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NOTES ON AGAVE AND FURCRÆA IN INDIA

[*Dictionary of Economic Products, Vol. I, A. 602-638; Vol. III, F. 749*]

By J. R. DRUMMOND and D. PRAIN.

CALCUTTA:
THE BENGAL SECRETARIAT BOOK DEPÔT.
1906.

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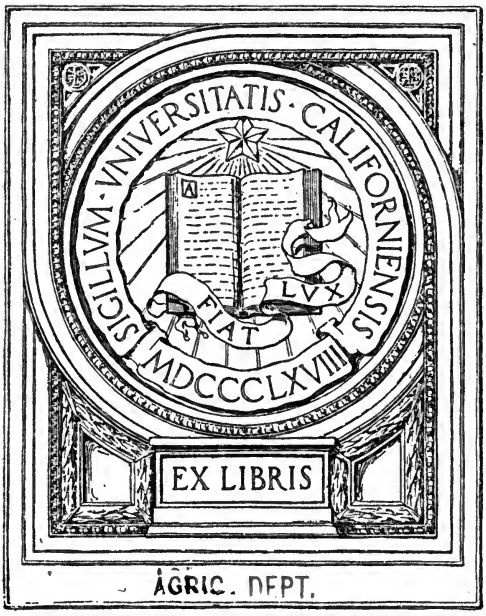

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NOTES ON

AGAVE AND FURCRÆA IN INDIA

(Dict. Ec. Pr., Vol. I, A. 602–638; Vol. III, F. 749)

BY

J. R. DRUMMOND AND D. PRAIN,

WITH A

GLOSSARY.

CALCUTTA:

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INTRODUCTORY.

WHAT is often called "**Aloe-fibre**" collectively is obtained in India from different plants assigned to the genera—

(1) **Sansevieria** . . *Nat. ord.* **Hæmodoraceæ**
(2) **Agave** . . . „ **Amaryllideæ**
(3) **Furcræa** . . . „ **Ditto**

Sansevieria yields "**Bowstring Hemp**" and is dealt with in *Kew Bulletin 4, April 1887*, to which nothing need be added here except that one or more *Sansevierias* appear to have meantime come into commercial use in India.

The object of this paper is to clear up so far as possible certain questions of botanical identity with regard to those forms of (2) and (3) that are domesticated in this country, and we have accordingly dealt with their history in some detail in another part of the paper. For those who may care to know our conclusions, without following all the steps that have led up to them, the first part will, we hope, be found useful; though it necessarily anticipates a good deal that is more fully discussed in the second.

PART I.—DESCRIPTIVE.

THE first part includes—

(*a*) a brief general description of the genera **Agave** and **Furcræa**, limited however as regards the former to the section *Euagave;*
(*b*) a description of those * species which are naturalized in India, or cultivated for their fibre, with a key to the species of *Euagave;*
(*c*) remarks on certain of the species known in India.

* Also of one species which is neither naturalized nor grown for fibre, viz., the "*False Sisal.*"

GENERAL DESCRIPTION OF EUAGAVE AND FURCRÆA.

We have followed Bentham and Hooker in regarding **Agave** and **Furcræa** as belonging to the **Amaryllideæ,** but whether this arrangement be adopted or not, **Agave** and **Furcræa** with a few minor genera form a natural tribe which may conveniently be styled the "**Agaveæ.**" It has been proposed to include the "**Yuccas**" with this, and to elevate **Agaveæ** to the rank of a Natural Order. The objection that this would include types with the ovary "superior" as well as those with it "inferior" is not very weighty (*cf. Engelmann's Collected Works, Cambridge Mass. 1887, p. 301*).

Both in **Agave** and **Furcræa** the perianth is divided into six usually uniform segments; in **Furcræa** these are separated for their whole length, but in **Agave** the "germen" (containing the ovary) is continuous with a cup which surrounds the base of the style and gives rise to the stamens, usually —though not always—at the same level as the free lobes of the perianth, which vary in outline from ovate-lanceolate to narrowly ligulate. In **Furcræa** the flower is more or less bell-shaped, and the segments broadly ovate; while the stamens often have their stalks dilated and are not inserted on the cup of the perianth but upon a ring which embraces the conical pistil. Moreover the stamens in **Agave** are doubled back within the bud, springing up elastically when the bud opens. The anthers of **Agave**—which, though absolutely large, are small in proportion to the size of the plant when compared with those of **Crinum,** or **Lilium,** for example, or of some **Gramineæ**—are versatile. In **Furcræa** the stalk of the stamens (filament) is stouter and shorter than in **Agave,** and the anthers, which are usually attached by their backs to the filament, do not overtop the perianth. The style in most *Euagaves* is at first shorter than the stamens, but elongates gradually until it overtops them, after which they shrivel up with the limb of the perianth-segments, but remain attached for some time to the maturing "pod" or capsule. In **A. Wightii** (*A. vivipara* of Wight) the bases of the perianth-lobes change in texture, as the ovules ripen, and remain as a beak to the capsule.*

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* *Engelmann* (*l.c., p. 304*) was led to suppose that the flower in *Agave* is vespertine or nocturnal. This was due to his having studied *A. virginica Linn.* only, a peculiar type which should probably be placed in a separate genus. The

The blossoms (in **Euagave**) are arranged in clusters* on the ultimate offshoots of a compound inflorescence, which consists of a series of main branches given off spirally from the main flowering stem or scape, which attains (*e.g.*, in **A. Vera-Cruz,** *Miller*) a height of thirty-five feet including the panicle. The scape is furnished with scarious bracts, and there are similar but smaller bracts at the origin of the subsidiary branches. The blossoms in **Furcræa** are arranged in rows (with a bract to each blossom) along the secondary branches of the panicle. The arrangement of the main and ultimate branches varies considerably, but is constant and often characteristic for particular species. In all, however, it conforms more or less closely to the well known "candelabrum" structure.

The leaves of *Euagaves* are very fleshy, usually ensiform, with a thick base which clasps the trunk by a dilated margin: above this the leaf is more or less narrowed or constricted, and then broadens upwards to the middle or above it, when it tapers to the point which merges in a cartilaginous prolongation of the leaf-margins or is capped by a stiff sharp horny spine which appears to originate in twisted strands of the internal fibres. In **Furcræa** there is seldom even a vestige of a terminal spine, and the tip, though usually involute for about an inch or less, is not ordinarily cartilaginous.

