem on which it grows) forms a slightly convex disk surrounded with a spreading toothed ridge, and having a small raised point in the centre. When broken open they are found to contain a hard spherical inner gall, which is coarsely striated. For fig. of the gall, see *Entomologist*, vol. viii., p. 97. These galls grow in the axils of the leaves of shrubby specimens of Q. pubescens, *Willd.*; rarely on Q. sessiliflora, *Sm.*, and Q. pedunculata, *Willd.*

773. Cynips glutinosa, *Gir.*

a. Hungary galls. (*Piedmont Galls.*)

Note.—These galls have a slight resemblance to the last, but are much more irregular in shape, and the inner gall is thin and fragile, and does not fill the cavity of the outer one. For fig., see *Entomologist*, vol. viii., p. 73. This gall occurs, slightly differing in form, on Q. sessiliflora, *Sm.;* Q. pedunculata, *Willd;* and Q. pubescens, *Willd.* It grows upon the acorn cup, see *Hist. des Drogues*, 7ème ed., vol. ii., p. 292, fig. 482.

774. Andricus terminalis, *Fab.*; Cynips terminalis, *Fab.*

a. Gall on the buds of the oak tree. (*Oak Apple.*)

Note.—For fig., etc., see *Entomologist*, vol. ix., p. 28.

Cynipidæ.

775. APHILOTHRIX GEMMÆ, *L.*; CYNIPS FECUNDATRIX, *Hart.*

a. Strobile-shaped gall. (*Artichoke Gall.*)

Note.—This gall consists of a small egg-shaped hard inner gall at the top of the stem, which is surrounded by an ovate mass of hairy scales, giving the whole an appearance like a leafy artichoke. These galls occasionally take the place of buds in our native species, and in Q. pubescens, *Willd.* For fig., etc., see *Entomologist*, vol. viii., p. 146, and vol. iv., p. 76; *Hist. des Drogues*, 7ème ed., vol. ii., p. 295, figs. 436, 437.

776. SPATHEGASTER BACCARUM *L.*; CYNIPS PEDUNCULI, *L.*; SPATHEGASTOR INTERRUPTOR, *Hart.*

a. Small galls on the catkins of the oak.

Note.—These small galls are sometimes called currant galls, on account of their size and usually reddish colour. These galls occur also on the leaves of the British oaks, and on Q. pubescens. See *Entomologist*, vol. x., p. 206.

777. DRYOPHANTA SCUTELLARIS, *Oliv.*; CYNIPS FOLII, *Hart.*

a. Galls on oak leaves. (*Cherry Galls.*)

Note.—This is a red and succulent gall about the size of an ordinary marble. For fig., etc, see *Entomologist*, vol. ix., p. 121.

778. NEUROTERUS LENTICULARIS, *Oliv.*; N. MALPIGHII, *Hart*; CYNIPS LONGIPENNIS, *Fab.*

Note.—For fig., etc, see *Entomologist*, vol. x., pp. 86 and 121.

a. Small flat galls. (*Oak Spangles.*)

779. NEUROTERUS NUMISMATIS, *Oliv*: NEUROTERUS REAUMURII, *Hart.*

a. Small seed-like galls. (*Button Galls.*)

Note.—These last two kinds of galls are usually found on the under side of the leaf. The button galls are eaten by pheasants. See *Entomologist*, vol. iv., p. 28; vol. x., p. 67.

780. RHODITES ROSÆ, *L.*

a. Gall on the wild rose. (*Bedeguar, Sweet Briar Gall.*)

Note.—This specimen belonged to Dr. Pereira.

781. CYNIPS SPECIES. ?

a. Tamarisk galls from N.W. coast of Africa.

Note.—This specimen is mixed with twigs of Tamarix articulata. Presented by Mr. Isaac Pariente. The same galls are known under the name of *Tacout* in Morocco. See *P. J.* [3], vol. ii., p. 625.

b. Tamarisk galls, from India.

Note.—These galls were presented by Mr. A. P. Balkwill, of Plymouth, and were stated by him to contain 30 per cent. of tannin. They are probably the produce of T. Gallica, *L.*, and T. orientalis, *Vahl.* See *Ind. Pharm.*, p. 29. These galls are about the size of peas, and are friable and full of small holes internally. See also *P. J.* [2], vol. vi., p. 462; *Technologist*, vol. ii., p. 234.

Cynipidæ.

782. CYNIPS SPECIES.

a. Pear-shaped galls, from the wattle tree.

Note.—These galls are very similar in size and shape to the Bokhara galls, but are extremely hard and solid, having internally one or two small holes containing grubs. They are deeply wrinkled externally. They are probably gathered from various species of acacia, in Australia.

APIDÆ.

783. APIS MELLIFICA, *L.* (*Bee.*)

a. Honey, English.

b. Ditto, Narbonne.

c. Wax, English. (*Yellow Beeswax.*)

d. Ditto, bleached. (*White Wax.*)

784. TRIGONA SPECIES.

a. Liquid honey.

