value, 184·87 ; iodine value (Wijs), 107·6 ; unsaponifiable matter, 4·78. Fatty acids : melting point, 32·5° ; neutralization value, 197·6 ; iodine value, 107·82. The approximate composition of the total fatty acids was calculated as, palmitic 20, oleic 45, isolinolic 35. (Agricultural Ledger.)

1332. *Coix Lachryma-Jobi, Linn.*, II.F.B.I. VII, 100.

Sans : —Gavedhu, gavedhuka.

Vern : —Gurgur, (B) ; jargadi, (Sant.) ; sankhru, sankhlu. gargari-dhan, kaiya, baru, dabhir, ganduta, garun, kasei, gulbi-gadi, gurlu, (H.) ; sanklu, (P.) ; Ranjondhala ; (Mar.) kasai, (Guz) koamonee, (Assam), sikra kraou, koa sangti, (Naga) ; jhonki, (Cach.) ; mim, (Lush.) ; chang-mim-khombi, the edible form being simply nim (Manipur) ; gyeik aing, (Bur.) ; kukirrindi kanbu, (Sing.) ;

Habitat :—Inhabits ditches and rice-grounds in Bengal the Konkan and Deccan and throughout the hotter and damp parts of India.

An annual, stem 3-5 ft. or more, stout, rooting at nodes, internodes smooth, polished, leaves 4-18 by 1-2 in., narrowed from a broad cordate base to an acuminate tip, smooth on both surfaces, margins spinulosely serrate, midrib stout, veins many, very slender, sheaths long, smooth, ligule a very narrow membrane. Raceme 1-2½ in. long, nodding or drooping from very long penduncles. Rhachis within the bract slender, above it stout, notched at nodes. Male spikelets subsecund imbricating in pairs, very variable in size ½-¾ in. long. Glumes 4 ; I and II subequal, empty, rigid, or herbaceous ; I keeled along the inflexed margins ; III and IV hyaline, paleate, triandrous or empty. Anthers orange-yellow. Fruit from broadly ovoid to globose, ¼-½ in. diam ; pale bluish grey, polished, osseus.

Uses :—A Missionary, writing of Tonkin to M. Romanet du Caillaud, said that Job's tears made a refreshing drink was a good blood purifier and excellent diuretic. The gruel prepared from the ground seed he observed as also Eau de Larme-de-Job was extensively employed in the summer to cool the body. By the Tonkin people it is spoken of as the "grass of life and healte"

is believed to neutralise' the miasma of the air and to purify water when boiled like tea with a small quantity of Coix flour and set by to cool before being used. In India Coix can hardly be said to enjoy any reputation for medicinal virtues. The Rev. Dr. Campbell tells us that among the Santals the root is given in strangury and in the menstrual complaint known as silka. Dymock (Veg. Mat. Med.) says the seeds are sold in the drug shops of Bombay under the name of kassgi bij. The Pharmacographia Indica says that the wild form only is used medicinally and that it is considered strengthening and diuretic. (Watt).

The following detailed analysis gives the composition of the grain in 100 parts, as published by Professor Church and subsequently by the Haarlem Museum authorities, by Mr. Hooper of the Indian Museum Report and by Drs Paton and Dunlop in The Agricultural Ledger No. 6 of 1904 page 50.

	Professor Church.		Haarlem Museum, 1901 (cultivated grain).	Indian Museum, 1901-02 (cultivated grain)	Paton and Dunlop, 190· (wild plant)
	1886 (wild plant).	1901 (cultivated grain).			
Water ...	13·2	14·8	13.91	8·00	10·74
Albuminoids...	18·7	16·6*	21·72†	22 46	18·81
Starch ...	58 3	60·1	55 29	61·82	59·55
Oil ...	5·2	5·8	1·30	4 92	6·2
Fibre ...	1·5	0 9	1 48	·70	1·28
Ash ...	2 1	1·8	1·79	2 10	3 4

1333. *Zea Mays, Linn.*, H.F.B.I., VII. 102.

Vern :—Makka, Bhutta (H).

Habitat :—Cultivated throughout India.

A tall annual grass. Stems 4-10 ft. high, smooth, striate, solid, the central portion soft and spongy. Leaves numerous, close together; sheaths large and full, somewhat compressed, auricled at the base, upper part hairy; ligule short, truncate, torn; blade of leaf 1-1½ ft. long, linear lanceolate, acute, smooth; midrib prominent below; margins wavy, ciliate. Flowers unisexual; spikelets monœcious, 2-flowered; male spikelets many, arranged in pairs on the spike-like branches of a large terminal drooping panicle; glumes 2, about equal, tinged with

* 2·66 nitrogen. † 3·47 nitrogen.

purple; pales 2, nearly equal, falling short of the glumes, lower 3-nerved, upper 2-nerved and with inflexed margins; lodicules fleshy, truncate; stamens 3, protruded; female spikelets nearly sessile, closely arranged in pairs on a thick spongy axis, forming a compact cylindrical spike surrounded at the base by broad imbricated bracts, upper flower of spikelet barren; glumes 2, broad, thick and fleshy at the base, the lower emarginate, ciliate, the upper truncate; pales 2, lower broad and blunt, the upper much longer, closely adhering to the ovary; lodicules none; ovary sessile, ovoid, styles very long, filiform, drooping. Fruit (the grain) roundish or reniform, compressed, smooth, shining, yellow, white, red or spotted. (Duthie.)

Uses:—It is considered by Mahomedan physicians to be resolvent, astringent, and very nourishing; they consider it to be a suitable diet in consumption and a relaxed condition of the bowels. In Europe it is much used as a valuable article of diet for invalids and children under the names of *Polenta* (Maize meal) and *Maizena* (Maize flour). In Greece the silky stigmata are used in decoction in diseases of the bladder, and have lately attracted attention in America under the name of *Corn silk*, of which a liquid extract is sold in the shops as a remedy in irritable conditions of the bladder with turbid and irritating urine; it has a marked diuretic action The meal has been long in use in America as a poultice, and gruel is also made of it. In the Concan an alkaline solution is prepared from the burnt cobs and is given in lithiasis.

In the United States for starch manufacture from maize it has been found desirable to get rid of the oily embryo—this is done by machinery. The embryo is too rich for feeding stock unless the oil is removed—this is done in the hydraulic press, and the cake when ground into meal is very valuable as a food for stock. The oil promises to be useful for medicinal purposes instead of olive oil.

Chemical composition.—The avorage results of the analysis of three varieties of maize in an undried state by Polson, yielded in 100 parts, 54·37 starch, 8·88 nitrogenous substance, 4·50 fat, 2·70 gum and sugar, 15·77 cellulose, 12·16 water, and 1·67 ash. Poggiale found on an average in 160 parts of the dried grain, 64·5 starch, 6·7 fat, and 9·9 nitrogenous substance. Church found it to

contain water 12·5, albuminoids 9·5, starch 70·7, oil 3·6, fibre 2·0, ash 1·7 American grain contained 1 per cent. more fat than Indians.

In the unrefined state the oil has a specific gravity of ·916 at 15°C., the elaidin test shows the presence of a large quantity of olein. Maize oil is of a pale yellowish-brown colour, with an odour and taste like that of freshly ground corn meal; it belongs to the non-drying group of the vegetable oils does not easily become rancid, and has no purgative action. With alkalies it forms a white soap; it contains fatty acids (free) 0·88, total fatty acids 96·75 per cent., mucilaginous bodies 1·34 The loss sustained by purification is under 5 per cent. (*J. U. Lloyd, Amer. Journ. Pharm.*, July 1888.)

1334. *Saccharum officinarum, Linn.*, H.F.B.I., VII. 118; Roxb. 97.

Vern. :—Ukh, gannâ, ikh, nai shakar, rîkhû, kumad, kusiyâr, katârî (H.); Ik, âk, ûk, kûshiâr, pûri, kullûa, kajûli, (Beng); Akh, ikshu (Sant.); Tû (Newar); Ghenra (Parb.); Uk, akali ehaku (Nep.); Aku (Ur.); Shakar surkh, khand, ganna, kamând, paunda, ikh (Pb.); Kamand (Sind); Gândâ, Sherdi, aos, ûs, kabbu (Mar.); Sheradi, nai-sakar, uns (Guz.); Karûmbû (Tam.); Cheruku, charki, ârukanupula-krânuga, (Tel.); Khabbu, basarimara (Kan.); Karinpa, tebu (Mal).

Habitat :—Cultivated throughout India.

A large perennial grass. Stems many, 6-12ft. high, thick, solid, jointed, polished, yellow purple or stripped; lower internodes short with fibrous roots above each joint. Leaves very large, crowded, lower ones soon falling off; ligule short, entire; sheaths about one foot in length, striate, smooth or with mealy pubescence; blade 3-4ft. long and from 1½ to 2 inches in breadth, acute, smooth on both surfaces, margins minutely serrulate, ciliate at the base; midrib prominent beneath. Panicles large, compound, drooping, feathery, of a greyish colour. Spikelets small, very numerous, 1-flowered, arranged in pairs on alternate sides of the long slender panicle branches, one stalked and the other sessile, each enveloped in an involucre of long white silky hairs; glumes 2, nearly equal, lower 2-nerved and ciliate towards the apex, upper 1-nerved; outer pale wanting, inner shorter than the glumes. Lodicules 2, free, truncate, lobed. Stamens 3; anthers linear, oblong.

Ovary smooth; stigmas 2, densely plumose, purple. Fruit not known. (Duthie.)

Uses:—The root of the sugarcane is said to have been employed in medicine, and to have been considered demulcent and diuretic (U. C. Dutt). In Arabian works on Materia Medica, sugar is described as detergent and emollient, and is prescribed in doses of twenty direms. Many writers speak of it as attenuant and pectoral. It has also been supposed to have virtues in calculous complaints (Ainslie). In the Panjab, Baden Powell says, sugar is considered by the Natives to be "heavy, tonic, and aperient, useful in heat delirium and disorders of the bile and wind." In another part of his work he remarks: "In cases of poisoning by copper, arsenic or corrosive sublimate, sugar has been successfully employed as an antidote, and white sugar finely pulverised is occasionally sprinkled upon ulcers with unhealthy granulations. The Hindus set a great value upon sugar, and in medicine it is considered by them as nutritious, pectoral, and anthelmintic." The use of sugar as an antidote for arsenical poisoning is alluded to by many writers (Chisholm, Voigt, and others).