The margins of the leaf are beset at varying intervals with spines or prickles, differing in structure in the different species, but usually consisting of a thin sharp more or less transparent thorn arising from a broader opaque cushion which is formed presumably from the thickened epidermis of the leaf-margin. The substance of the leaf is always more or less fleshy, consisting of large loosely-compacted cellular tissue traversed lengthwise by a series of vascular bundles which constitutes the "fibre." The structure of these bundles and their direction vary with the species, but in all they appear to arch or interlace

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Indian *Euagaves* are more or less proterandrous as a rule, but are neither fragrant nor nocturnal.

* In certain species the primary division of the scape is trichotomous: that is, there are two side shoots with a third continuing the axis in the middle, but the blossoms are in pairs with a third flower at a slightly different level making up a ternary fascicle; in these fascicles the axis is presumably shortened, and the lateral bud is perhaps analogous to a trunk-offset.

to some extent towards the margins. The cellular tissue is replete, in most species, with mucilage* and different salts; it takes up and stores water in great quantity, and gives out under certain conditions a sweet sap or mead (as in the case of the "Pulque"-producing species). A nectar is secreted also by the flowers of most of the *Euagaves*.

The skin of the leaves is so arranged as to check transpiration (*Miss. Bot. Gard. Rep. VII, p. 52*). True hairs are altogether absent. Certain **Furcræas** have the cuticle of the under surface of the leaf equipped with minute tubercles, making the surface to the touch like sandpaper.

The leaves are arranged on the trunk or "*caudex*" in a more or less regular spiral; when the spiral is dense, a marked "*rosette*" is formed (as in "***A. vivipara*"); in other species again, such as **A. sisalana,** the leaves have the appearance of being tufted.† The angle formed by the leaf with the main axis varies greatly as between species; in the same species it is almost mathematically constant.

All **Agaves** were formerly supposed to require long periods before attaining maturity, and to perish after flowering; but experience has shewn that several species are truly *polycarpic*. As a rule, however, the *Euagaves* are *monocarpic*. (Cf. *Watson in Gard. Chron. 1. 1897 pp. 166–167.*) **A. americana** *Linn.* is the most variable as regards the period of flowering, but the recorded instances of prolonged dormancy are due probably to the specimens being cultivated in the north of Europe.

A. Vera-Cruz *Miller* appears to "pole" in South Spain after six years on an average, or on the Adriatic after twelve or fourteen, in a naturalized condition. In North India most of the **Agaves** (except **A. americana,** *Linn.*) seem to pole from their fifth to their seventh year, but if that be passed without flowering then not till the twelfth or fourteenth.

The Yucatan Indians are said to have a secret by which they can tell when the "**Sacqui**" (a species near to "**sisalana**") is about to pole, and by cutting off the bud poling is retarded in the interests of the planter.

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* *Saponin* is said by several writers to be present in the leaves and roots, but recent chemical analysis is reported not to have confirmed this.

† Forming a "*coma.*" ** *i.e.* our **A. Wightii.**

When a shoot has blossomed then in ordinary course it dies, but the trunk may give off living offsets, or new buds may form. In certain species, notably in **A. Vera-Cruz** and **A. sisalana**, the suckers often flower along with the parent.

Poling is accelerated, and may be produced, by injury, by sharp cold, transplantation, or any other sudden change in the condition of the individual. At Algiers in 1830 the French had occasion to clear for military purposes a piece of ground that was much overgrown with **Agave** and the soldiers were encouraged to destroy the plants, which during 1830-31 they did by hacking the leaves and slicing off the cone of inner leaves by way of sabre-practice. In 1832 the whole plain was covered with the bloom of some 1,500 Agaves (*Bull. Soc. Bot. de France IX, p. 146*). The effect of checks to the vegetative system in developing floration are familiar (an every-day example is afforded by the pruning back of roses); but for most purposes it may be assumed that any of the Indian **Agaveæ** (including "**sisalana**") may flower by its seventh year or even earlier.

The flowers of all the *Euagaves* are partly "herbaceous," *i.e.*, they retain to some extent the special texture and colouring of the vegetative parts, as distinguished from those of a normal perianth. Those parts of the flower (except the pollen) that do not thus lean to the vegetative type are generally of a more or less transparent amber. In **A. sisalana**, and perhaps in other species, the filaments are delicately banded ("fasciated") with a faint pink. The ripe pollen is invariably orange yellow, though the intensity varies with the species, and in the same species with the stage of development. There seems little reason to doubt that **Euagave** and **Furcræa** are wholly anemophilous. *Miss Mulford (Missouri Bot. Gdn. Rep. VII above quoted)* evidently thinks that the high scape and honeyed blossoms serve to attract small birds and large insects. Doubtless they do, and the aid given by this means is through the shaking of the flower or branches. Hybridization under artificial conditions is reported. With the larger species in a state of nature we should think it is of very rare occurrence.

All or nearly all the **Euagaves** are proliferous, *i.e.*, instead of all the flowers producing ripe seed-bearing capsules a certain number develop buds direct without seeding, which

are detachable and, on reaching the ground, commence an independent cycle of existence. Once the vegetative cone has formed in a bulbil, it is independent of the parent, as has been observed in several instances where the old plant had been killed and the pole was decaying; an example was seen by us near Calcutta on the 10th August 1904 in the case of "*A. vivipara.*" The fruit both in **Furcræa** and **Agave** when it ripens is a three-celled rather woody capsule, with a green or black rind, packed with numerous horizontal flat seeds of a shiny black, or in some species opaque. Its shape is various, from a depressed sphere to an oblong cylinder; sometimes it is furrowed or three-cornered.

For the embryo of **Agave** we quote *Engelmann* (l.c., p. 305):—

"*The filiform, cylindric, or slightly compressed embryo is as long as the hard whitish semi-transparent, farinaceous and oily albumen. In germination the seed-shell is elevated above the ground on top of the largely developed foliaceous cotyledon, contrary to the behaviour of Yucca where the husk enclosing the small and soon decaying cotyledon remains buried in the ground.*"

We have not seen the embryo in **Furcræa** or any account of it.

We have made no reference above to the colour of the leaves of the Indian **Agaveæ,** because this can best be handled in the descriptive list which follows; but the following general remarks may be found useful:—the prevailing colour of the upper surface of the leaf-blade in **Euagave** is a deep "sap green;" the under side is commonly the same, but a shade or more lighter. In **A. decipiens,*** *Baker* the whole leaf is of a bright glossy apple green, which is unusual. In different species the ground colour of the leaf is tinged with obscure shades of grey, or dull blue; and the edges may be parti-coloured, or the leaf striped with pale 'ribbons.' Several species have a bloom, on the young leaves especially, and in **A. Vera-Cruz** this is frequently so marked and permanent, even in old plants, that the leaves are termed "glaucous." In **A. Cantala** the green is much lighter and less "sappy" than in the "**americanae**" but the tint is different from the vivid green of "**decipiens.**"

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* This if not identical with **A. Ixtli,** *Karwinski* is very near it.