Note.—This specimen was exhibited at the International Exhibition of 1851, in the British Guiana department, by Mr. J. F. Bee. See *P. J.* [1], vol. xi., p. 161.

The wild bee producing this honey is stingless, and deposits its honey in "small separate pouches, from which it may be removed once every month by making a puncture in the bottom of the pouch, from which it readily flows," the insect afterwards speedily closing the opening. Specimens of these nests may be seen in the British Museum. The above specimen was collected on Woodlands plantation, River Mahaica, British Guiana.

VESPIDÆ.

785. CHARTERGUS SPECIES.

a. Nest. (*Marabunta's Nest.*)

Note.—This specimen consists of a pendulous wasp's nest, with a portion of the branch to which it is attached. It is of a conical shape, of the colour of grey filtering paper, which externally it much resembles in texture, and is marked with inky stains. It probably came from British Guiana.

ORDER, COLEOPTERA.

MYLABRIDÆ.

786. Glass box with cover, containing mounted specimens of the following species :—

a. Mylabris Cichorii, *Fabr.*, China, *P. J.* [3], vol. ii., p. 101, fig. 1.

b. „ phalerata, *Pall.*, China, *P. J.* [3], vol. ii, p. 141, fig. 2.

c. „ balteata, *Pall.*, India, *P. J.* [3], vol. ii., p. 141, fig. 3.

d. „ pustulata, *Thunb.*, India, *P. J.* [3], vol. ii., p. 141, fig. 4.

e. „ maculata, *Oliv.*, India, *P. J.* [3], vol. ii., p. 181.

Mylabridæ.

f. Mylabris melanura, *Pall.*, India, *P. J.* [3], vol. ii., p. 141.
g. „ oculata, *Oliv.*, India and the Cape of Good Hope, *P. J.* [3], vol. ii., p. 141.
h. „ orientalis, *Mars.*, India, *P. J.* [3], vol. ii., p. 142.
i. „ variabilis, *Pall.*, Europe, *P. J.* [3], vol. ii., p. 181.
j. „ Lavateræ, *Fabr.*, Cape of Good Hope, *P. J.* [3], vol. ii., p. 261.
k. Cerocoma Schæfferi, *Fabr.*, South of Europe, *P. J.* [3], vol. ii., p. 261.

787. MYLABRIS CICHORII, *Fabr.* (*Chicory Mylabris, Tellini Fly.*)
a. Chinese cantharides.

Note.—These insects, mixed with the next species, frequently appear in the London market under the name of Chinese Cantharides. This species is smaller than M. phalerata, and the bands on the elytra are of a brighter yellow colour; the shape of the bands is also somewhat different, the yellow band near the top of the elytra extending nearly to the thoracic section. For fig., see *P. J.* [3], vol. i., p. 101, fig. 1. It is stated to contain one-third more cantharidine than the Lytta vesicatoria.

788. M. PHALERATA, *Pall.* (*Sida Fly.*)
a. Chinese cantharides.

Note.—This species forms the larger proportion of Chinese cantharides. For fig., see *P. J.* [3], vol. ii., p. 141, fig. 2.

CANTHARIDÆ.

789. Box with glass cover, containing mounted specimens of the following species:—
a. Lydus Algiricus, *Mars.*, Italy and Africa, *P. J.* [3], vol. ii., p. 261, fig. 5.
b. „ trimaculatus, *Fabr.*, North of Europe, *P. J.* [3], vol. ii., p. 262, fig. 6.
c. Halosimus Syriacus, *L.*
d. Lytta vesicatoria, *Fabr.*, South of Europe, *P. J.* [3], vol. ii., p. 321.
e. „ dubia, *Oliv.*, South of Europe, *P. J.* [3], vol. ii. p. 322.
f. „ Syriaca, *Fabr.*, Syria, *P. J.* [3], vol. ii., p. 322.
g. „ segetum, *Fabr.*, Arabia, Sicily, Algeria, *P. J.* [3], vol. ii., p. 322.
h. „ tibialis, *Water.*, Assam, *P. J.* [3], vol. ii., p. 423.
i. „ Assamensis, *Water.*, Assam, *P. J.* [3], vol. ii., p. 423, fig. 8.

Note.—Lytta tibialis and L. Assamensis are probably forms of the same species; the first having the head less thickly punctured, and the meso-thoracic epimera clothed with white pubescence.

Cantharidæ.

j. Lytta Rouxii, *Cast.*, Bombay and the Deccan, *P. J.* [3], vol. ii., p. 424.

k. „ atrata, *Oliv.*, North America, *P. J.* [3], vol. ii., p. 503, fig. 9.

l. „ vittata, *Oliv.*, North America, *P. J.* [3], vol. ii., p. 562, fig. 12.

m. „ Pallasii, *Gebl.*, Siberia, *P. J.* [3], vol. ii., p. 321.

Note.—This species closely resembles Lytta vesicatoria, and is sometimes found mixed with Russian cantharides. It is distinguished by having the posterior tarsi toothed, those of cantharides being entire.

n. Lytta anthracina, *Erich*, Brazil, *P. J.* [3], vol. ii., p. 743.

o. „ adspersa, *Kleig*, Brazil and Uruguay, *P. J.* [3], vol. ii., p. 583; [3], vol. vii., p. 918.