1335. S. *arundinaceum*, *Retz.*, II.F.B.I., VII. 119.

Syn.:—Saccharum ciliare, *Anders.* S. Sara, *Roxb.* 82.

Sans.:—Gûndra, tejanaka, sharâ, शर .

Vern.:—Sara, sarkanda, sarpat, râmsar, mûnja, sarbar, ikar patawâr Palwa (H.); Sar, (B.); Sar (Santal); Sarkara, sarjbar, kharkâna, kandâ (Pb.); Dargâ, karre (Trans-Indus); Sar (Sind); Gundra, ponika, (Tel.)

The following names are also given to certain portions of the plant in different localities:—Munj (leaf-sheaths), Sar (leaves) (Pb); Bind or vind, culm or flowering stem (Doab); Sararhi (E. Districts of U. P.); Sentha, kâna, lower portion of flowering stem; Sirki, til, upper portion of flowering stem; Thili, upper portion of flowering stem (Lahore); Majori, the entire flowering stem; Tilak, tilon, the flowers (Pb.); Ghua, the flowers (E. Districts, U. P.).

Habitat:—North-West India.

Stem 6—20 ft., erect from a stout rootstocks, $\frac{1}{8}$ in, diam., spongy within, internodes 6—12 in., terete, smooth, uppermost glabrous under the panicle; l. 3—5 ft. by 1—2 in. below the middle, tapering thence upwards to a long filiform point, and slightly downwards to the base, coriaceous, smooth on both surfaces, glaucous beneath, margins spinulose, midrib up to $\frac{1}{4}$ in. broad, shining, veins many, very slender, sheaths terete, coriaceous, mouth not auricled, sides bearded, ligule short, lunate, hairy; panicle 1—2 ft., dense-fld., ovoid or oblong, erect, decompound, rhachis stout, glabrous, branches half whorled, spreading in fl. ascending in fr., filiform; spikes 1—3 in., rhachis filiform, fragile, internodes $\frac{1}{5}$—$\frac{1}{4}$ in., villous, tips obconic; spikelets $\frac{1}{10}$ in., clothed with long, soft, creamy or purplish woolly hairs up to $\frac{1}{4}$ in., long, callus very short; glume I oblong-ovate, acuminate, dorsally convex, margins incurved, 1-veined in the flexures, II lanceolate, acuminate, 1—3-veined, margins above the middle and keel ciliate with long hairs, III oblong, hyaline, obtuse, 1-veined, margin above shortly ciliate, IV smaller, lancolate, subaristately acuminate, margins ciliate above, palea quadrate, ciliate; lodicules irregular in shape; anthers $\frac{1}{20}$ in. (Trimen.)

Uses:—The root is officinal in the Panjab, under the name of *garba ganda*. It is burned near women after delivery, and near burns and scalds, its smoke being considered beneficial. (Stewart.)

1336. *Manisuris granularis, Linn.*, H.F.B.I. VII. 159.

Sans:—Palangini (Ainslie).

Vern:—Trinpali (H); Kangni (Ajmere); Dhaturoghas (Udaipur); Agimali-gadi (Chanda); Ratop (Berar).

Habitat:—Throughout the hotter parts of India.

Annual, erect, much branched grass. Stems 4-30 in. high, slender, compressed softly hairy, leafy; nodes hairy. Leaves 1½ 8 by $\frac{1}{4}$-$\frac{1}{2}$ in., linear-lanceolate, acute or acuminate, flat, hairy on both surfaces or on the lower only with bulbous-based hairs, margins ciliate, base cordate; sheaths much shorter

than the internodes, hispid with bulbous-based hairs; ligule very short, membranous, densely ciliate. Racemes ½-1 in. long, resembling a string of minute beads, solitary or seemingly fascicled in the axils of the leaves, but individually from shortened axillary branches. Sessile spikelets $\frac{1}{16}$-$\frac{1}{12}$ in. long, subglobose; callus tumid, glabrous. Glumes 4; lower invol-gume irregularly foveolate on the back; upper invol.-glume closing the cavity of the lower floral glume, elliptic-oblong, obtuse, 1-nerved; lower floral glume hyaline, shorter than the upper invol.-glume; upper floral glume about equalling the lower, broadly ovate, obtuse; palea similar but a little shorter. Pedicellate spikelets equal in length to the sessile or longer, of 2 equal green glumes about $\frac{1}{10}$ in. long; lower invol.-glume broadly ovate or suborbicular, obtuse or subacute, 5-7 nerved, one margin narrowly folded, the other with a hyaline wing, upper invlo glume boat-shaped, laterally compressed, the keel with a dorsal byaline ciliolate wing (Cooke).

Uses:—In Behar, it is prescribed internally in conjunction with a little sweet oil, in cases of enlarged spleen and liver (Ainslie).

1337. *Andropogon squarrosus, Linn. f.*, H.F.B.I., VII. 186.

Syn.:—A. muricatus, *Retz.* Roxb. 89.

Sans:—Usir.

Vern.:—Khas, bena, panni, senth, gamar, onei, Bâle-ke-ghâns (H.); Khas-khas, (B.); Panni (Pb.); Sirom (Sant.); Vâls (Guz.); Lâvancha (Kan.); Vettiver; romanchamver (Mal.); Vette-ver, (Tam.); Vâlâ, khasakhasa, (Mar.); Kas (Arab. & Pers.)

Habitat:—Throughout the plains of India.

Stems 2—5ft., in large, dense tufts with stout spongy aromatic roots, sparingly branched, as thick below as a goose-quill. Leaves 1-2 ft., subbifarious, narrow acute, erect, keeled, glabrous, margins scabrid; sheaths equitant, glabrous; ligule

obscure. Panicle 4-12 in., conical, erect, rachis stout and erecto-patent filiform flexuous branches glabrous or scaberulous. Spikes slender, joints and pedicels about = the sessile spikelets. Sessile spikelets grey, green, yellow or purplish, $\frac{1}{6}$-$\frac{1}{4}$ in., slightly curved, glabrous, callus obscurely bearded; glumes I coriaceous, acute, 2-4-nerved; II coriaceous, 1-nerved, margins hyaline, keel muricate; III lanceolate, acuminate, 2-nerved, margins inflexed ciliolate; IV = III ciliate; palea very small, obtuse, glabrous. Pedicelled spikelets like the sessile but glume I smooth, IV awnless. (Hooker).

Uses:—By Sanskrit writers the root is described as cooling, refrigerant, stomachic and useful in pyrexia, thirst, inflammation, irritability of stomach, etc. It enters into the composition of several cooling medicines. * * A weak infusion of the root is sometimes used as a febrifuge drink. Externally it is used in a variety of ways. A paste of the root is rubbed on the skin to relieve oppressive heat or burning of the body. This use of the drug appears to have been popular with the ancients. * * An aromatic cooling bath is prepared by adding to a tub of water the following substances in fine powder, namely, root of Andropogon muricatus, Pavonia odorata (bâlâ) red sandalwood, and a fragrant wood called *padma kashtha*. The same medicines are reduced to a thin emulsion with water and applied to the skin. (U. C. Dutt.)

An infusion of the root is given as a febrifuge and a powder in bilious complaints. It is regarded as stimulant, diaphoretic, stomachic and refrigerant. The essence (or otto) is used as a tonic. A paste of the pulverised roots in water is also used as a cooling external application in fevers.

Antispasmodic, diaphoretic, diuretic, and emmenagogue properties have been assigned to it; but beyond being a gentle stimulant diaphoretic, it seems to have no just claims to notice as a medicine. An account of the uses to which it has been applied in Europe is given by Pereira (*Mat. Med.*, Vol. ii., P., i. p. 132). Its uses in native practice are detailed in the Taleef Shereef, p. 14, No. 47. According to the analysis of Geiger,

it contains a resin, a bitter extractive, and a volatile oil. The dose of the powdered root is about twenty grains, or it may be given in infusion (two drachms of the bruised root to ten ounces of boiling water), in doses of an ounce or more. As a medicine, as far as is at present known, it is an article of very minor importance. (Ph. Ind.) "The otto is given in two minim doses to check the vomiting of cholera." (Dr. Houston.) "Used in the form of cigarettes with benzoin, it relieves headache." (Dr. Lancaster)—Watt's Dic.

1338. *A. Iwarancusa*, *Jones*, H.F.B.I., VII. 203.

Syn:—A. laniger, *Desf.*

Sans.:—Lâmajjaka.

Vern.:—Lâmjak, bûr, khâwi, khoi, panni, solâra, san, ibharankusha, karan kusha, ghât-zâri Miriya ban, ganguli, bad, piriya (H. and Pb.); Kârânkusa, ibharankusha (B.); Izkir Pivala-vâla (Mar); Pilo-valo (Guz.).

Habitat:—Dry desert tracts, Lower Himalayan tract, extending to the plains of U. P. and Sind.

Perennial, cæspitose. Stems erect, thick and woolly below. Leaves smooth, glaucous, stiff; blades narrow and convolute. Panicles erect, narrowly oblong, composed of distant fascicles of spikes surrounded at the base by blunt boat-shaped yellowish sheaths. Rachis and pedicels of the awnless male spikelets densely clothed with white hairs. Flowering glumes of hermaphrodite florets minute, transparent, bidentate, and with a very slender bent awn from between the teeth. (Duthie.)

Uses:—Used to purify the blood, and in coughs, chronic rheumatism and cholera It is recommended as a valuable aromatic tonic in dyspepsia, especially that of children; it is also used as a stimulant and diaphoretic both by natives and Europeans, in gout, rheumatism and fever (Baden-Powell.)