DESCRIPTION OF SPECIES.

KEY.

Leaves in section flat to concave but never channelled throughout :—

Teeth minute, close set . . . . . Species ***A*** ———

Teeth larger, more or less remote :—

Leaves in a lax rosette or tufted, never less than 3 feet in length :—

Perianth segments not constricted towards the tip :—

Leaves broadest in the middle, tapering to both extremities :—

Leaves oblong lanceolate, neck sharply constricted . . Species ***B*** (**americana,** Linn.

Leaves linear oblong, neck not constricted :—

Marginal prickles pointing uniformly downwards, leaf flattish throughout . . . . . Species ***D*** (**Vera-Cruz,** Mille

Marginal prickles of upper part of leaf pointing upwards, leaf deeply trough-shaped in upper fourth Species ***C*** ———

Leaves hardly widened in the middle very narrow in proportion to their length :—

Leaves linear lanceolate curving outwards throughout their length, terminal spine acicular . . . . Species ***E*** (**Cantala,** Roxb.)

Leaves narrowly oblong, not curving, stiff, erect, terminal spine conical from a stout base . . . Species ***F*** ———

Perianth segments narrowed from about the middle to the ligulate tip :—

Leaves straight . . . . . Species ***G*** (**sisalana.** Perrine

Leaves drooping from their upper third or less . . Species ***H*** ———

Leaves in a close globose rosette never exceeding 3 feet in length Species ***I*** (**Wightii,** nobis)

Leaves in section canaliculate . . . . . Species ***K*** (**decipiens,** Baker

Agave sp. . . . . . *A*

Leaves linear-oblong 20–30 in a very lax rosette from a moderately thickened base, deep green with a glaucous bloom, tapering rather quickly in the upper portion, about 5 feet in length and as many inches in breadth at the widest part rather above the middle, marginal prickles minute but sharp, when young garnet-coloured, pointing both upwards and downwards, sometimes absent in the upper portions of the leaf altogether; terminal spine brown, subulate, slightly channelled.

INDO-CHINA: Burma; Tenasserim.

DISTRIB.: Unknown.

This we suppose to be the same as a plant cultivated in the Saharanpur Bot. Garden under the erroneous name of "*A. Ixtilli.*"

Agave americana *Linn.* . . . *B*

Leaves lanceolate, many in a lax rosette from a short stout prostrate or ascending trunk which is usually hidden by their thick bases, deep green, often variegated with white or pale yellow longitudinal stripes or borders, sometimes rather glaucous; at base spreading, then ascending, tips sometimes recurved, 4 to 6 ft. long and as much as half a foot broad above the middle; sharply constricted just above the base; margins armed with strong dark brown prickles mostly pointing downwards, leaf edge between the prickles concavely indented, terminal spine slightly grooved dull brown 1 to 2 in. long derived from the upper leaf margins which for about three inches from the top are involute and horny; scape with the panicle 15 to 25 ft. in height, primary branches of the inflorescence almost horizontal, fascicles of blossoms crowded at the ends of subsidiary ascending branches; germen faintly sulcate about equalling the perianth or shorter than it, perianth lobes ovate lanceolate tips obtuse, amber-coloured as are also the filaments, pollen orange yellow, style faintly three-lobed capitate; capsule bluntly trigonous or oblong-cylindrical, rather broader upwards.

Linn. Sp. Pl. (*Ed. 1*) *i. 323; Kunth, Enum. V. 819; Thornton, New Illustr. aft. p. 100* (*also col. fig. in Select Plants*); *Andr. Bot. Rep. vii. t. 433* (*sphalmate 438*);

Bot. Mag. t. 3654; Nees, Gen. Fl. Germ. Monocot. Vol. iii tab. sec.; *Reichenb. Fl. Germ. ix. t. 374.*

INDIA: Large gardens and parks throughout India.

DISTRIB. Gardens throughout Northern Europe and North America. Native country unknown.

The plant, widely naturalized and commonly termed *Agave americana* in Southern Europe, we believe to be **A. Vera-Cruz** *Miller.* The remarks under *A. americana* in *Linnaeus' Species Plantarum* cover both the true **A. americana** and *Miller's* **A. Vera-Cruz.**

A. Milleri, *Mart. Flor. Bras. iii.* 1. 183 appears to be this species. *A. americana, Mart. vix Linn.*, appears as regards description and synonymy to refer for the most part to **A. Vera-Cruz** *Miller.* The description of *A. americana* by *Mr. Baker* in *Gardener's Chronicle* N. S. vii. 201 (1877) gives an excellent account of **A. americana** *Linn.* but the remarks apply in part to **A. Vera-Cruz** *Miller.* The Peruvian plant named *A. americana* by *Ruiz* and *Pavon* is perhaps different from either.

Agave sp. . . . . . *C*

Leaves oblong-linear many from a very thick short caudex which is hidden by their greatly thickened bases, dark-green, glaucous, spreading from the stem but presently ascending, tips recurved stiffly, blade six feet long and upwards, measuring eight to twelve inches at the widest part some way above the middle, and there forming a deep trough through bending of the leaf and rolling inwards of the margins, prickles very stout and black, those above the trough-like portion of the leaf spreading or ascending, the rest pointing downwards, terminal spine about $\frac{3}{4}$ in. long dark coloured. [Inflorescenec not available.]

INDIA: cultivated in the Botanic Garden, Saharanpur, received from Europe.

DISTRICT. Native country unknown.

This seems closely allied to **Agave Vera-Cruz** *Miller.* It is known at Saharanpur as *A. Jacquiniana*, but it certainly is not the plant figured under that name in *Bot. Mag.* t. 5097. The leaves of this species when fresh cut smell like cut Rhubarb stalks, and their juice soon ferments.