790. Lytta vesicatoria, *Fabr.* (*Spanish Fly, Cantharides.*)

a. French.

b. Spanish, mounted specimens.

Note.—For fig., etc., see *Per. Mat. Med.*, vol. ii., p. 743, fig. 117. *P. J.* [3], vol. ii., p. 321. For substitutions, see *Hist. des Drogues*, vol. iv., p. 211.

791. L. Rouxii, *Castel.* (*Yellow Deccan Blister Fly.*)

a. From Hyderabad, Nizam. Presented by Dr. Christison.

b. Ditto, presented by Dr. Maclagan.

Note.—Specimen *b* is the one alluded to by Dr. M. C. Cooke as being labelled L. ruficollis, in *P. J.* [3], vol. ii., p. 424.

792. L. vittata, *Oliv.*

a. Potato Blister Fly.

Note.—This is not the celebrated insect the possible appearance of which in Britain is so much dreaded at the present time, and which has lately committed such ravages in North America. For fig., etc., see *P. J.* [3], vol. ii., p. 563.

MELOEIDÆ.

793. Meloe violaceus, *Leach.* (*Violet Oil Beetle.*)

a. Specimens mounted on card-board.

Note.—For fig. of this species, see *P. J.* [3], vol. ii., p. 822. It occurs in this country in meadows and pastures, where it feeds on the leaves of the anemone, violet, hound's tongue, and various species of ranunculus.

794. Box with glass cover, containing the following species:—

a. Meloe proscarabæus, *L.*, Europe, *P. J.* [3], vol. ii., p. 743, fig. 15.

b. „ *var.* tectus, *Panz.*, England, *Leach's Monograph*, tab. 7, figs. 8, 9.

Note.—This insect is the common "oil beetle."

c. Meloe violaceus, *Leach*, Europe, *P. J.* [3], vol. ii., p. 822, fig. 17.

Meloeidæ.

d. Meloe variegatus, *Don.*, Europe, *P. J.* [3], vol. ii., p. 822, fig. 18.

e. ,, majalis, *L.*, S. Europe, *P. J.* [3], vol. ii., p. 822, fig. 19.

f. ,, autumnalis, *Oliv.*, *P. J.* [3], vol. ii., p. 823, fig. 20.

g. ,, coriarius, *Hoffm.*, Germany and Hungary, *P. J.* [3], vol. ii., p. 283.

h. ,, brevicollis, *Panz.*, W. Europe, *P. J.* [3], vol. ii., p. 823.

i. ,, Tuccius, *Rossi*, S. Europe, *P. J.* [3], vol. ii., p. 823.

j. ,, cicatricosus, *Leach*, W. Europe, *P. J.* [3], vol. ii., p. 823.

k. ,, rugosus, *Marsh*, Europe, *P. J.* [3], vol. ii., p. 744, fig. 16.

Note.—For figures of Meloeidæ, see *Linn. Trans.*, vol. xi. The following species are included in the same box with the above, and illustrate the adulterations occasionally met with in commercial cantharides. None of the following possess vesicant properties.

CETONIADÆ.

l. Cetonia aurata, *L.* (*Rose Chafer.*) Britain.

CHRYSOMELIDÆ.

m. Chrysomela graminis, *L.*, Britain. *Donovan's British Insects*, pl. 365, fig. 1.

MELOLONTHIDÆ.

n. Diphucephala sericea, *Kirby.*

CERAMBYCIDÆ.

o. Aromia moschata, *L.*, Britain. *Curtis's Brit. Entom.*, pl. 738; *P. J.* [3], vol. ii., p. 967.

CHRYSOMELIDÆ.

p. Chrysomela graminis, *L.*

795. Chrysomela graminis, *L.*

a. Dried insects.

Note.—Chrysomela fastuosa *L.* has been detected in the cantharides of commerce to the extent of 15 per cent. See *P. J.* [2], vol. i., p. 32.

CURCULIONIDÆ.

796. Larinus maculatus, *Fald.*

a. Insect and cocoons.

Note.—This specimen was presented by the late Daniel Hanbury. The cocoons are formed upon a species of Echinops, or globe thistle, probably E. Persicus, *Fisch.*, in Persia. The cocoons consist of a large proportion of the starch of the plant, and contain, besides gum, a peculiar sugar called Tréhalose, and a bitter principle. See *Science Papers*, p. 162; and *S.*, for fig. of insect and cocoons, p. 161. See also *P. J.* [1], vol. xviii., p. 402. *Moquin-Tandon, Med. Zoology*, p. 157.

SUB-KINGDOM, MOLLUSCA.

CLASS, LAMELLI-BRANCHIATA.

ORDER, LUCINACEA.

AVICULIDÆ.

798. MARGARITIPHORA MARGARITIFERA, *L.*

a. Prepared pearls.