The Arabian and Persian physicians describe Idkhir as hot and dry, lithontriptic, diuretic, emmenagogue, and carminative; they recommend it to be boiled in wine as a diuretic; ground into a paste it is said to be a good application to abdominal

swellings; added to purgatives it is administered in rheumatism; the flowers (calyxes) are used as an hæmostatic. (Pharmacogr. Ind. III 563.)

Chemical composition.—From 56 lbs. of the dry grass purchased in the bazar we obtained the large yield of 8½ ozs. of essential oil; it had a specific gravity of '995 at 25° F., and rotated a ray of polarized light 8·0 degrees to the left in a column 200 mm. long. The colour was that of pale sherry. According to Schimmel & Co., the essential oil reminds one of the odour of Elemi oil. Its sp. gr. is ·915, the optical rotation + 34°. It boils between 170° and 250°, and contains phellandrene (*Bericht von Schimmel & Co.*, April, 1892),—*Pharmacogr. Ind. III.* 564.

1339. *A. Schœnanthus*, *Linn.*, H.F.B.I., VII. 201. Roxb. 93.

Syn.:—Cymbopogon martini, *Stapf.*

Vern.:—Rusâ ghâs; musel; mirchia, gand bujina; pâlâ-khari (H.); Aghyâ-ghâs; gandha hena (B.); Rânus (Pb.); Rosegavat; rohisha (Mar).

Habitat:— Central India, the United Provinces; Panjab; the Deccan, and the Central Provinces.

Root perennial, with long wiry fibres. Culms erect, from three to six feet high, often ramous, smooth, filled with a spongy pith. Leaves very long, tapering to a very fine point, smooth in every part and of a soft delicate texture. Sheaths shorter than the joints on full grown plants, with a membranaceous stipulary process at the mouth. Panicles as in A. Iwarancusa; spikelets paired, but with only three joints. Flowers also paired, &c. as in the former species, only there the lowermost pair on the most sessile of the two spikelets are both male, and one of them rests upon a smooth, convex, callous receptacle instead of a pedicel. Rachis jointed, and wooly. Calyx as in A. Iwarancusa. Corolla one-valved, a long black awn occupies the place of the other, which has two small filaments near its base. Nectary, &c. as in the foregoing species. (Roxburgh.)

Mr. R. S. Pearson, I. F. S., F. L. S., in his "Note on the Economic uses of Rosha Grass," published in the Indian Forest Records, Vol. V., Part VII., writes—

From a commercial point of view there are two forms of this botanical

species which are popularly known as "Motia" and "Sofia," although, up to date, these have not been recognized as botanically distinct.

That there is a difference between the two well-known varieties called "Motia" and "Sofia" is evident from the inferior oil yielded by the latter, though Botanists have so far been unable to accept such a classification.

Mr. R. S. Hole, the Forest Botanist, says—

"The structure of the flowers in all the plants is practically identical and I can find no characters of importance to separate them. All the "Motia" plants, however, differ from "Sofia" as regards the wider angle which the leaf blade makes with the culm, a character which was first noticed and published by Mr Burkill. It is doubtful, however, how far this character will prove constant and we must cultivate under varying conditions of soil and moisture the different forms here at Dehra, keep them under observation, collect the flowers at different seasons and prepare oil from them, before we can hope to define satisfactorily constant forms of value."

Uses :—The oil is regarded as officinal in the Indian Pharmacopœia. This oil, occasionally called also Oil of Namur, was first brought to notice in 1825 by Dr. N. Maxwell (Calcutta Med. Phys. Trans., vol i, p. 367), and it was further described in 1827 by Dr. Forsyth (*Ibid.*, vol. iii., p. 213). From a series of trials instituted with it at Madras, by Drs. Cole, Kellie, and Hunter, it appears that as an application in rheumatism its efficacy is chiefly limited to recent cases. In the severer forms and in the chronic stage, the oil, even when undiluted, afforded only slight relief (see Madras Medical Reports, 1855, p. 431, *seq.*) Favourable reports of it have been received from Dr. W. Dymock, Dr. L. W. Stewart, Dr. E. Ross., &c. (Ph. Ind.) The oil is believed to have the property of curing baldness, and to be useful in neuralgia. "A spirit is distilled from the grass with spices, and is said to be useful in indigestion and fever" (Stewart). "The decoction of the grass is a febrifuge and I have used it in cases of cold and feverishness with benefit." (Asst. Surg. Bolly Ch. Sen in Watt's Dic.)

For further information on the uses of the oil consult Mr. Pearson's Note referred to above and also Mr. Puran Singh's Note on the Constants of Indian Geranium Oil, published in the same part of the Indian Forest Records referred to above.

1340. *A. Nardus, Linn.*, H.F.B.I., VII. 205.

Syn. :—A. nardus proper.

Vern. :—Ganjui ; ganjui-kâ-ghâs; pust-buru (H.) ; Kamâ-kher (B.) ; Ganjui ; Usadhana (Mar.) ; Kâmâkshi-pullu ; mândap-pullu ; kâvattam-pullu ; shunnârip-pullu (Tam.) ; Kâmâkshi-kasuvu ; kamanchi-Gaddi (Tel) ; ganda-hanchi-khaddi (Kan.).

Habitat :—Common in the plains and lower hills of the United Provinces and Panjab ; abundant about Travancore.

Rootstock stout, stem tall stout leafy, leaves long narrow, panicle large often supra-decompound oblong or subpyramidal more or less interrupted, branches loosely or closely packed erect at length often drooping, spathes laxly or closely imbricate lanceolate, proper spathes $\frac{1}{3}$-$\frac{3}{4}$ in spikes with 4-5 pairs of spikelets, joints and pedicels rather slender densely or laxly ciliate, sessile spikelets $\frac{1}{6}$-$\frac{1}{5}$ in. lanceolate awned, glume 1 narrowly winged, awn long or short.

Uses :—The oil is officinal in the Indian Pharmacopœia. In its properties the oil resembles that of *A citratus*. The infusion of the leaves in doses of $\frac{1}{2}$ to 2 ounces is used as a stomachic (Irvine's *Mat. Med* of Patna). It is used as a carminative in the bowel complaints of children (Dymock).

1341. *A. citratus, DC.*, H.F.B.I., VII. 210. (*Where it is considered either A. Nardus or A. Schœnanthus*) Roxb. 92

Sans. :—Bhustrina.

Vern. :—Gandha benâ (B.) ; Gandha trina (H.) ; Hirvâcnah or olâchâh (Mar.) ; Lilichâ ; (Guj.) ; Vashanuppulla ; kurpura-pulla (Tam.) ; Nimmagaddi ; chippagaddi (Tel.) ; Pûrhalihulla (Kan.). Hazâr-masâlah (Per.) ;

Habitat :—Cultivated in gardens in India.

Uses :—" The volatile oil of this plant is officinal in the Pharmacopœia of India, where it is described as " stimulant, carminative, antispasmodic and diaphoretic ; locally applied rubefacient." " In flatulent and spasmodic affections of the bowels,

and in gastric irritability, it is a remedy of value. In cholera it proves serviceable, not only by allaying and arresting the vomiting, but by aiding the process of reaction. Externally applied, it forms an excellent embrocation in chronic rheumatism, neuralgia, sprains, and other painful affections." From several trials with Lemon Grass Oil, the Editor feels justified in speaking highly of it, not only as an external application in rheumatism and other painful affections, but as a stimulant and diaphoretic when administered internally. Amongst the natives and Indo-Britons of Southern India, it is one of their most highly esteemed remedies in Cholera; and the Editor has witnessed cases in which it certainly seemed to moderate and check the vomiting, whilst it served to raise the depressed state of the constitution. It is well worthy of future trials, specially in the earlier stages of the disease. Dr. Æneas Ross reports very favourable of a warm infusion prepared by macerating about four ounces of the leaves in a pint of hot water. He states that he has used it very successfully as a diaphoretic in febrile affections, specially in weakly subjects, or when the fever is of a typhoid type. It is much used, and proves a valuable remedy, according to the same authority, in dropsical affections consequent on prolonged attacks of fever so prevalent in malarious countries." (Ph. Ind., p. 255.)

1342. *Avena fatua*, *Linn.*, H.F.B.I., VII. 275.

Vern.:—Kuljud, ganer, gandal, jei (H.); Gozang, ganerjei, Kâsamm, yûpo, ûpwa (Pb.).

Habitat:—Plains and hills of Northern India.

An annual herbaceous grass. Stems 2-4ft. high, erect, polished. Leaves few; sheaths long, smooth, striate, glaucous green; ligule prominent, broad, truncate; blade 5-6in. long, linear lanceolate, tapering from the base, pale-green. Spikelets few, laterally compressed, pendulous, arranged in large loose panicles, usually 2-3-flowered; florets widely open when in flower, one sessile, one-stalked, and a third reduced to a slender-stalked club-shaped rudiment; glumes 2, about equal, ¾-1in.

in length, rounded on the back, thin, membranous, veined, pale-green, becoming white as the grain ripens ; pales 2, shorter than the glumes, lower one faintly nerved, lanceolate, bifid, rounded on the back, smooth, afterwards hard and firm, pale-green, awned ; awn proceeding from the back of the pale and 1½ times as long, rough and twisted ; upper pale rather shorter than the lower, thin, transparent, 2-toothed ; margins inflexed. Within the pales are two small ciliate scales (lodicules). Stamens 3, exserted ; anthers yellow. Styles 2, short feathery, white. Fruit (the grain) closely covered by, but not adherent to, the hard persistent pales, $\frac{1}{3}$in. in length, narrowly oval-oblong, hairy, and with a deep furrow on the inside. (Duthie.)

Uses :—It is believed to produce poisonous and deleterious effects. (Stewart).

Regarding its use in the treatment of Diabetes, see my brochure "Diabetes and its Dietetic Treatment" (8th Edition, 1917). B. D. B.

1343. *Cynodon dactylon*, *Pers.*, H.F.B.I. VII. 288 ; Roxb. 289.

Syn :—Panicum dactylon, *Linn.*

Sans. :—Durva.