Agave Vera-Cruz . . . . *D*

Leaves linear-oblong, many, from a short stout trunk which is hidden by their thickened bases, sage green often very glaucous, early curving upwards, the ends usually more or less recurved or drooping, four to six feet long, often rather concave at the widest part which is above the middle and attains a breadth of ten inches and upwards, neck hardly constricted, leaf margins little indented or nearly straight between the prickles, which are broad stout, black or dark-coloured, spreading or decurved, interval between the prickles about half an inch or less, seldom ¾ in.; terminal spine shortly channelled, ½—1 in. long, dark brown, not or very shortly decurrent; inflorescence panicled, trichotomous as regards the main branches which are curved and flattened, blossoms in pairs with a subsidiary bud laterally developed at a different level; germen smooth cylindric longer than the perianth, perianth-lobes linear-lanceolate of a pale amber tint, cup herbaceous, stamens much exserted, anthers half an inch in length and upwards, pollen dull-yellow, style very faintly lobed, capsule rather turgid oblong-cylindrical, tip rounded, seeds black shining. *Miller, Gard. Dict. ed. 8. n. 7.*

Agave lurida, *Zuccarini in Nov. Act. Leop. Carol. xvi. 2. 670, tt. 49, 50*; *Mart. Flor. Bras. iii. I, 185*; *Bak. in Gard. Chron. N. S. viii. 264* (*1877*) excl. var. *Jacquiniana* and ref.; not of *Jacquin Coll. iv. 94, t. I*; nor of *Gawler Bot. Mag. 1522.* Agave Vera Crucis *Haw. Syn. Succ. 72.*

INDO-CHINA: Burma; Taungtha, *Burkill* 23,777! and other localities in dry Central Burma, *Burkill*: Assam; Cachar, *Burkill* 16260! Brahmaputra Valley, frequent, *Burkill* 19958!

INDIA: Bengal, Katihar, *Burkill* 20871! Gangetic delta, frequent; Botanic Garden, Shibpur, cultivated; Upper Gangetic Plain; from Tirhoot (in hedges) to Rohtak (S. E. Panjab), *Burkill* 18173, but usually planted; cultivated in Botanic Gardens as far as Lahore. Chota Nagpur; Singhbhum, *Burkill* 19759! Central India; Bilaspur: Western India; Bombay, cultivated *Burkill* 16682! 16686! Deccan; Miraj, *Burkill* 16712! South India: Bellary, *Burkill*; Chingleput, *Barber* 2401! Gantur, *Barber* 2042, 2085, Chingleput, *Barber* 2086, Kurnool, *Barber* 2041, 2068, Salem, *Barber* 2070, Kistna, *Barber* 2501, Coimbatore, *Barber*, 2502, Madura *Barber*, 2503, 2505, Anantapur *Barber* 2513, S. Arcot, *Barber* 2516, Cuddapah, *Barber* 2517, Nellore, *Barber* 2518, Tanjore, *Barber* 2529, N. Arcot, *Barber* 2531, Bellary, *Barber* 2003, 2532, Godaveri, *Barber* 2533, Tinnevelly, *Barber* 2587, 2591 Vizagapatam, *Barber* 2594; Circars: Parlakemedi, *Burkill* 24420! Ganjam; in hedges at Chatrapur. Madras Agri-Horticultural Society's Garden cultivated: naturalized in Mysore, *Butler*!

The references in *Aiton Hortus Kewensis* ii. 302 *Willdenow Species Plantarum ii. 193* and *Gawler Bot. Mag.* t. 1522 are

so confused that the only safe course is to drop all three. The plant dealt with by *Aiton*, though the point is now uncertain, the plant itself having disappeared, may possibly have been the **A. Vera-Cruz** of *Miller*. The *A. lurida* of *Gawler* figured in the Botanical Magazine is not **A. Vera-Cruz**, nor is it any **Agave** known to us at present. *A. lurida* Jacquin, cited by *Willdenow* as the same as *Aiton's A. lurida* and as *Miller's* **A. Vera-Cruz**, is very different from the plant here accepted as *Miller's* **A. Vera-Cruz**. The difficulty in this case has been due to the acceptance by *Aiton* in *Hort. Kew. ed. 2*, of *Willdenow's A. lurida var. a.* which is based on **A. Vera-Cruz** *Miller*, but also includes A. lurida of *Jacquin*, as equivalent to his original *A. lurida*. That original *A. lurida* may have been *Miller's* **A. Vera-Cruz** or it may have been *Jacquin's* A. lurida, it cannot possibly have been both.

DISTRIB. Native country doubtful, probably Mexico; naturalized throughout Southern Europe south of the Alps and Pyrenees, in Southern France and most Mediterranean Islands, also in North-Western Africa and Atlantic Islands; (not recorded from South-Eastern Europe or the Orient): S. Africa; Mauritius; Ceylon.

Agave Cantala *Roxb.* . . . *E*

Leaves linear—lanceolate in a lax but even tuft from a short ascending rootstock, pale green sometimes glaucous, older darker tinted, very narrow in proportion to their length which attains 4 feet and more, the greatest width just above the middle being about 3 in., usually 2¼ in., curving gradually outwards from their moderately thick bases, or in weak examples bent over almost from their origin, upper surface more or less concave, sometimes trough-shaped in the lower portion, marginal prickles large for the leaf conspicuous falcate always ascending ¼ of an inch or more in length, very sharp, pale brown or garnet coloured from a small light coloured cushion; terminal spine usually acicular, cylindrical, reddish or dark brown, half an inch to an inch in length; scape with panicle 12—18 feet in height, inflorescence borne on flexuous rather slender branches, fascicles 1-2 flowered; germen equalling or shorter than the perianth, perianth-lobes bluntly linear-lanceolate 1½ in. long, large in proportion to the germen, cup hardly any, lobes divided nearly to their bases, linear oblong obtuse, greenish yellow. [Capsule not available.] *Roxb. Hort. Beng. 25* A. Cantula *Flor. Ind. ii. 168, Ed. Clarke 296*; *Grah. Cat.*

Bomb. Pl. 272; *? of Galeotti*; not of *Dalz. and Gibs.* which is *A. Wightii*, nor of *Prain*, which is *A. Vera Cruz*; Aloe sp. (*sub Sempervivum majus*) *Rumph. Herb. Amboin.* V. *t. 94.* Fourcroya Cantala, *Voigt Hort. Suburb. Calcutt.*; Agave vivipara, *Dalz. and Gibs. Bomb. Fl.*; *Bak. in Gard. Chron. N. S. viii.* (*1877*) 780; not of *Linnaeus* nor of others.

INDO-CHINA: Burma; Tenasserim, Moulmein, *Burkill* 23949.

INDIA: Tirbut; Chilwara, *Campbell*, Tarkaulia, *Burkill* and *Prain* 18918, 18921, 18928!! Upper Gangetic Plain; Etawah, Saharanpur!! Dehra Dun, *Basu*! Panjab Siwaliks; Patankot, *Burkill* 15005. Western India; Thana Bassein, *Burkill* 16656, Salsette, *Burkill* 16684, Coorla, *Burkill* 16701; Deccan, Majuri, *Burkill* 21845! Poona, Satara Road, Kolhapur, Belgaum, *Burkill*; S. India, Circars, *Burkill*; Rajamandri, *Burkill*, 17829, Parlakimedi, *Burkill* 20421! Vizagapatam, Ganjam and Anantapur Dist. *Barber* 2514! Godaveri, *Barber* 2541, 2568! S. Canara, *Barber* 2540, 2600! Chicacole, *Barber* 2088! C. India, Dongagarh and Narsingpur! *Burkill*, very common about Hyderabad, *Burkill*, 25026!