Note.—For other specimens, consult collection of old English drugs. See Lewis, *Mat. Med.*, p. 411.

CLASS, CEPHALOPODA.

ORDER, DIBRANCHIATA.

SEPIDÆ.

799. SEPIA OFFICINALIS, *L.*

a. A large cuttle-fish, preserved wet.

Note.—This specimen was caught off the Isle of Wight.

b. Cuttle-fish bone, very large specimen. Presented by Mr. A. H. Squire.

SUB-KINGDOM, VERTEBRATA.

CLASS, PISCES.

ORDER, TELEOSTEI.

SCIÆNIDÆ.

800. OTOLITHUS SPECIES.

a. Swimming-bladder, inflated and dried. (*Brazilian Pipe Isinglass.*)

b. Swimming-bladder, rolled into a thin ribbon. (*Brazilian Ribbon Isinglass.*)

Note.—For description of specimen *a*, see *Per. Mat. Med.*, vol. ii., pt. ii., p. 773.

POLYNEMIDÆ.

801. POLYNEMUS INDICUS, *Shaw.*

a. Penang short-tongue isinglass.

b. Bengal purse isinglass.

c. East Indian purse isinglass.

d. Picked East Indian isinglass. Presented by Dr. Royle.

Note.—Specimens *b*, *c*, and *d* originally belonged to Dr. Pereira's collection, and are those described in his *Materia Medica*, vol. ii., pt. ii., p. 774. For description of the fish, see *Günther, Cat. Fishes in Brit. Mus.*, vol. ii., p. 326. Penang short-tongue isinglass resembles East Indian purse in appearance, but is rather smaller. The air-bladder of this fish is furnished with numerous appendages (28–35) at its sides, by the scars of which it may be distinguished from the swimming-bladder of the next species. See *Day, Fishes of Malabar*, p. 62.

802. POLYNEMUS PLEBEJUS GM.

a. Penang long-tongue isinglass.

Polynemidæ.

b. Finest Bombay long-tongue isinglass.

c. Penang leaf.

d. East Indian rolled leaf isinglass.

Note.—Specimens *b* and *c* were presented by Mons. Chantre; specimen *d* belonged to Dr. Pereira's collection, and is the specimen described under that name in *Per. Mat. Med.*, vol. ii., pt. ii., p. 774. For description of the fish, see *Günther, Cat. Fishes in Brit. Mus.*, vol. ii., p. 326. Penang long-tongue isinglass is about fifteen inches long, two and a half wide in the middle, tapering slightly above and much more below; it is about $\frac{3}{10}$ of an inch thick.

GADIDÆ.

803. Gadus Morrhua, *L.* (*Cod.*)

a. Newfoundland cod-liver oil.

b. Ditto, expressed after six hours.

c. Ditto, expressed after twelve hours.

d. Ditto, boiled.

e. Lofoden cod-liver oil.

f. English ditto.

g. Light-brown ditto.

Note.—For composition, etc., see *P. J.* [1], vol. viii., p. 370; [1], vol. xii., pp. 36, 450. For preparation in Lofoden, *P. J.* [2], vol. ix., p. 312; and for various preparations, *P. J.* [1], vol. xvii., p. 36; [3], vol. iv., p. 581; [3], vol. v., p. 641. For description of fish, see *Günther, Cat. Fishes in Brit. Mus.*, vol. iv., p. 328.

804. Merluccius vulgaris, *Flem.*

a. Swimming-bladder rolled out into ribbon. (*New York Ribbon Isinglass.*) Two specimens.

Note.—For method of manufacture, see *Amer. Journ. Pharm.*, vol. xxix., p. 513, 1857. For description of fish, see *Günther, Cat. Fishes in Brit. Mus.*, vol. iv., p. 344. For solubility in water, see *P. J.* [3], vol. iv., p. 471.

SILURIDÆ.

805. Arius species. (*Yeta.*)

a. Penang oyster isinglass.

Note.—This isinglass is not described by Pereira. The specimens, which were presented in 1876 by Mons. Chantre, are about two inches long by 3 wide, and ¼ inch in thickness. They present the appearance on one side of having been torn from the vertebra. See *Ind. Pharm.*, p. 467.

b. Manilla thin cake isinglass.

Note.—This specimen is the one described in *Per. Mat. Med.*, vol. ii., pt. ii., p. 774. In shape and character it is very similar to specimen *a*, and is evidently obtained from some siluroid fish. The pieces are cordate in outline, about 3½ inches long by 4 broad, and about ¼ inch thick.

806. Silurus Glanis, *L.* (*Shad.*)

a. Swimming-bladder, dried and folded. (*Somovey Boo Isinglass.*)

Siluridæ.

b. Ditto, cut open. (*Somovey Leaf Isinglass.*)

Note.—For derivation of the term Somovey (pronounced Samovey), and description of short staple isinglass, see *Per. Mat. Med.*, vol. ii., pt. ii., pp. 771, 772, note 3; also *P. J.* [1], vol. v., p. 66. Somovey leaf occurs in flat pieces ten by twelve inches in diameter.