Vern. :—Duba, kâli ghâs, râm ghâs, nil dub, dhupsa, hariali, (H.); Dûb, daurva, dubra, kabbar, talla, (Pb.); Burawa (Trans-Indus); Chibhar (Sind); Dub, dûrbâ, (B.); Dobi-ghâs (Santal) ; Durva, karala, haryeli (Mar.) ; Arugam-pilla, hariali (Tam.) ; Ghericha, haryali (Tel.).

Habitat :—Throughout India.

Stem slender, prostrate, widely creeping, forming matted tufts, with slender erect or ascending flowering branches 3-12 in. high. Leaves $\frac{3}{4}$-4 by $\frac{1}{20}$-$\frac{1}{8}$ in., narrowly linear or lanceolate, finely acute to pungent, more or less glaucous, soft, smooth, usually conspicuously distichous in the barren shoots, and at the base of the stems ; sheaths tight, glabrous or hairy, sometimes bearded at the mouth ; ligule a very fine ciliate rim.

Spikes 2-6; radiating from the top of a slender peduncle, 1-2 in. long, green or purplish ; rhachis slender, compressed or angled, scaberulous. Spikelets $\frac{1}{15}$-$\frac{1}{10}$ in. long ; rhachilla produced, very slender, equalling $\frac{1}{2}$ the length of the spikelet. Invol.-glumes lanceolate, acute to subulato-mucronulate, the lower $\frac{1}{25}$-$\frac{1}{18}$ in. long, the upper slightly longer ; floral glume obliquely oblong to semiovate, about $\frac{1}{12}$ in. long Anthers oblong, $\frac{1}{25}$ in. long. Grain $\frac{1}{24}$ in. long.

Uses :—By Sanskrit writers the fresh juice of the leaves is considered astringent, and is used as a snuff in epistaxis. The bruised grass is a popular application to bleeding wounds (U. C. Dutt). In the Concan the grass is prescribed in compound decoctions with more active drugs for the cure of dysentery, menorrhagia, &c. (Dymock). A white variety, which appears to be only a diseased state of the plant, is used medicinally by the native practitioners. It is acidulous and is used to check vomiting in bilious complaints (Sakharam Arjun).

A preparation of the plant is applied by the Santals in a parasitic disease, which attacks the spaces between the toes (Revd. A. Campbell). The expressed juice is astringent and is used as an application to fresh cuts and wounds. It is also diuretic and is used in cases of dropsy and anasarca, also as an astringent in cases of chronic diarrhœa and dysentery (Dr. Thornton). The juice of the green grass is useful in catarrhal ophthalmia, is astringent, used also with much benefit in hæmaturesis (Dr. Houston). Antiperiodic and used as an application in scabies (Dr. McConaghey). The decoction of the roots is used in Mysore for secondary syphilis (Dr. North). "A cold infusion often stops bleeding from piles. I generally give it with milk" (Dr. R. L. Dutt). The roots crushed and mixed with curds are used in cases of chronic gleet, dose, two fluid drams (Dr. McCloghry).—Watt's Dictionary.

The expressed juice is used in hysteria, epilepsy, insanity, (B. D. B.)

1344. *Eleusine coracana, Gaertn.*, H.F.B.I., VII. 294; Roxb. 115.

Sans. :—Râjika (according to Paddington), râji (according to U. C. Dutt).

Vern. :—Maruâ, (Beng.); Kode (Sant.); Manduâ, maruâ, makra, rotka (H.); Mandal, chalodra (Pb.); Kodon, koda, kodra, kutra (Pb. Him.); Nangli, nachni (Sind); Nagli, nachiri (Mar.); Nâvto nâgli, (Guz.); Kayur, kelvaragû (Tam.); Tamidelu, râgulu (Tel.); Ragi (Kan.); Kurakkan (Sing.); Mandwah (Pers.).

Habitat :—Cultivated in many parts of India.

A medium-sized annual grass. Stems several, erect, 2-4ft. high, somewhat compressed, smooth, sulcate. Leaves with long finely sulcate sheaths; ligule shallow, densely bearded; blade 1-2ft., linear, smooth, striate. Spikes 4-6, digitate, incurved, with usually one or more isolated ones placed lower down and representing a second verticil; spikelets sessile, 2-5in., arranged in two rows on one side of a flattened somewhat flexuose and minutely toothed rachis. Florets sessile, distichous. Glumes lanceolate, boat-shaped, with membranous margins, keel prominent, edged with minute forward prickles; outer one about twice as long as the inner; lower pale ovate mucronate, the middle nerve forming a prominent keel; inner pale smaller, bifid, the two principal nerves keeled and armed with small prickles. Lodicules very small, entire or bilobed at the apex. Ovary smooth, shortly stalked; styles 2, with long feathery stigmas. Seed globular and about the size of mustard, dark reddish brown, transversely wrinkled, enclosed in a loose membranous pericarp. Var. *stricta* (*E. stricta*, Roxb. l. c. 115), stems 2-5 ft. high, spikes straight. (Duthie and Fuller.)

Mandua is a native of India. Its specific name is founded on the Cingha-lese word *kourakhan*. There is an allied species (*Eleusine ægyptiaca*) bearing the vernacular name (*makra*), and occurring commonly throughout Upper India, which presents to a superficial examination hardly any points of differ-ence from the cultivated plant; the seed of this wild plant is collected by the poorer classes as an unpalatable, though often very serviceable, food. The grain of the cultivated mandua is anything but popular diet. Cakes made from it are very dry eating, and little satisfies an empty stomach. For this reason it is recknoned an economic grain by the poor. But no one eats mandua cakes

by preference. It causes, peoples say, as much discomfort to the stomach as a woollen loin cloth to the skin, and hence the proverb—"Mandua ki roti, kamala ki dhoti."

Uses :—Mr. Baden-Powell mentions this plant among his drugs, but says nothing about its medicinal properties. Some assert that it is astringent.

1345. *E. aegyptiaca*, *Desf.*, H.F.B.I., VII. 295. Roxb. 344.

Vern. :—Makra, makri, (Hind.); Kâkuriya, (Uriya); Suntu-bukrui, (Santal); Cavara-pullu, [Mal (S.P.)]; Maka-makna, tipakia (Bundel.); Madana, chimbari, chubrei, bhobra, madhâna, kar-madhana, (Pb.); Malicha, maligha, mansa, (Raj.); Mathna, chi-kâra, chota mandiya, ute-sirkum, ute-sirla, (C. P.); Mhar, nâchani, natchni, nagli, raj, (Bomb.); Tamida, sodee, (Tam.); Muttengapilloo, (Tel.); Puta-tana, (Sing.).

Habitat :—Plentiful all over Northern India, especially on cultivated ground.

An annual, very variable in habit. Stems erect 6-18 in high, many, spreading from the crown, decumbent rooting below, then ascending and either slender, sub-simple and 12-18 in high, or very short, stout, copiously di-trichotomously branched the branches often prostrate, short, divaricate, leafy roots capillary. Leaves in tall stems 4-6 in., narrowly linear, acuminate flaccid, flat smooth in short rebush specimens, $\frac{1}{2}$-1 in., subilate lanceo-late rigid glabrous or ciliate towards the rounded, subcordate, or simple base, margins nearly smooth sheathes compressed long in slender states, very short and often inflated in short. leaved states, upper sometimes spathiform, ligule obscure, Pedicels long and slender to very short and stout sometimes shorter than the upper leaves. Spikes 2-5, digitately radiating from the top of the peduncle, under $\frac{1}{2}$-1 in. long, $\frac{1}{4}$-$\frac{1}{8}$ in. diam, across the spikelets, rhachis narrow, trigonous or dorsally flattened, rigid, smooth or puberulous, sometimes excurrent in a pungent mucro; spikelets inniunrable 3-4 fid many-seriate $\frac{1}{10}$-$\frac{1}{8}$ in. long and broad, densely crowded at right angles to the rhachis 3-4 fid very strongly compressed regid base bearded,

rhachilla hardly any glumes dinaricate I and II 1-veined I oblong cymbiform, acute or obtuse II broadly oblong trigidly cymbiform deeply 2 lobes, awned between the lobes, awn as long as the glume, or shorter, rigid, flowering glumes gibbously ovoid, tipnotched with a pungent of recurved mucro, keel smooth or minutely scabrid side veins O, palea shorter than the glume, ovate oblong obtuse or E-toothed keels scabrid or hispidulous; anthers minute; styles short seed orbicular-tubriled retaining the lyaline pari carp when ripe. (Trimen.)

Spikes green or coloured.

Uses:—A decoction of the seeds is renowned in Africa as an alleviator of pains in the region of the kidney, and its herbaceous parts are applied externally for the cure of ulcers. (Duthie in Watt's Dic.)

1346. *Hordeum vulgare*, *Linn.*, H.F.B.I., VII. 371.

Sans:—Yava, yavaka, situshûka.

Vern.:—Jau, indarjau, yurk, jawa, sûj, (Hind.); Jab, (B.); Jowa khar, (Behari); Nas, (Bhot.); Soah, (Lassa); Tosa, (Nep.); Thanzatt, nâi, jawa, chak, jau (cut as fodder, kawíd, kasíl, pathâ, soâ, jhotak, shiroka, tro, ne, chung, lûgar, bûza, chang), (spirits=arrak), (ashes=jâwa khar), (Pb.); Jao-tursh. jao (H. hexastichum=jao-shirin), (Afg.); Java, sâtu, jav, (Mar.); Jau, jav, ymwah, (Guz.); Barlí-arisí, barli-arishi, (Tam.); Pachcha yava, yava, dhânya bhedam, yavaka, barlí-biyam, (Tel.); Javegodhi, (Kan.); Mu-yau, (Burm.); Shaaír, (Arab)

Habitat:—Cultivated in the Northern India.