DISTRIB.—Bangka, *Lindgreen*, fide *Kurz*; Amboyna *Rumphius*; Philippines! Native country unknown.

A. Rumphii Hassk., ex descriptione, is not **A. Cantala** Roxb.: *A. laxa* Zuccarini [Bak. Gard. Chron. N. S. VIII (1877) 788 fig. 151] seems near the more flaccid form of **A. Cantala**. *A. angustifolia* Haworth, from St. Helena, is also possibly the same. *Mr. Burkill* notes that the freshly cut leaves of this species smell like Rhubarb. The "*A. americana*" from which fibre is said to be got in China (*Tropenpflanzer* V. 128) may be this species. Specimens of *A. Cantala* are often marked in collections and herbaria '*A vivipara*'.

Agave sp. . . . . . *F*

Leaves narrowly oblong, ten to twenty, tufted on a very short rather narrow caudex, never forming a rosette, making a sharp angle with the main axis, stiff and erect, sometimes pale or bluish, usually a dull green, 4-5 ft. long, breadth almost uniform from the gradually narrowed lower portion to the rather suddenly acuminate tip, small in proportion to the length, at the widest point above the middle from $3\frac{1}{2}$ to $4\frac{1}{2}$ in., marginal prickles rather distant weak and not prominent, chestnut or garnet coloured, their hooks sharp ascending, terminal spine stout conical $\frac{1}{2}$ in. and more long, brown, slightly channelled; scape reaching 15—20 ft. with the panicle, branches of the inflorescence more or less zigzag or flexuous; germen an inch long spindle-shaped constricted just below the perianth

which has hardly any cup, the lobes being deeply divided, equal to or longer than the germen, bluntly linear lanceolate thin and faintly striate. [Capsule not available.]

INDIA; Dehra Dun. *J. S. Gamble No.* 23247. Upper Gangetic Plain; Etawah, *Burkill* 18134!

DISTRIB. Native country unknown. Planted along Railways in N. W. somewhat extensively.

This species differs from **A. Cantala** Roxb. in the stiff upright leaves which are never involute and hardly concave, do not bend outwards and are seldom recurved even at the tip. It also differs as regards the flower which is smaller than that of **A. Cantala** and is more delicate in texture. It appears to be the Agave described by *Mr. T. Moore* in *Gard. Chronicle No. 37 of 1849 pp. 583 and 615* as being inflower in the Chelsea Garden in that year, which he referred doubtfully to the *A. mexicana* of Haworth. *Mr. Gamble* called his plant "*A. mexicana*," referring possibly to the species described by *Moore* which is seemingly distinct from the *A. mexicana* of *Baker* whose "var. *cyanophylla*" (*Gard. Chron. 1877 viii., fig. 36 p. 201*) may be the species of *Miller's Figures* (*vol. II. p. 148 Pl. ccxxii*).

Agave sisalana *Perrine.* . . *G*

Leaves 20—35, oblong-lanceolate, never forming a rosette but closely tufted on the rhizome or on a very short ascending caudex which is completely hidden by their moderately thick bases, the inner making a very sharp angle with the axis, the outer gradually receding but still making less than a right angle, neck not at all constricted, colour deep green, sometimes glaucous, up to six feet long, breadth at the widest part which is just above the middle reaching ten inches, margin with or without prickles, which, if present, are weak, scattered and pale-coloured, terminal spine not channelled, glossy, purple or dark brown; scape 15 feet or more with the panicle, fascicles of blossoms rather crowded, germen equal to or shorter than the perianth slightly broadened upwards, base of perianth convex and somewhat dilated, limb suddenly contracted narrowly ligulate tip slightly hooded, style long very faintly lobed early protruded. [Capsule not available.]

INDIA: Introduced into various parts of the country between 1885 and 1892. Cultivated in Burma, Cachar, and Sylhet, Assam, Bengal, North-West India as far as Lahore, Central India, Bombay, Deccan (Poona), Mysore, Madras.

DISTRIB. Native country unknown* ;introduced from cultivation in Yucatan in 1834 to islands (Keys) off the peninsula of Florida and there naturalized. Introduced into the West India Islands partly from Florida partly from the American continent. Supposed by *Schott* and *Engelmann* to be derived from a wild species but further evidence as to Yucatan species is wanted; there appear to be several in cultivation there. Cultivated in Australia, Fiji, Hawaii and German East Africa.

In India this species varies as regards presence or absence of spines on the leaf margins. We have seen (*a*) spines fully developed, (*b*) spines partially and irregularly developed, and (*c*) spines altogether absent on leaves of the same individual plant.

Agave sp. . . . . . ***H***

Leaves 20—35, oblong-lanceolate, not forming a rosette, the inner ascending at rather a sharp angle with the axis from a stout caudex, which is altogether hidden by their much dilated bases which attain a thickness of four inches and over,† the ends recurved for about a fourth of the total length and drooping, dull dark green, very often glaucous, reaching seven feet in length and ten inches in breadth at the widest part, which is above the middle, marginal prickles distant (at intervals of $1\frac{1}{4}$ to 2 in.) stout falcate yellow-brown from a broad pale cushion which is inserted in the leaf edge, its pellicle being easily separable from the leaf cuticle and leaving a regularly defined lunate scar on detachment of the thorn,—terminal spine not decurrent rather short but stout slightly recurved; scape attaining 20 feet with the panicle, which consists of rather slender wavy main branches spirally inserted one above the other at about a foot's interval on the main stem, fascicles of blossoms somewhat crowded at the ends of the main branches but not thyrsoidly congested, perianth about equal to the germen which is rather sharply constricted just below

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* In "*Travels, etc.*" (Philadelphia 1791, London 1794) by the younger **Bartram** there is an account (p. xix of Introduction) of a *Euagave* which the author calls '*A. Vivipara*,'—but evidently solely because it was producing bulbils abundantly,—which he found on a sandy strip of the Florida coast near the mouth of the "*South Mosqueto*" River.

For reasons which need not be detailed here it seems not unlikely that this was **A. sisalana** Perrine, and had been introduced (from the W. India Islands probably) by Spanish colonists, or even previously (*cf.* p. 225 of the same work) by the natives.