807. Silurus Parkerii, *Traill.* (*Geelbrick, Gilbricker, or Gilbager.*)

a. Young fish, preserved wet. Presented by Mr. J. S. Stutchbury.

b. Swimming-bladder, dried. (*Lump Brazilian Isinglass.*)

c. Ditto, inferior quality. Ditto.

d. Ditto, split open. (*Honeycomb Brazilian Isinglass.*)

e. Ovaries dried. (*Pará Isinglass.*)

f. Ditto, preserved in spirit.

Note.—Specimen *b* was presented by Messrs. Morison & Knox, and was obtained in British Guiana. Specimen *c* was presented by Mr. Sergeant. Specimen *d* is the one described by Pereira in his work on *Materia Medica*, vol. ii., pt. ii., p. 773. The ovaries were supposed by him to be those of Sudis gigas; but more recent information shows that they must be referred to Silurus Parkerii. See *P. J.* [1], vol. xiii., pp. 270, 271; vol. xiv., p. 395. Brazilian lump isinglass is easily known by its shape, which resembles that of a torpedo.

SCOMBRESOCIDÆ.

808. Belone megalostigma, *Cuv. & Val.*

a. Penang long-pipe isinglass.

Note.—This variety of isinglass consists of a swimming bladder more than two feet long, about two inches in diameter in the middle, cylindrical but tapering to both ends. For description of the fish, see *Günther, Cat. Fishes in Brit. Mus.*, vol. vi., p. 241.

CYPRINIDÆ.

809. Abramis Brama, *Flem.* (*Bream.*)

a. Swimming-bladder, inflated and dried.

Note.—Leshovy isinglass is said to be obtained from this fish. See *Per. Mat. Med.*, vol. ii., pt. ii., p. 772. For description of the fish, see *Günther, Cat. Fishes in Brit. Mus.*, vol. vii., p. 300.

810. Cyprinus Carpio, *L.* (*Carp.*)

a. Sizzany, or Sisane leaf isinglass.

Note.—This specimen is described in *Per. Mat. Med.*, vol. ii., pt. ii. p. 772.

b. Somovey short staple. (*Sizzany Skobky.*)

Note.—In small horseshoe-shaped pieces about one inch in diameter.

ORDER, GANOIDEI.

ACIPENSERIDÆ.

811. Acipenser Dauricus, *Georgi.*

Acipenseridæ.

a. Swimming-bladder, dried. (*Siberian Purse Isinglass.*)

Note.—This specimen is labelled as above, but does not occur in Dr. Pereira's catalogue, and the name is put among the doubtful species in *Günther, Cat. Fishes in Brit. Mus.*

812. A. Guldenstadtii, *Brandt & Ratzeburg.* (*Osseter.*)

* *a.* Swimming-bladder inflated and dried, from the Wolga.

b. Ditto, cut open and dried. (*Astrachan Leaf Isinglass.*)

Note.—This species has 29–32 lateral shields, which are coarsely radiated, and a short obtuse snout about one-third of the length of the head.

813. A. Huso, *L.* (*Great Sturgeon, Beluga, or Bielaga.*)

* *a.* Swimming-bladder inflated, from the Wolga.

† *b.* Ditto cut open, bleached and dried. (*Beluga Leaf Isinglass.*)

Note.—This species has 40–45 lateral shields, and the snout is without osseous scutes above. Beluga leaf consists of the bladder cut open; the pieces are 12 or 14 inches in diameter.

814. A. Stellatus, *Pallas.* (*Sewruga.*)

* *a.* Swimming-bladder, inflated and dried, from the Wolga.

b. Ditto, cut open and dried. (*Astrachan Leaf Isinglass.*)

Note.—Isinglass is also yielded by A. ruthenus, L. (Sterlet.) See *Per. Mat. Med.*, vol. ii., pt. ii., p. 770. A. stellatus has 30–35 lateral shields, and the snout is very long and narrow, forming nearly two-thirds of the head. Astrachan leaf isinglass occurs in pieces 9–12 inches long, and from 2–4 inches broad in the upper part, tapering to about 1 inch at the lower end. The three specimens marked with an asterisk are those mentioned by Pereira as being presented to him by Professor Ludewig of St. Petersburg, Oct. 22, 1847. See *Per. Mat. Med.*, vol. ii., pt. ii., pp. 770, 771.

815. A. Sturio, *L.* (*Common Sturgeon.*)

a. Small Thames sturgeon, stuffed.

Note.—This specimen is not quite 4 feet long. The common sturgeon is distinguished from the other species by having 26–31 lateral shields, and 11–13 dorsal shields, and by the pointed snout occupying about half the length of the head. See *Redwood, Supplement*, p. 151; *Moquin-Tandon, Med. Zool.*, p. 182; and *Günther, Cat. Fishes in Brit. Mus.*, vol. viii., p. 334, for distinctive characters of the various species.

816. Acipenser species.

a. Astrachan long-staple isinglass. Two specimens.

b. Patriarch, or finest short-staple isinglass.