An erect annual grass. Stems many, quite smooth 2-3 ft, high. Leaves few, the upper one close to the spike. Sheathes smooth, striate; ligule very short; blade of leaf linear lanceolate, rounded at base tapering gradually to-apex, glaneous green Spikes linear oblong, compressed-2-2½ in. long (without the awns); Spikelets sesslets sessile, arranged in threes on two sides of a flattened rachis, lateral ones occasionally barren and rudimentary (Var. distichon); glumes 2 small setaceous, and

awn-like, enclosing the three spikelets pales 2 lower one firm, 5-ribbed rounded on the back and ending in a long stiff awn rough with forward prickles lower pale a little smaller than the upper bifid-2-veins and with the margins inflexed Lodicules 2 entense hardy stamens 3 exserted ovary hardy on top. Stigmas 2-feathers Fruit (the grain) usually with the pales adherent to it.

Uses :—Barley is demulcent, and easy of digestion, and is for these reasons much used in the dietary of the sick. In India *sattu*, or powder of the parched grains, is much employed in the form of a gruel in cases of painful and atonic dyspepsia. In European practice, Barley water, a decoction of the grain, is principally prescribed, and is valuable in cases requiring demulcent treatment. Dr. Irvine states that in Patna the ashes of the leaf are employed in the formation of cooling sherbets; and Stewart writes that the ashes of the stalks are prescribed for indigestion in the plains of the Panjub. Preparations of malt have acquired some reputation of late years in Europe and America, since they are more demulcent and nutritious than those of the unmalted barley. Malt extract may be prepared by boiling two to four ounces of the germinated and dried grain in a quart of water and straining. When hops are added, the decoction becomes wort, and acquires tonic properties, which have been found especially valuable in cases of debility following on long continued chronic suppuration.

1347. *Bambusa arundinacea, Retz.*, H.F.B.I., VII. 395. Roxb. 191.

Syn. :—B. orientalis, *Nees*; Arundo bambos, *Linn.*;

Sans. :—Vansa, kichaka.

Vern. :—Bâns, kattang, magar bâns, nâl bans (H); Bâns, behur bâns (B.); Buâh (Ass.); Katanga (Kol); Mat (Santali); Wâh-kanteh (Garo.) Bariala (Chittagong); Magar, nâl (Pb.); Wâns (Guz.); Kalak, padai (Konkan); Vas (Panch Mahals); Mand gay (Bomb.); Bhâns, chânsâ, bambu (Duk.); Kati wadûr

(Gond); Mulkas, kanka, bongâ, veduru, bonga-veduru, pente-veduru (Mad. Tel.); Bidungulu (Kan.).

Habitat:—Throughout the plains and low hills of India, wild and cultivated.

Stems many, tufted on a stout rootstock, branching from the base, upto 80-100ft. high by 6 7in. diam., graceful curving nodes prominent, lowest rooting, lower emitting, horizontal almost naked shoots armed at the notes with 2-3 stout recurved spines, sometimes an inch and more long, internodes upto 18in., walls 1-2in., thick stem, sheaths coriaceous, variable in shapes upto 12-15 by 9-12in., striate, tip-rounded, margins plaited young, orange-yellow streaked on the green or red and thickly ciliate with golden hairs, blade upto 4in., triangular, acuminate glabrous without densely heriate within, margins decurrent thickly ciliate, ligule narrow, entire or fringed with pale hairs; leaves upto 7-8 by 1in, linear or linear lanceolate, tip stiff, glabrous or puberulous beneath one or both margins scabrous, base rounded ciliate mid-rib narrow, veins 4-6 with 7-9 intermediate and a few transverse pellucid glands; leaf sheath ending in a thick callus, and short briskly auricle, ligule short; inflorescence an enormous panicle often occupying the whole stem, branchlets bearing loose clusters of pales, suberect $\frac{1}{2}$-1 by $\frac{1}{5}$in. lanceolate acute, glabrous spikelets glumes $\frac{1}{5}$-$\frac{1}{3}$in. long, ovate lanceolate acute or mucronate many veined empty 2 or 0; flowering 3-7, uppermost 1-3; male or neuter, paled sub-acute; keels 2 ciliate, lodicules ovate or obovate hyaline ciliate 1-3 veined; filaments slender, anthers obtuse yellow; ovary oval-oblong tip, hairy, style short grain $\frac{1}{5}$-$\frac{1}{3}$in. oblong beaked by the style base-smooth, grooved in one face. (Trimen.)

Flowers at about 30 years of age, (Brandis.) 30-40, says Kanjilal.

Uses:—In addition to the many important uses to which the bamboo is applied in tropical life, it forms by no means an insignificant article of the Indian Materia Medica. Its supposed virtues are set forth at length in the Taleef Shereef (art. Bans,

p. 28, No. 114). A belief in the emmenagogue properties of the leaves is common alike in India and China; but neither in this nor in any other character does it appear worthy of attention as a medicine. In positions where ordinary surgical appliances are not at hand, it is well to bear in mind that, with very little manipulation, splints of any required length or size can be obtained with little delay from the stems of the bamboo. For this purpose the older drier stems are to be preferred, the younger yielding somewhat on pressure. A silicious concretion, Tabashir or Tabasheer, found in the articulations of the bamboo, merits a brief notice. The most complete account of its varieties, history, formation, and properties has been published by Sir David Brewster (Philosoph. Trans., 1819, and Edin. Journ. of Science, vol. viii., p. 286); and in the same paper are embodied some learned remarks by Prof. H. H. Wilson on its nomenclature, and the uses to which it is applied by the natives, drawn from Sanskrit works. Several analyses of it have been made by Smithson, Fourcroy and Vauquelin, John, and Dr. E. Turner. The most recent and complete is that of Prof. T. Thomson, of Glasgow (Records of Gen. Science, Feb. 1836) who found its constituents to be, in 100 parts, Silica, 90·50; Potash, 1·10; Peroxide of Iron, 0·90; Aluminia, 0·40; Moisture, 4·87; Loss, 2·23. It is highly prized in native practice as a stimulant and aphrodisiac; but from its composition we are warranted in believing that as a medicinal agent it is inert. (Madras Quart. Journ. of Med., April 1862, p. 245.) (Ph. Ind.)

The tender leaves of this plant used with black pepper and common salt to check diarrhœa in cattle. (Thornton, Monghyr.) The most efficacious application for dislodgment of worms in ulcers is a poultice made by pounding the young shoots of the bamboo. The juice is first poured on the vermin, and the ligneous mass is applied and secured by a bandage. (Hony. Surg. P. Kinsley, Madras.) The leaf-bud is used as decoction to encourage the free discharge of the menses or lochia when this is scanty. (Moodeliar, Madras.) Used in leprosy, fevers and hæmoptysis. (Thompson, Madras.)

Tamil practitioners say the root is diluent, the bark cures

eruptions, leaves emenagogue, and the *tabashir* is useful in paralysis and flatulence. (Balfour's Cyclopedia Vol. I., 261.)

"*Tabashir* is a cooling medicine, generally given in fever to assuage thirst, also expectorant." (Barren, Bhuj, "Used as a medicinal ingredient in cases of diarrhœa, dysentery, &c." (Mr. Darrah, Assam.)

1348. *Dendrocalamus strictus, Nees.* H.F.B.I., VII. 404.

Syn. :—Bambusa stricta, *Roxb.* 193. Behur Bans.

Vern. :—Bans; bans kaban; bans khurd; kopar (H.); Karail (B.); Mathan; saring; burumat (Kol); Halpa; veddar; vadur (Gond); Bas; udha (Bomb.); Bhovarlit (Mar); Kanka; Sâdhanapu vendaru (Tel.).

Habitat :—Throughout India.

Arborescent unarmed Bamboos with densely branching root-stocks. Stems 10-50 ft. by 1-3 in. diam, hollow in most climates solid in dry, young glaucous green old yellowish nodes swollen lower often rooting, internodes 12-18 in. upper branches decurved. Stem sheathes variable lower 3-12 in. glabrous or strigose with yellow brown pairs, striate top rounded ciliate, slightly auricled blade triangular hairy especially within ligule narrow. Leaves deciduous narrowed from the rounded petioled base to the twisted tip, midrib prominent nerves 3-6 pair with interposed pellucid glauds. Sheath striate hairy callus prominent auricle shirt ciliate with flexuous deciduous hairs; ligule narrow, serrate. Pancile large leads dense, 1-1½ in. much smaller M.S. forms. Rachis smooth internodes 1½-2 in. Spikelets usually hairy, ovary stipitates turbinate style long stegma simple, feathers Grain broadly ovoid shinong beaked hairy above.

Uses :—The silicious matter found near the joints is officinal, and used as a cooling, tonic and astringent medicine. The leaves are given to animals during parturition, from a supposition that they cause a more rapid expulsion of the placenta.

FILICES.*

Adiantum :—Sori marginal, varying in shape from globose to linear usually numerous and distinct, sometimes confluent and continuous; indusium of the same shape as the sorus, formed of the reflexed margin of the fronds bearing the capsules on its under side, veins free. (Beddome.)

1349. *A. lunulatum, Burm.*

Ref. :—Beddome's Handbook to the Ferns of Br. In., &c. p. 82.

Vern :—Káli-jháut (B. and H.); Mubárak ; rajhans or hansraj (Bomb.); Ghoṛakhuri (Bomb.).

Habitat :—Throughout North India in moist places. South India very general on the western side in the plains and lower slopes of hills. (Birdwood's catalogue of Matheran and Mahableshwar flora.) (K. R. K.)

Stipes 4-6 inches long, tufted, wiry, naked, polished dark chestnut-brown ; fronds 6-12 inches long and 3 inches broad, simply pinnate, often elongated and rooting at the apex ; pinnæ subdimidiate, the lower edge nearly in a line or oblique with the petiole, the upper edge rounded and like the bluntly-rounded sides usually more or less lobed ; petioles of the lower ones spreading $\frac{1}{4}$-$\frac{1}{2}$ inch long, texture herbaceous ; the rachis and both surfaces naked ; sori in continuous lines along the edge.

Uses :—" In Gujrat it is extensively used in the treatment of chidren for febrile affections. The leaves are rubbed with water and given with sugar. It is worked up with ochre and applied locally for erysipelatous inflammations." (J. Robb. Ahmedabad). " Demulcent ; used externally as a cooling lotion in cases of erysipelas." (Surg. W. Barren, Bhuj, Watt's Dic.).