† In most **Euagaves** and **Furcræas** the outer leaves droop and wither with age and also when the plant is flowering; characters taken from the leaves apply to leaves in their prime which are usually in the middle of the series.

the perianth, lobes of perianth dilated, almost saccate below, blade suddenly narrowed ligulate diminishing to the obtuse tip which is subspathulate, capsule about 2 in. long narrowly turbinate strongly sulcate at the top especially.

INDO-CHINA: Burma; Southern Shan States, Lwekaw and Saga, *Abdul Khalil!*

INDIA: Bengal, planted in a hedge at Barrackpur!! Upper Gangetic Plain; Saharanpur and elsewhere, planted and naturalized in hedges!! Dehra Dun; naturalized and in hedges! Cultivated at Lucknow, where received from Central India, also at Lahore. Madras; N. Arcot, *Burkill* 15145! Chingleput 2087, *Barber!*

DISTRIB. Nat. country unknown.

This is the finest of the naturalized Indian species and might, by the description, be near an **Agave** from Jamaica *(Sir D. Morris)* described by *Mr. Baker* as *A. Morrisii* in *Gard. Chron. Ser. iii. I, part 1, (1887) p. 549, fig. 105*, but we think that the Indian plant is very closely allied to *A. sisalana*. The freshly cut leaves smell like stalks of Rhubarb.

Agave Wightii *nobis** . . . *J*

Leaves ensiform linear-lanceolate, very many, inserted in a compact series on a stout usually conspicuous trunk which is partly procumbent, or throughout ascending, forming a stiff even rosette 3 to 5 feet in diameter, pale green often tinged with ashy grey, base thin broadly amplexicaul, length attaining 3 feet, but not more than $2\frac{1}{4}$ in. on an average, breadth at the middle where the leaf is widest $3\frac{1}{2}$ in. or less, flat or very slightly convex; marginal prickles rather weak about $\frac{3}{4}$ in. apart, sometimes spreading or erect, but usually consisting of a small brown cushion carrying a semi-transparent garnet-coloured spine which is often sharply recurved parallel to the leaf edge, but ends in a finely-barbed hook which invariably points upwards, terminal spine about half an inch long, pale, slightly

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* **A. Wightii** *nobis.*—Caudice amplo manifesto, foliis 2—3-pedalibus medio circa tres uncias latis basi parum incrassata late dilatata summum caudicem amplectentibus lineari-lanceolatis griseo-viridibus, foliorum margine spinis uncinatis primum refractis apice demum ascendente munito, scapo ad 15 pedes altitudinis assurgente paniculam oblongam sustinente, perigonii lobis superne in unguem subito angustatis vix uncialibus obtusatis unguibus denique herbaceis incrassatis cum capsula ovato-turbinata pro rostro persistentibus, seminibus opacis.

decurrent; scape twelve to fifteen feet high with the panicle, which is oblong-pyramidal, the main branches short trichotomous, fascicles rather crowded, germen nearly spindle-shaped rather shorter than the perianth and constricted below it, cup of perinath soon dividing into six lanceolate segments each ending in a narrowly ovate lanceolate limb, which is slightly thickened at the obtuse tip and (in dried specimens) obscurely hooded, greenish yellow; capsule brown very broadly turbinate $1\frac{1}{4}$—$1\frac{1}{2}$ in. long rostrate by the indurated bases of the perianth lobes, seeds opaque dull charcoal-coloured.

Agave vivipara.—*Wight Ic. 2024*; *Bak. Gard. Chron. N. S. viii. (1877) 780 excl. all syn. except Wight*, not of *Linnaeus*, nor of *Hill (Veg. Syst. xxiii. f. 56 fig. sinistr.)* nor of *Miller* nor of *Aiton*, nor of *Dalz. and Gibs. Bomb. Flor.* Agave Cantula, *Dalz. and Gibs. Bomb. Flor.* not of *Roxb.*

INDO-CHINA: Sylhet, Moulvi Bazar, planted near villages, but not plentiful, *Wyper*.

INDIA: Bengal; Burdwan, *Burkill* 18930! Hughli-Howrah, in hedges; cult. in Botanic Garden, Calcutta. Tirhut; Tarkaulia, *Burkill and Prain* 19923! Upper Gangetic Plain: Moradabad, *Burkill* 14954! Delhi, *Burkill* 14963, Rohtak, planted in hedges, *Burkill* 18184! commonly naturalized from Saharanpur and Ludhiana as far as Delhi, *J. R. Drummond*!! Cult. and naturalized in Hort. Saharanpur, *Duthie*! Central India; Gwalior, *Maries*! Dehra Dun, *Basu*! Deccan; Berar, *Burkill* 19179, Buldana, *Burkill* 19179! Takari, *Burkill* 16706, Sattara Road, *Burkill*; Poona, *Burkill* 25816! Western India; Bombay, *Burkill* 16677 and 16687! South India; Madras, cult. and naturalized in and near Agri-Horticultural Society's Garden; Chingleput, in hedges, *Barber* 2402! Madura, *Barber* 2504! Tanjore Dist., *Barber* 2515, 2565! Malabar Dist., *Barber* 2535!

DISTRICT.—Native country unknown. A variegated form cultivated in public gardens throughout India is very near this, if not identical.

Agave decipiens *Baker* . . . *K*

Leaves fleshy linear many closely inserted on an often erect caudex which attains 3 to 4 feet in height, forming a compact radiating tuft, of which the outer leaves are nearly at right angles with the axis, the inner making gradually an acuter angle, 2—4 ft. long, widest just below the middle where the breadth seldom exceeds $3\frac{1}{2}$ in., basal fifth of leaf bluntly trigonous, convex on the sides forming a stalk, upper portion concave often forming a deep U-shaped trough above the middle, the whole leaf stiff, glossy apple-green, more or less recurved and falcate longitudinally, marginal prickles half an

inch to 1¼ in. apart, red-brown, very small but sharp, base inconspicuous, seated on a deltoid prolongation of the light green leaf edge, terminal spine half an inch long and more, with a shallow channel, not decurrent, blackish, very sharp, inclining backwards.

[For the inflorescence, which we have not seen, we are indebted to *Mr. J. G. Baker (in Kew Bulletin, July-Aug. 1893, CCLVII* **False Sisal)** as follows,—

> *Peduncle* with panicle about five times as long as the leaves. *Panicle* 8—10 feet long, with a rather flexuose axis, and usually single dense clusters of flowers terminating the laxly-disposed simple arcuate branches.
>
> *Flowers* arranged in dense clusters. Ovary oblong, finally 2 in. long, ¾ in. diam. *Perianth* greenish-yellow, an inch long; tube broadly funnel-shaped; lobes complicate lanceolate from a dilated base, twice as long as the tube. *Stamens* 18—21 lines long, inserted at the middle of the perianth tube; anthers linear ½ inch long. *Styles* finally reaching to the top of the stamens.]