* *c.* Astrachan cake isinglass. (*Lepeschki.*)

d. Astrachan fragments. (*Kroschki.*)

Note.—Specimen *d* is a dirty inferior isinglass, in irregular lozenge-shaped pieces about 1 inch in diameter, and a quarter of an inch in thickness.

* *e.* Siberian lump isinglass, from the Baikal.

Note.—This specimen consists of small cakes about 2 inches long and ½ inch thick.

Acipenseridæ.

f. Siberian fragments.

Note.—This specimen consists of small scraps made up into plano-convex pieces about 1 inch in diameter and ½ inch thick.

* *g.* Persian lump isinglass. (*Konki.*)

Note.—This isinglass appears to have been strung on sticks, being pierced at either end with a hole nearly ½ inch in diameter. The pieces are kidney-shaped, about 4 inches long by 2 broad and 1 inch thick.

h. Boiled isinglass.

Note.—This specimen consists of flattened sausage-shaped pieces 3 or 4 inches long, 1 inch broad, and about ½ inch thick.

i. Isinglass cuttings.

j. Hudson's Bay purse isinglass.

Note.—The specimens marked with an asterisk were presented by Professor Ludewig, of St. Petersburg. Specimen *j* has the appearance of belonging to some species of Acipenser. It is described in *Per. Mat. Med.*, vol. ii., pt. ii., p. 774.

817. Genera et species incerta.

a. Bead, or necklace isinglass.

Note.—In small somewhat translucent pieces about 1 inch long and ¼ inch in diameter, strung upon cord. See *Per. Mat. Med.*, vol. ii., pt. ii., p. 772.

b. Hudson's Bay giant purse isinglass.

Note.—For further information on the varieties of isinglass found in English commerce, see *Per. Mat. Med.*, vol. ii., pt. ii., pp. 769–778; *P. J.* [3], vol. i., p. 656.

ORDER, ELASMOBRANCHII.

PRISTIDÆ.

818. Pristis antiquorum, *Lath.*

a. Beak of the saw-fish.

Note.—For an account of this fish, see *Trans. Linn. Soc.*, 1794, vol. ii., p. 277, pl. 26, fig. 91. This specimen is about 4 feet long, and the teeth, 32 in number on each side, at the upper end are ¼ inch, becoming about the middle 1 inch, and near the head of the fish 2 inches apart. The cutting edge of each tooth is on the side furthest from the head.

CLASS, REPTILIA.

ORDER, OPHIDIA.

BOIDÆ.

819. Boa constrictor, *L.*

a. Excrement. (*Excrementum monitoris nilotici.*)

Note.—This substance is used as a source of uric acid.

VIPERIDÆ.

820. Pelius Berus, *Merrem.* (*Viper, Adder.*)

a. Viper's fat.

Viperidæ.

b. Lozenges. (*Trochisci de viperâ.*) Presented by Mr. D. Hanbury.

Note.—The fat of the viper was formerly used as an eye ointment, and the flesh made into a broth and wine, supposed to possess invigorating properties. See Lewis, *Mat. Med.*, p. 665. The lozenges are button-shaped pieces about the size of a farthing, and have a bust with some illegible words around it stamped upon them.

CLASS, AVES.

ORDER, NATATORES.

SPHENISCIDÆ.

821. EUDYPTES SPECIES. (*Penguin.*)

a. Penguin, from the Falkland Islands, found in guano.

b. Penguin oil. Two specimens. Presented by Mr. P. L. Simmonds.

PROCELLARIDÆ.

822. FULMARUS GLACIALIS, *Buffon.* (*Fulmar petrel.*)

a. Bird from St. Kilda, stuffed. Presented by Mr. E. C. C. Stanford.

b. Fulmar oil.

c. Fatty acid from ditto.

d. Soap from ditto.

Note.—For the history of these specimens, see *P. J.* [3], vol. i., p. 374.

ORDER, CURSORES.

STRUTHIONES.

823. DROMACUS NOVÆ HOLLANDIÆ, *Lath.* (*Emu.*)

a. Emu oil. Presented by Mr. J. Trix.

b. Egg of the Emu. Presented by Mr. Percy Wells.

Note.—The oil is said to be used by the natives in rheumatism. See *P. J.* [1], vol. xv., p. 449.

ORDER, INSESSORES.

CYPSELIDÆ.

824. COLLOCALIA ESCULENTA, *Gray.* (*Esculent Swallow.*)

a. Nests. 1st quality.

b. Ditto. 2nd quality.

c. Ditto. 3rd quality.

These specimens were presented by Mr. T. H. Hills. See *P. J.* [2], vol. iii., p. 444. The nests are used in the preparation of soups, and are supposed to possess restorative properties. See *Moquin-Tandon, Med. Zool.*, p. 185. For an account of their production, see *P. J.* [1], vol. viii., p. 534; [2], vol. iv., p. 481.

CLASS, MAMMALIA.

ORDER, SIRENIA.

HALICORIDÆ.

825. Halicore Dugong, *Daub.*

a. Oil obtained from the dugong.