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* Regarding Medicinal Ferns, the late Dr. M. C. Cooke wrote in the *Pharmaceutical Journal* for September 3rd, 1870 :—

" Ferns have been rather extensively employed in medicine, and some of them have acquired considerable reputation ; but it is doubtful whether, with two or three exceptions, they are of any real value. Some are probably inerts, others only possess properties which are more highly developed in other substances. On the whole, ferns are by no means important remedial agents, and their enumeration is more matter of curiosity than suggestive of value."

1350. *A. caudatum, Linn.*

Ref. :—Beddome's Handbook to the Ferns of Br. In., p. 83.

Sans. :—Mayúraśikhá.

Vern. :—Adhsarita-ki-jari ; Gun Kiri ; Raj-hans ; Parsiya washan (Pb.).

Habitat :—Throughout India, Ceylon and the Malay Peninsula in the plains and on lower slopes of hills.

Stipes, 2-4 inches long, tufted, wiry, spreading, dark chestnut brown, tomentose, fronds 6-12 inches long, simply pinnate, often elongated and rooting at the extremity, pinnæ ½-¾ inches long, ¼ inch deep, dimidiate, nearly sessile, the lower line straight and horizontal, the upper rounded, more or less cut, often deeply and repeatedly, the point usually blunt, the lower ones slightly stalked texture coriaceous, the veins prominent ; the rachis and both surfaces of the frond villose. Sori roundish or transversely oblong on the edge of the lobes. (Beddome).

Uses :—The leaves of this species are, in the island of Bourbon, used in the preparation of *sirop-de-capillaire.* (Ainslie). Used to cure cough and fever. (Ibbetson.)

Used externally as a remedy for skin diseases. (Surg. W. Barren, Bhuj.) Said to be useful in diabetes. (D. R. Thompson, M. D. Madras.).—Watt's Dict.

1351. *A. Capillus-Veneris, Linn.*

Ref :—Beddome's Hand book to the Ferns of Br. Ind., p : 84.

Vern :—Dûmtuli (Kashmir) ; Pursha ; Hansraj ; Mubâraka, (Hind) ; Hanspadi (Guj).

Habitat :—Western Himalaya ; Punjab ; common in South India. Near Panchgani (Birdwood's catalogue of Matheran and Mahableswar). (K. R. K.).

Stipes suberect, rather slender, 4-9 inches long, polished, blackish, naked ; fronds bipinnate, with a short terminal pinna and numerous erect-patent lateral ones on each side, the lowest slightly branched again ; segments ½-1 inch broad, the base cuneate, the outer edge rounded, deeply lobed from the circumference in the direction of the centre, and the lobes again bluntly crenated, lowest petioles ¼ inch long, texture pellucid herbaceous, thin ; rachis and both surfaces naked ; sori roun-

dish or obreniform, placed in the roundish sinuses of the crenations.

Uses :—In the Punjab, the leaves along with pepper, are administered as a febrifuge, and in South India, when prepared with honey, they are used in catarrhal affections (Watt).

At Colomas (in Mexico) this plant is used as a tea to relieve colic, but at Colothan it is taken as a tea for amenorrhea. This furnishes a good example of the diverse uses plants are often put to. (J. N. Rose's useful Plants of Mexico).

1352. *A. venustum, Don.*

Ref :—Beddome's Handbook to the Ferns of Br. In., p. 86.

Vern. :—Par-i-siya washan, hansrâj, Hind., in the Bazars. The Makhzan gives Kali-jhant as the Hindi name of this plant. In Bombay it is chiefly known as mubaraka. The plant is generally known as ghâs in the Punjab Himalaya.

Habitat :—Himalayas up to 8,000 feet in altitude, and chiefly in the North-Western Himalayas extending to Afghanistan.

Fronds 3-4-pinnate; pinnules firm, membranaceous, glabrous, and slightly glaucous beneath, shortly petiolulate obovate-cuneate, rarely subrhomboid-acuminate, striated, the superior margin rounded, scarcely ever or but slightly 2 or 3 lobed, finely dentate-serrate, fertile lobes with 2, rarely 3 notches, each notch bearing a rather large sorus at the bottom; involucres reniform-cordate, submembranaceous; stipes and slender rachis everywhere ebeneous-glossy, glabrous. (Beddome.)

Uses :—It possesses astringent and aromatic properties, is emetic in large dostes, and is a tonic and a febrifuge and expectorant. This remark is given by Mr. Baden-Powell in his *Punjab Products* under A. caudatum, A. venustum and other species, and it is probable that if all the preceding are not actually used indiscriminately or as substitutes for each other in different districts, they might easily be so, since they seem all to possess the same properties. Stewart says that "in Chumba it is pounded and applied to bruises, &c., and the plant appears to supply in the Punjab most of the officinal *hansraj*, which is administered as an anodyne in bronchitis, and is considered

diuretic and emmenagogue." Native writers do not distinguish the various species of Adiantum. (Dr. Dymock.)

A vapor bath medicated by a decoction from this plant is regarded useful in fever. (Dr. Emerson.) It is recommended by Hakims for hydropholia. It is resolvent and also used for the prevention of hair from falling. For internal use given in the form of a Syrup. (Asst. Surg. J. N. Dey, Jeypore). Very useful as a mild tonic, especially during convalescence from fevers (Dr. J. Anderson, Bijnor.)—Watt's Dict.

1353. *A. flabellulatum, Linn.*

Ref:—Beddome's Handbook to the Ferns of Br. In., p. 88.

Habitat:—Nepal, Assam, Khasia Hills and Sylhet.

Scales on rhizome, linear, long, lax, chestnut coloured; fronds flabellate, bipartite-pedately divided, tripinnate; secondary pinnæ lanceolate-acuminated, pinnules glabious, subcoriaceous-chartaceous obliquely cuncate or semi-orbicular, superior base truncate, superior margin 2-4 lobed and serrate-dentate in the sterile one lobes soriferous, involucres large the breadth of the lobe, oblong straight rarely a little curved, hard coriaceous, stipes elongated ebeneous scabrous below; the rest as well as the slender rachis glossy and blobious. (Beddome).

Uses:—I was told by a Manipuri Sepoy that the root was used medicinally (Watt).

Cheilanthes:—Sori terminal or nearly so, of the veins, at first small subglobose, afterwards more or less confluent, indusium formed of the changed reflexed margin, roundish and distinct, or more or less confluent, but not quite continuous; fronds subcoriaceous in texture, mostly under 12 in. often under 6 inches long, 3-4 pinnatifid, veins free.

1354. *C. tenuifolia, Lw.*

Ref.:—Bed. Handbook. Ferns Br. I. p. 92.

Vern.:—Nanha, dodhari (Sant.)

Habitat:—Madras Presidency, common in the plains; (dry localities) and on low hills up to 4,000 ft. Bengal plains, in Assam, Chittagong, Dakka, Chota Nagpore, Khasya hills upto 35,000, ft. Sikkim and Malay Peninsula. (Beddome.)

Annual, caudex short-creeping, scaly, stipes elongated, rarely scaly; frond submembraneous or more or less deltoid, subtripinnate, ultimate lobes of the primary and secondary divisions the largest, more or less pinnatifid; pinnules elliptic oblong or oblong lanceolate, subpinnatifid or crenate, with broad blunt teeth involucres mostly elongated, more or less confluent, more or less crenated or denticulate, sometimes transversely wrinkled; stipes and rachis purple-black, main rachis winged above, secondary and tertiary rachises all with a narrow wing-hook.

Uses:—The Revd. A. Compbell writes that the Santals prescribe a preparation from the roots of this fern for sickness attributed to witchcraft or the evil eye.

Actinopteris:—Sori linear, elongated, submarginal, indusium the same shape as sorus, folded over it placed one on each side of the narrow segments of the frond, opening toward the midrib; a single species like a minature palm.

1355. *A. dichotoma, Forsk.*

Ref.:—Beddome, Handbook to Ferns of Br. Ind., p. 197.

Vern.:—Mor-pankhi; mor-pach, (U. P.); Mayursikha (Bomb.).

Habitat:—Throughout India, especially the Peninsula in dry rocky places below 3,000 feet elevation. Khandalla, Katraj Ghat on Mahableshwar Road. I remember to have seen this fern in the Victoria Gardens of Bombay. K. R. Kirtikar.

Stipes densely tufted, 2-6in., long; fronds like fans, 1-1½in. deep, composed of numerous dichotomous segments which are rush-like in texture, not more than ½ line broad, the veins few and sub-parallel with the indistinct midrib, the segments of the fertile frond longer than those of the barren one. (Beddome.)

Uses:—Used as an anthelmintic and styptic.

Dr. Dymock speaks of A. lunatum and A. venustum collectively and says:—"The native physicians consider maidenhair to be deobstruent and resolvent, useful for clearing the primæ viæ of bile, adust bile, and phlegm, also pectoral,

expectorant, diuretic and emmenagogue. Used as a plaster it is considered to be discutient, and is applied to chronic tumors of various kinds."

Drynaria :—Fronds articulate with the caudex, with either a separate sterile frond like an oak leaf or the base of the frond pinnatifid and oak-leaf-like; veins copiously anastomosing, forming quadrate or hexagonal areoles; sori small, round or oval, numerous. (Beddome).

1356. *D. quercifolia, Linn.*

Syn. :—Polypodium quercifolium, *Linn.*

Ref. :—Bedd. Handbook to the Ferns of Br. In., p. 341.

Vern :—Bâsingh or Wândur-bâshing (Mar.).

Habitat :—Through the Indian Plains, or very low down on mountain on trees or rock. Seen in the Court House garden of Ratnagiri on a tree in 1898-1905. Rajapur Ratnagiri District 1899-1904. (K. R. Kirtikar.)