Cultivated only in Botanical and Horticultural Gardens at Calcutta, Saharanpur and Lahore: naturalized in Florida with **A. sisalana** Perrine; native country unknown.

From *Karwinski's* description quoted by *Kunth* (*Enum. V. 835*) *A. Ixtli* Karwinski, a native of Yucatan, should be very near this species. The plant sometimes termed *A. Ixtli* in Indian Gardens has nothing to do with *Karwinski's* plant or with **A. decipiens** *Baker.*

The best known of the fibres called "Istle" or "Ixtli" in Mexico ("Tampico fibre" of the trade) is not derived from any **Euagave** and has nothing in common with *Karwinski's* **A. Ixtli** except the name. The Istle which has been identified by *Spon* and others with *Bromelia sylvestris* or *Nidularium Caratas* is of course altogether distinct, but *Mr. Dodge* has perhaps not hit on the correct solution of the puzzle. *Mr. J. C. Harvey,* writing from the state of Vera Cruz, informs us that the Ixtli of that region is a Bromeliad which yields a good fibre. The confusion has arisen from forgetting that a vague vernacular name may cover half a dozen different species utilised in as many different areas.

A. Ixtli, Salm (of *Gartenflora* 1883 *p. 149 cum fig. p. 150*), is identified with "*A. Karwinskii*, Zucc. *in Kunth's Enum. V.*

387" and with *Engelmann's A. rigida* (387 is a slip for 837), where *A. Karwinskii* of *Zuccarini* is described from the *Nova Acta Acad. Carol. Leopold.*, the description not agreeing very well with the sketch in *Gartenflora*, which is like *A. ixtlioides* of *Bot. Mag. 5893.* "*A. rigida*" of *Engelmann*, which includes **A. sisalana** *Perrine*, is, so far as **sisalana** is concerned, a very different type of **Euagave.**

Furcræa sp. *1*

Leaves 20—40 rather sharply ascending from a short fairly stout trunk forming a compact tuft, obovate-lanceolate, bright green, upper surface glossy, perfectly smooth on both surfaces, 4—6 feet long and upwards, breadth at widest part which is somewhat below the middle 8·5 in., thickness at this point ·75 in. or under, hardly constricted above the base which is 4 in. across by 2·5 in. or less in thickness, margins irregularly furnished with weak spreading prickles, pale below, rust coloured upwards, occasionally quite spineless, margins involute just below the leaf-apex forming for the last ·75 in. or less a green canaliculate blunt unarmed acumen.

[Inflorescence not available.]

INDIA: cult. in Botanic Gardens, Calcutta, Saharanpur, Lal Bagh, Bangalore (also a variegated form) and most public Gardens in India; Dehra Dun, *Basu* (but probably from a garden)! planted by Railways in the Deccan, Miraj, *Burkill*; planted and naturalized in W. Mysore, Yercaud, and on the Shevaroy Hills, *Cameron*; near Coonoor *Butler*!

DISTRIB: The native country is not accurately known: it is understood to be extensively cultivated from Venezuela to E. Brazil, whence it was introduced by Father Leries, almoner (of his order?), to the Mauritius, in the 16th century (*Aublet* I. 305) and from the Mauritius, we suppose, to S. India, where it is known as "**Mauritius hemp.**"

The leaf* when crushed exudes a colourless fluid which has a faint but by no means fœtid odour. This plant can hardly be

* Both surfaces of the leaf in this **Furcræa** have a minutely punctulate appearance. This under the lens is found to be due to groups of stomata, in each of which the lumen is occluded by an inorganic laminated octahedral body. In **F. Selloa** (and presumably other species in which the back of the leaf has an "emery paper" feel) these occluded stomata are more numerous, and accompanied by minute cones of the same inorganic structure, ending in an edge like that of a cutting diamond, with their sides laminated, embedded in the cells of the epidermis and extruded from a cavity which is probably a metamorphosed stoma-chamber.

For the microscopical analysis we are indebted to *Dr. Irvine Fortescue*, lately Offg. Curator of the Royal Herbarium, Calcutta.

the *Furcræa gigantea* of *De Candolle* (*Plant. Succ. Hist. 126*) or the *Agave fœtida* of *Jacquin* (*Ic. Pl. Rar. F.* 379) which are apparently the same as *Plukenet's Aloe americana radice tuberosa fœtida minor non spinosa, Phytog. t. 258, fig. 2; Almag. p. 19*, because the leaves of the plant figured by these authors are described as fetid. Nor does it agree with *F. gigantea*, Baker (*Gard. Chron. N. S. xi. (1879) p. 623*) because the leaves of his plant have brown pungent points, whereas in our plant the point is green, blunt and not at all pungent. Further, the leaf of *Baker's* plant is described as much thinner in the middle, one-eighth of an inch, as against five-eighths to three-quarters of an inch in our plant. What appears to be the *Agave fœtida* of Linnaeus is in cultivation as a hedge plant in the Calcutta Garden, and is manifestly distinct from either of the species reputed to yield marketable fibre in India.

Furcræa sp. 2

Leaf sharply constricted above the base, light green, surface plaits obscure, tip cartilaginous ending in a small but distinct slightly recurved yellow brown spine about $\frac{3}{10}$ in. long; branches of flowering panicle spreading, perianth segments linear-lanceolate, obtuse, white, externally greenish with faint darker stripes within, anthers rounded, filaments about four-fifths of an inch long, dilated, at the widest about $\frac{1}{8}$ of an inch broad; otherwise, so far as the material goes, very close to the preceding.

India: Mysore; *Butler*!

By *Baker's* description this should be his *F. gigantea*, and it is evidently the same as *Wight Icones* 2025. It seems doubtful whether *F. Commelynii* Baker be the same as *F. Commelynii*. Salm Dyck, which indeed seems to be the *Agave foetida* of *Linnaeus* and the *Furcraea gigantea* of *Ventenat*. The "*Mauritius Hemp*" of South India therefore cannot be with propriety spoken of as *F. gigantea*.

REMARKS ON CERTAIN SPECIES KNOWN IN INDIA.