Note.—For an account of this oil, see *P. J.* [3], vol. iii., p. 3.

ORDER, CETACEA.

PHYSETERIDÆ.

826. Physeter macrocephalus, *L.* (*Great Cachalot, Sperm Whale.*)

a. One of the vertebræ. Presented by Messrs. Hopkin & Williams.

b. Oleaginous fluid found in the head of the sperm whale, from which spermaceti is obtained.

c. Sperm oil, as imported.

d. Spermaceti.

Note.—The bones of the whale, of which *a* is a specimen, were imported a few years since as a source of superphosphate manure. For an account of the production of spermaceti, see *Moquin-Tandon, Med. Zool.*, p. 94; *Per. Mat. Med.*, vol. ii., pt. ii., p. 798.

ORDER, UNGULATA.

HIPPOPOTAMIDÆ.

827. Hippopotamus amphibius, *L.*

a. Teeth.

Note.—Formerly used in the manufacture of artificial teeth. *Moquin-Tandon, Med. Zool.*, p. 81.

SUIDÆ.

828. Sus Scrofa, *L.*

a. Lard oil.

EQUIDÆ.

829. Equus Caballus, *L.*

a. Calculus.

Note.—This specimen was taken from the intestine of a large cart-horse, belonging to Mr. Rice, miller, of Nutshalling, near Southampton. It is globular; its circumference is 22 inches, and its weight 9½ pounds. Analysed by Professor Attfield, it was found to consist almost entirely of ammonio-phosphate of magnesium. See *P. J.* (2), vol. iv., p. 242.

BOVIDÆ.

830. Bos Taurus, *L.*

a. Prepared beef marrow.

b. Bone shavings.

Bovidæ.

c. Dried blood.

d. Solidified milk.

ŒGOSCERIDÆ.

831. Ovis Aries, *L.*

a. Skull and horns of the ram.

b. Prepared mutton suet.

Note.—Specimen *a* will be found above the cases containing the Hanbury collection.

CERVIDÆ.

832. Capra Ægagrus, *Blasius* ? (*Goat.*)

a. Intestinal concretion. (*Oriental Bezoar.*)

Note.—This specimen consists of two bezoars, one of which is nearly cylindrical, rounded at the ends, 2½ inches long, and an inch in diameter; the other is kidney-shaped, 1¾ inch long, and 1¼ inch in diameter. Both have a polished surface, a dark-greenish colour, and laminated structure. Both specimens give a green mark to chalked paper, by which character oriental bezoars are distinguished. Oriental bezoars are taken from the alimentary canal of a wild goat called *Pasen* by the Persians, which inhabits Chorasan, and is also produced, according to Kœmpfer, by an ape called *Antar* by the Mongols. For further details, see *Phil. Trans.*, 1846, p. 41; *Watts, Dict. Chem.*, vol. i., p. 584.

b. Ellagic acid, obtained from oriental bezoar.

Note.—For mode of preparation, see *Watts, Dict. Chem.*, vol. ii., p. 484.

833. Cervus Alces, *L.* (*Elk, Moose Deer.*)

a. Shavings of the hoof. Presented by Mr. D. Hanbury.

834. Cervus Elaphus, *L.* (*Stag.*)

a. Hartshorn shavings.

b. Ditto, calcined.

c. Ditto, powdered.

d. Ditto, prepared.

e. Ditto, ditto, in annulated cones.

f. Oil and spirit of hartshorn.

g. Carbonized residue after distillation.

835. Cervus Dama, *L.* (*Fallow Deer.*)

a. Antlers. Presented by Sir E. Landseer.

Note.—For the uses of hartshorn shavings, which were obtained from all the above species of deer, see *Lewis, Mat. Med.*, p. 253; *Per. Mat. Med.*, vol. ii., pt. ii., p. 809. The antlers will be found above the cases containing the Hanbury collection.

836. Cervus Tarandus, *L.* (*Reindeer.*)

a. Antlers. Presented by Sir E. Landseer.

Note.—For the uses of hartshorn shavings, which were obtained from all the above species of deer, see *Lewis, Mat. Med.*, p. 253; *Per. Mat. Med.*, vol. ii., pt. ii., p. 809.

Cervidæ.

837. Moschus Moschiferus, *L.*

a. Musk deer, stuffed, in a glass case.

Note.—This specimen was presented by Messrs. Peake, Allen, & Co. It was probably about 5 or 6 years old when shot. See *P. J.* [2], vol. ii. p. 398, for an account of this specimen. See also *P. J.* [2], vol. xv., p. 472. For figs., etc., see *Moquin-Tandon, Med. Zool.*, pp. 111, 112; *Per. Mat. Med.*, vol. ii., pt. ii., p. 802.

b. China musk pod.

Note.—For fig. of China musk pod, see *Guib., Hist. des Drogues*, vol. iv., p. 62.

c. Ditto, smaller specimens.

f. Musk sac, dissected, and preserved in spirit.

g. Adulterated China musk pod.

Note.—The specimens *b* and *c* were presented by Messrs. Faber & Co. in 1852.

h. Musk pod, containing pieces of leather. Presented by Mr. Burgoyne.