Rhizome creeping, short, stout, densely clothed with red-brown satiny lanceolate-subulate soft scales, which have a cordate base, and are ¼-½in. long; fronds coriaceous or sub-coriaceous of two kinds, sterile ones varying in size from 3-12 inches and more long, and 7-8 inches wide, green when very young, but soon turning dark-brown, glossy, cordate-ovate variously lobate-pinnatifid, sometimes half way down to the costa; fertile ones 2-3ft. long, long-petiolate broad-ovate deeply nearly to the rachis pinnatifid, segments 5-9 inches long, 1-1½ inches wide, oblong acuminate, entire; venation manifest, costules distinct rather distant, united by transverse veins forming 4-6 primary soriferous areoles filled up with a network of small quadrangular areoles with or without free veins; sori compital small, numerous, two in each primary areole, consequently in 2 series between and parallel with the costules.

Uses :—For medicinal purposes those plants which grow upon the strychuos nux-vomica are preferred. The author of the Wanaushadi Prakâsh gives the following prescription containing Bâsingh as the best cure for phthisis :—Take 2 tolas of Kâjrabâsingh, 2 tolas of Chiretta; 1 tola Ooksi flowers

(calycopteris floribunda); 2 tolas ghâs-pitpapra (Rostelluharia procumbens); 2 tolas Ringan-mûl (root of Solanum indicum); 2 tolas Balbel-phal (small immature fruit of Ægle Marmalos), 2 tolas Padmini-mul (root of Nelumbium speciosum), 4 tolâs sonar-wel-mûl, 2 tolâs gokhru-mul (root of Tribulus terrestris). These nine drugs are to be powdered and divided into seven parts. For administration each part is to be boiled in 40 tolâ s of water, sweetened with 2 tolâs of sugar-candy, and the decoction (Kâra) boiled down to one-sight; this is to be taken in the morning, and the mare is to be again treated in the same manner to furnish the nikâra (second decoction) or evening dose. The same prescription is recommended in hectic fever from whatever cause, and in dyspepsia and cough; during its use potatoes and indigestible vegetables are to be avoided. (Dymock).

1357. *Pleopeltis lanceolata, Linn.*

Ref:.—Bedd. Handbook to Ferns of Br. Ind. &c. p. 351.

Habitat:—Nilgiris and higher mountains on the West side of the Madras Presidency; Assam and Ceylon.

Rhizome long-creeping, paleaceous, with lanceolate ferruginous scales, stipes remote, 1-2-4 inches long; fronds coriaceous, 3-9 inches long, $\frac{1}{4}$-$\frac{3}{4}$ inch wide, lanceolate, more or less acuminate, long and gradually attenuated at the base, copiously furnished with orbicular ovate, small appressed peltate scales dark in the centre, pale in the circumference and denticulate; veins immersed indistinct, the primary veins form large obliquely elongated areoles, which include very irregular and different sized areoles, and a few free veinlets which are rarely forked; sori generally very large and often exceedingly prominent, pulvinate globose or oval, stalked scales mixed with the spore cases.

Uses:—In Mexico, a tea made from the fronds of this fern is taken to cure the itch (I. N. Rose's Notes on useful plants of Mexico.) This fern is not used in India for any medicinal purposes, (B.D.B).

Dr. M. C. Cooke, in his paper on Medicinal Ferns, published

in the Pharmaceutical Journal for September 3rd and 10th, 1870 mentions the uses of the following ferns which are indigenous to British India.

1358. Adiantum æthiopicum, *Linn.** This is a cape species. An infusion is sometimes used as an emollient in coughs and diseases of the chest. A syrup is also prepared from it. The Basuto Kafirs, who call it "Ma-o-ru-metsoo," employ its caudex in the shape of decoction for promoting parturition.

1359. Adiantum pedatum, *Linn.*† "Canadian Maiden-hair." This is said to be the most esteemed sort of Maiden-hair, being more aromatic than the European Maiden-hair It was formerly more employed than at present as a pectoral in chronic catarrhs. Many imaginary virtues have been ascribed to this as well as other ferns.

1360. Asplenium adiantum-nigrum, *Linn.*‡ "Black Spleenwort." The medicinal properties of this fern have been extolled by various old authors, but its use is unknown in modern practice. Ray sums up a catalogue of diseases in which it is supposed to be beneficial.

1361. Asplenium Ruta-muraria, *Linn.*§ "Wall Rue." Lightfood says that this fern was at one time sold as an expectorant and deobstruent. It was one of the species employed as a substitute for Maiden-hair.

162. Asplenium Trichomanes, *Linn.*‖ According to Lightfood, this fern was formerly used as an expectorant by the peasantry of Scotland. This is another of the many substitutes for the true Maiden-hair, now fallen into disrepute. Is the "Myle conday" of the Tamils.

1363. Athyrium Filix-femina, *Bernh.*¶ The rhizome of this fern has been used as a substitute for that of the Male-fern, and the same virtues as an anthelmintic have been ascribed to it. It is now generally admitted, however, that these virtues were more supposititious than real, and it has ceased to be employed.

1364. Botrychium Lunaria, *Sw.*** "Moonwort." Magical properties have been assigned to this fern. Gerarde says, "It is singular to heale green and fresh wounds. "It hath been used among the alchymists and witches to doe wonders withall, who say that it will loose lockes, and make them to fall from the feet of horses that grase where it doth grow, and hath been called of them 'Martagon,' whereas in truth they are all but drowsie dreams and illusions; but it is singular for wounds as aforesaid." Ray commends its virtues in dysentery.

1365. Cibotium Baromelz, *Sw.*†† Yields the "Penawar Jambie" of Sumatra. It is a similar substance to "Pulu" and employed for like purposes. This is

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* *Ref.* Bodd. Hand-book to ferns of Br. Ind., p. 84.
‡ " " " " p. 86.
† " " " " p. 156.
§ " " " " p. 156.
‖ " " " " p. 143.
¶ " " " " p. 168.
** " " " " p. 469.
†† " " " " p. 24.

the Scythian Lamb of old writers, of which such marvellous stories were told.

1366. Cibotium glaucum, *Hook. et Arn.*;* C. Chamissoi, Kaulf.; C. Menziesii, Hook. "Pulu." All these, if really distinct, are natives of the Sandwich Islands, and yield the substance called "Pulu," which is the silky hair found clothing the rhizome and lower portion of the stalk or stipes. It has been recommended as a styptic. For further particulars, consult 'Pharmaceutical Journal,' Series 2, Vol. I. p. 501.

1367. Davallia tenuifolia, *Sw.*† In the Mauritius this forms the basis of the compound remedies used by empirics for tambave, and is often administered internally in decoction without any admixture, and also in the form of a lotion and bath.

1368. Helminthostachys Dulcis, *Kaulf.*‡ This fern, Dr. Lindley states, is regarded in the Moluccas as a slight aperient; it is used as a pot-herb, and its young shoots as asparagus.

1369. Ophioglossum vulgatum, *Linn.*§ "Adder's-tongue." "The leaves of adder's-tongue," writes Gerarde, "stamped in a stone mortar, and boiled in oyle olive unto the consumption of the juice, and until the herbes be dry and parched, and then strained, will yield a most excellent greene oyle, or rather a balsame for greene wounds, comparable to oile of St. John's wort, if it do not farre surpasse it by many degrees; whose beauty is such that very many artists have thought the same to be mixed with verdigrease.

"For them that are with newts or snakes or adders stung.
He seeking out an herb that's called adder's-tongue,
As nature it ordain'd its own like hurt to cure,
And sportive did herself to niceties inure."

1370. Osmunda regalis, *Linn.*‖ "Royal Fern." A native of Europe. The rhizome was formerly employed medicinally, but seems to be of little or no value. It is affirmed to be tonic and styptic, and to have been serviceable in cases of rachitis.

1371. Pteris aquilina, *Linn.*¶. "Common Bracken." Native of Europe. The rhizome is said to be astringent and anthelminitic. Lindley says that it has been used with some success as a substitute for hops. Its esculent qualities must be very poor, although it is said to be sometimes eaten. The ancients used rhizomes and fronds, in decoction, in chronic disorders arising from obstructions of the viscera and spleen. It is sometimes employed abroad in dressing and preparing kid and chamois leather

Undetermined Indian Ferns. Several ferns products employed in India have been enumerated, but at present without accurate identification. Amongst these are "Iskoolikundrion," a species of Scolopendrium; "Doonditarus," a species of Dryopteris; "Surkhus" or "Bitarus," probably a species of Pteris; and "Bisfaij" or "Bulookunbood," which is referred to a species of Polypodium."

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* *Ref.* Bedd. Hand-book to ferns of Br. Ind. p. 24.
† " " " " p. 70.
‡ " " " " p. 467.
§ " " " " p. 464.
‖ " " " " p. 450.
¶ " " " " p. 115.

FUNGI.

1372. *Agaricus campestris, Linn.*

Vern.:—Alombe, khumba (Bom.); Kagdana chhatra (Guj.); Kuti lenbhâ, Khumba (Sind). Bheœphore (Pb); Mânskhel (Kashmir); Moksha (Chamba); Khûmbah, shâmbûr, chattri (Afg. Bazar names); Kûmbh samarogh (Stewart); Herar, poisonous forms.

Habitat:—Abundant in fields in many parts of India, especially in the Panjab. Very largely prevalent in the Thana district, Salsette Island near Bombay. (K.R.K.)

Pileus 3-6 inches across, globose, then convexoplane, dry, silky, floccose or squamulose, white becoming reddish-brown when cut, giles free but rather close to the stem, $\frac{1}{4}$-$\frac{2}{3}$ inch broad pink then flesh-colour, finally blackish-brown, subdeliquescent; stem 3-4 inches long, $\frac{3}{3}$-1 inch thick, subequal, white stuffed, ring median persistent, more or less torn. Spores purple-brown, elliptic, 7-9 by 6 inches.

Use.—The small dried mushrooms are officinal in the Panjab and are sold as "*Mokshai*," being regarded as alterative.

1373. *Boletus Nitus Arto-carpalis, K. R. Kirtikar.*

Vern.:—Phanasa-alombe, or vulgarly phansamba.

Habitat:—Is common on old jack trees in Bombay.

Uses.:—It is ground to a paste with water and applied to the gums in cases of excessive salivation. It appears to have much the same properties as amadon, and to be a useful styptic. It is also given internally in dysentery and diarrhœa, and applied to the mouths of children suffering from aphthæ (Dymock.)

In form this fungus resembles the hoof of a horse. Externally it is of a rich orange-brown colour when fresh, and has a sweetish, styptic taste, but when long kept it turns to a dull brown colour. The fungus consists of a number of laminæ upon the under surface of which the hymenium is situated.

Colonel K. R. Kirtikar wrote the followiug note published at p. 73 of the First Volume of the Journal of the Bombay Natural History Society :—

"The fungus described by Dr. Dymock in his Vegetable Materia Medica of Western India (p. 704, 1st Edition) * is called Phanasamba in Marathi and

* P. 898, 2nd Edition, and p.

named by him as *Agaricus ostreatus*. *Agaricus ostreatus* often does grow on jack fruit-tree. But on examining genuine specimens of what is usually gathered and sold and used under the name of *Phanasamba*, it appears to be a *Polyporus* and not an *Agaricus*. (See Badham's Esculent Fungi, Plate X, and Mrs. Hassey's Illustrations of British Mycology XIX. Plate, Second Series). Dr. Sakharam Arjun, following old descriptions, also calls the fungus *Agaricus ostreatus*.

But a figure of the *Polyporus* is given in Batsch's Elenchus Fungoram, Plate xli, page 114, Continuatio Secunda. It is called *Boletus* '*Niteus*' or *Crocatus*. It appears a proper description of thanasamba has not yet appeared. I exhibit several specimens, a general description of which will appear in my work on the Bombay Fungi, which I hope will be published at no distant date.* As this variety of *Polyporus* mainly derives its name from its habitat—growing on *Phanas* or Jack tree—I have named it *Boletus Niteus Artocarpalis*.'

1374. *Mylitta lapidescens, Horan.*

Vern. :—Karom-pallagam (*Tam.*, meaning a black medicinal substance).

Habitat :—Southern India.

These fungoid bodies are like small tubers having a black, finely-wrinkled surface, and the inside is white and marked with veins, and a microscopic section shows the division of the tissue into areolæ similar to that exhibited by hyprogæous fungi. In a fresh state they have a waxy consistence, but when dry they are hard and horny. Some fresh slices immersed in glycerine for several weeks showed no crystalline or crystalloid formations, and starch was entirely absent.

Uses :—They are much esteemed by native doctors for various complaints, and they are regarded as diuretic. (Pharmacogr. Ind., III. 629.)

The Journal of the Board of Agriculture for July 1917 concludes an important article on the Nutritive Value of Edible Fungi as follows :—

Summarising the results obtained from the analysis of various edible fungi, and comparing them with other foods, it is obvious that mushrooms can in no sense be regarded as substitutes for flesh-forming foods, such as meat. It may be noted that the common mushroom (*Agaricus campestris*) is richest in proteid substances of all the species examined. Even so, however, its proteid content is no higher than that of cabbage or potatoes, and in total

* Alas ! this hope of the writer was not realised.—B. D. B.

nutritive value it is far inferior to the latter on account of its poorer carbohydrate content.

Fungi, therefore, cannot be ranked with the essential foods. At the same time they are not to be looked upon as absolutely worthless. They may be made to serve a useful purpose as food accessories. Their agreeable flavour renders them especially suitable as flavourings or for use along with other more nutritious foods ; variety and palatability are well-known to be important factors in the question of diet. From this point of view, however, *purchased* mushrooms in this country are usually not an economical addition to the menu ; but where edible fungi can be gathered or obtained very cheaply they may take their place in adding variety to the diet.

Too great care cannot be exercised with regard to the use of edible fungi by persons not very familiar with the different species. The determination of species of Agarics, or gill-fungi, is by no means easy, and even mycologists of some experience may sometimes be deceived by close resemblances between edible and poisonous species. There is no test which can be used for the detection of poisonous varieties, and the soundest advice which can be given to the would-be fungus-eater is not to experiment unless he is absolutely certain of the species with which he is dealing, and never under any circumstances to eat fungi which are not perfectly sound and unattacked by insects. In cases of doubt expert advice should be asked.

As a class, they are hardly of much medicinal importance. It is better not to use them at all, since their use may lead to untoward symptoms from the difficulty of distinguishing the non-poisonous varieties from the poisonous ones.

ALGÆ.

1375. *Ulva latissima, Linn. The Broad Green Laver.*

Hab.—On rocks in the sea at Manora (Sind). Very widely distributed. Collected in Sind to a small extent in September and October.

Frond 4-18 inches long, widely oblong, waved, and of a green color. Edges waved.

Uses :—Said to be of value in scrofulous cases. (Murray.)

1376. *Porphyra vulgaris, Ag. The Purple Laver or Sea Silk.*

Hab. Manora rocks, between tide-marks.

Frond thin and membranaceous, not laciniated as in *P.*

laciniata. Length of frond 1-2 feet, breadth 2-3 inches.—*Grev.*

This weed is known in Sind as "Las" or "Lash," (mucilage) evidently from its containing a quantity of gelatinous matter. It is gathered just before the monsoon. Medicinally it is prescribed by native hakeems as a demucent in bad cases of scrofula, in conjunction with emulsion of almonds. As an article of diet it is said to be used in many places in the south of England and the Western Isles. (Murray.)

1377. *Fucus vesiculosus, Linn., Eng. Bot.* 1066. *Bladdery Sea-wrack.*

Hab. Manora rocks.

Frond plane, compressed, linear, dichotomous, entire at the margin, coriaceous, 2-3 feet long. Root a flat, hard, disk. Air vessels in pairs, large. Receptacles in pairs often forked, terminating the branches, mostly elliptical, turgid.

The medicinal uses of this weed in Sind, or in any other part of India, are not known. The mucus of the saponaceous vesicles is said to be very effectual in removing glandular swellings; and a tincture of the vesicles to be of use as an embrocation in rheumatism. The calcined powder of the plant is said to have the same medicinal virtues, answering also as a dentifrice. If is, besides, valued in the manufacture of kelp and iodine. This fucus is said to be the basis of the popular "Anti-fat." (Murray.)

1378. *F. distichus, Linn., Eng. Bot. t.* 12. 102. *Distichous Fucus or Sea-wrack.*

Hab. Manora rocks.

Bushy; frond entire, linear dichotomous, without vesicles, ribbed. Receptacles in pairs, linear, elliptic.

Medicinally this weed is considered deobstruent; and has, also like *F. vesiculosus,* been found efficacious in scrofulous swellings, and also bronchocele. (Murray.)

1379. *Laminaria saccharina, Lam., Sweet Tangle.*

Gillur ka patta. *Sind* and *Punjab.*

Hab.—In all seas.

Root of clasping fibres; stem 1 inch to a foot in length. Frond 1-10 feet in length; 1-16 inches in breadth, occasionally bullated or rugose, cartilaginous or leathery.—*Harvey.*

As an article of commerce this weed is said to find its way from the Caspian into India. In Thibet it is said by Honigberger to grow in a salt lake. When dried in the sun it exudes a whitish substance resembling Manna, hence called "Mannite,"—which Dr. Stenhouse, in his analysis of various weeds, found in the greatest abundance in this species. Medicinally this weed is employed in Sind for the cure of scrofulous affections. In syphilitic eruptions it is a favorite remedy, exhibited in the form of a syrup in conjunction with a decoction of Quince seeds (*Semina cydonia vulgaris*). In the manufacture of kelp and iodine the Laminarias are much valued. (Murray.)

LICHENES.

1380. *Parmelia Kamtschadalis, Esch.*

Hab.—Himalaya, Persia.

1381. *Parmelia Perlata, Esch.*

Sansk.—Śilâ Valkâ (rock-bark).

Vern.—Charéla, Charcharéla, Pathar-ke-phúl, Silá-bák (Hind.), Motha-dagada-phúl, Bárik-dagada-phúl (Mar.), Ghabilo, Chadila (Guz.), Kalpasi, Kalapu (Tam.), Ratipanchó (Tel.)

Hab.—India, Europe, Africa.

Uses:—In Persia these lichens are known as Ushnah and Dowálah. The author of the Makhzan-el Adwiya states that Ushnah grows upon the oak, cypress, and other trees; that which is whitest should be preferred; it should have an agreeable odour. He describes it as astringent, resolvent, and aperient, and says that the decoction is used as a tonic and alterative; when burnt, the smoke relieves headache, the powder is a good cephalic snuff. Externally the drug has emollient and nstringent properties, and may be used in a bath or as a poultice, &c. The dry powder is applied to wounds and sores to promote granulation. Honigberger mentions the use of the drug at Lahore in disorders

of the stomach, dyspepsia, vomiting, pain in the liver or womb, induration of the uterus, amenorrhœa, calculi, and nocturnal spermatic discharges.

Ainslie (ii., 170) says: "Kull-pashie is the Tamool name given to a dried pale-coloured rock moss, which the Vytians [*Vaidyas*] suppose to possess a peculiar cooling quality, and prepare with it a liniment for the head." (Pharmacogr. Ind. III. 627-628).

"Some years since it attracted considerable attertion as a diuretic, for which purpose it was first boiled in water, then beaten into a pulp or bruised in a mortar, and placed as a poultice over the renal and lumbar regions. Its efficacy in dropsical affections was attested by Dr. Stevenson, of H. M. 13th Dragoons (Calcutta Med. Phys. Trans., vol. v. p. 430), Dr. W. H. Radford (Mad. Med. Journ. 1839, vol. i. p. 18), and others (Ibid. 1843, vol. v. p. 389). According to these authorities the application of the lichen poultice was followed by marked diuresis; and dropsical cases which had resisted ordinary means, improved or recovered under its use. Dr. S. Rogers (Ibid. vol. i. p. 18), however, states that he tried it extensively at the Madras Native Infirmary, and that in every instance he failed to observe that it produced the least effect upon the kidneys. To test its alleged efficacy, it should be tried in a series of cases simultaneously with another series treated with an ordinary linseed or rice poultice; and the probability is that the continuous application of warmth and moisture by their means respectively would be found nearly equal." (Pharm. of India p. 260.)