Note.—This specimen was presented in April, 1856.

i. Assam musk pod, dissected.

Note.—This specimen consists of the musk pod and the surrounding parts, dissected and preserved in spirit. It is probably the specimen presented by Mr. Horner, in October, 1842.

j. Assam musk pod.

k. Ditto, taken from a young animal.

Note.—Until three years old, the pod contains no musk, but only a milky fluid, which in this specimen has solidified to a substance of cheesy consistence.

l. "Bally" Assam musk pod.

Note.—These specimens consist of malformation. The pods are nearly spherical, and are more than half filled with a stratified growth of animal tissue. They were presented by Messrs. Faber & Co.

m. Adulterated Assam musk pods.

Note.—Assam musk pods are usually thicker than China pods, and the musk has a civet-like or fæcal odour. See *Amer. Journ. Pharm.*, vol. x., p. 148.

n. Russian, or Cabardine musk.

Note.—For fig. of this kind of musk, see *Hist. des Drogues.*, vol. iv., p. 65. The pods are more elongated than those of the China musk, and have a longitudinal ridge on the convex hairy surface. The odour is not ammoniacal, like that of China musk, and the skin of the pod is not so brown as in that kind. For an account of its commerce, see *Amer. Journ. Pharm.*, vol. xv., p. 302.

o. Musk pod from India.

Note.—This specimen was presented by Messrs. Battley & Watts, and was brought home from India at the time of H.R.H. the Prince of Wales's visit, in 1876.

Cervidæ.

CAMELIDÆ.

838. Llama Glama, *Gray;* and L. Vicugna, *Gray.*

a. Intestinal calculus. (*Occidental Bezoar.*)

Note.—These calculi vary in size, from that of a pea to a small marble. In some the surface is smooth and angular, and in others granulated. The colour is yellowish white, and the surface dull. For chemical constitution of occidental bezoar, see *Watts, Dict. Chem.*, p. 584.

ORDER, HYRACOIDEA.

HYRACIDÆ.

839. Hyrax Capensis, *Pall.* (*Cape Badger, Daman, Dasse, Coney, Klipdas.*)

a. Hyraceum, an original tin.

b. Ditto, from Cape Town.

c. Substance found in hyraceum.

d. Fæces of the animal.

Note.—For an account of this substance, see *Pappe, Floræ Capensis, Med. Prodromus*, p. 46; *Per. Mat. Med.*, vol. ii., pt. ii., pp. 827–831; *P. J.* [1], vol. x., p. 559. Specimen *c* appears to consist of the fæces of the animal. See *P. J.* [1], vol. x., p. 559. For analysis, see *P. J.* [1], vol. xiii., p. 213. For importation, see *P. J.* [1], vol. x., p. 559; vol. xi., p. 366.

ORDER, PROBOSCIDEA.

ELEPHANTIDÆ.

840. Elephas Africanus, *Cuv.* (*Elephant.*)

a. Ivory turnings.

b. Ivory black.

Note.—See *Moquin-Tandon, Med. Zool.*, p. 80.

ORDER, CARNIVORA.

URSIDÆ.

841. Ursus Americanus, *Pallas.* (*American Black Bear.*)

a. Genuine bears' grease.

b. Ditto.

Note.—Specimen *b* was obtained from a bear which died at the Zoological Gardens in London.

VIVERRIDÆ.

842. Viverra Civetta, *Schreb.* (*Common Civet.*)

a. A horn of civet.

843. Viverra Zibetha, *L.* (*Zibeth Civet.*)

a. The animal stuffed.

Note.—This animal is distinguished from the common civet by not possessing a dorsal crest, and by the fur being shorter, etc. For fig., see *Moquin-Tandon, Med. Zool.*, p. 117.

ORDER, RODENTIA.

MURIDÆ.

844. Castor Fiber, *L.*

a. Small beaver, preserved in spirit.

Note.—This specimen appears to have been taken soon after its birth. See *Per. Mat. Med.*, vol. ii., pt. ii., p. 821, fig. 130.

b. Preputial follicles. (Russian castoreum.)

Note.—This specimen was purchased of Horner & Faukes, at forty shillings an ounce, on September 9th, 1835. It is the specimen referred to by Pereira. See *Per. Mat. Med.*, vol. ii., pt. ii., p. 823.

c. Resinous Russian castoreum.

Note.—This specimen consists of larger sacs than specimen *b*.

d. Bucharian castoreum.

e. Siberian castoreum.

f. North American castoreum.

g. Spurious castoreum, the sacs being stuffed with hay.

h. Oil sacs of Russian beaver.

i. Oil sacs of American beaver.

Note.—For a full account of the varieties of castoreum, see *Per. Mat. Med.*, vol. ii., pt. ii., pp. 823–826.

845. Mygale Muscovita, *Geoffr.* (*Musk Rat, Desman.*)

a. Tail.

Note.—This object is used as a perfume in Russia. See *Moquin-Tandon, Med. Zool.*, p. 110.

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