Indian economic writers have been constrained either to class the different "**Aloe fibres**" all under one head, or to classify them roughly under provisional names such as "*americana*,"—

"*vivipara*," etc. (*Royle, Fibrous Plants of India, London 1855, pp. 41-50: Watt, Dict. Economic Products, Vol. I, pp. 133-44.*)

Royle was aware (*Ill. Himalayan Botany, p. 374*) that several species of **Agave** were naturalized in India, and he gives *Banskeora* as the vernacular name of "*A. vivipara*"; but in his Report on Indian Fibres he did not attempt to discriminate between the species from which fibre was taken for the experiments detailed in his work, the reason obviously being that no one could say what plant was used for any given experiment.—*Sir George* (*then Dr.*) *Watt* (l. c.) writes as follows,—

* * * * *

"*At the present moment it is next to impossible to arrive at any "definite knowledge regarding the species and varieties cultivated "for their fibre.*"

* * * * *

"*An important step would be taken were the fibre-yielding "plants to be carefully referred to their respective genera. The "account of A. americana in the succeeding pages should be viewed "more as Aloe fibre plant since it seems probable that the name "A. americana is popularly given to a series of species and varieties "yielding allied fibres.*"

The first step indeed towards developing the "**Aloe fibre**" industry in India, is to ascertain as accurately as possible what are the species of **Agaveæ** that are already naturalized or cultivated for their fibre, and it is to facilitate this that the present paper has been undertaken. When we know what is already growing in the country, and how different species thrive in particular tracts, the proper authorities will be in a position to deal with the economic history and capabilities of the different species, and to advise as to the encouragement of particular kinds in different localities, or the introduction of new sorts, just as **Agave sisalana** was brought in through the efforts of *Sir George King*, thus reviving the public interest in these products, which was weak or dormant so far as India was concerned since the work of *Roxburgh* was closed in the beginning of the last century.

Living plants of this family are not always easy to describe or identify, while their classification by means of herbarium specimens has been so far found to be impracticable. The bulk and habit of the plants,—the similarity of some

forms in their earlier stages,—above all the long and uncertain period of maturity which marks all the **Euagaves** and most **Furcræas** have proved serious impediments to the study even of living **Agaves** through public and private collections in Europe and America. It is hardly surprising, therefore, that the botanical information should be imperfect (*cf. Zuccarini Pl. Nov. vel Min. Cogn., Fasc. I., Ratisbon 1832, p. 42*).

As regards the history of the economic species there is much to be found in the great work of *Martius* (*Flora Brasil. Vol. III., pars I, pp. 190—197*). Following him largely, we conclude that the early European voyagers to the West India Islands found the existing occupants getting sundry products from different **Agaveæ** and **Bromeliaceæ** and that certain kinds were famous for their fibre, which was worked up into various commodities such as thread, coarse twine, nets, bags, and cordage. "Floss" or tow was got from the leaves of a kind which was known to the English adventurers as "*Silk grass.*" The dried tissue (medulla) of the flowering stem served for tinder; while a kind of paper,—or rather parchment,—was prepared from the same leaves that produced fibre for string-making. From the "floss" cloth was woven. The leaves of some species contain a detergent mucilage and both these and the roots were ordinarily used for the same purposes as soap until quite a recent period in the West Indies. (For medical uses *Martius* (*l.c.*) and other authors cited by him may be consulted.)

Martius believes that the fibre plants and their products were alike known to the Haitians comprehensively as "*Henequen,*" the corresponding term in the Carib dialects being "*Pita,*" and he suspects that the Carib Indians took at least one of the **Furcræas,**—and the name *Pita,*—to the shores of S. America.

From *Peter Martyr's* account of San Domingo it would seem that the word "*Maguei*" or "*Manguai*" also belonged to the native language of Haiti. Be that as it may, the Spaniards took the names *Pita* and *Maguey* with them to the mainland, and applied the latter to species of **Agave** which they found abundantly cultivated on the table-land of Mexico for the sake of the saccharine juice which the leaves distil when cut just before "poling." The plant was known to the Aztecs as *Metl* (a generic term) and the liquor as "*Octli.*" Fermented to a kind of cider (with the addition of a herb known as

Ocpatli) *, it was, and is, the national beverage of Mexico—"*Pulque*" or "*Pulco*". A spirit is said to be made from the same secretion, and known as "*Aguardiente*," i.e., "Firewater."

Another name, in the Islands especially, was *Caraguata*, *Karato*, or *Curaça* which applied particularly, it would seem, to the **Furcræa tuberosa.**

"*Pati*" according to *Hernandez* was the Mexican name for a *Metl* which produced the finest fibre, or tow, and was probably the mainland equivalent of "*Henequen*."

The term "*Pita*" has spread over the world and has been embodied even in the dialects of S. India.

Recent American investigations have shown (*J. N. Rose in Contrib. U. S. National Herbarium, Vol. V. p. 223*) that there are several species of **Euagave** which yield "*Pulque*," but the principal appears to be the **A. atrovirens** of *Baron Karwinski*, which is identified by several continental botanists with *A. Salmiana* of *Otto*. From the descriptions as well as from photographic illustrations that accompany *Mr. Rose's* paper, this form must be closely allied to *A. lurida H. B. C.*, but abundantly distinct from **A. americana** of *Linnaeus*. As regards spirit yielding **Agaves**, *Mr. Rose* states that the spirit is now called "*mescal*" or "*tequila*," and he adds "*while it is uncertain from what species tequila is made, it is at any rate not A. americana.*" *Sotol*, another alcoholic preparation which the traveller *Lumholtz* derived from a plant "of the same family as *A. americana*," is produced, not from any **Agave** at all, but from a **Dasylirion**. *Hernandez* figures a "*Mexcal*" that looks like the "*Agave Gilbeyi*" of gardens; which is not an **Euagave.**

One other native term requires mention, viz., that of *Ixtli* or "*Istle*" which is often applied to the plants that yield the product known commercially as "*Tampico fibre*" from the town of export. Recent information as to these will be found in *Mr. Rose's* "*Notes on Useful Plants of Mexico*" (*Contrib. U. S. National Herbarium, V. p. 242*) already quoted, as well as about other fibre plants of Central America, but the fact is that there is not a single fibre-yielding species of the **Agaveæ** or **Bromeliaceae,**—to say nothing of **Yucca,**—that can be said to have been as yet sufficiently identified.

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* In a recent publication this is said to be **Datura Stramonium** Linn., which is improbable; though it may be some other species of **Datura.**

"*Tampico*" or "*Lecheguilla*" fibre, however, is believed to be got from species that do not belong to **Furcræa** or **Euagave,** and its chief interest for Indian workers lies in the circumstance that "*Ixtli*" has been also reported as a name for certain Yucatan species of **Agave,** with this consequence (among others) that the well known "**Sisal Hemp**" (cultivated in the Bahamas and the British East Indies) appears in some botanical works as a variety of *A. Ixtli* Karwinski or of *A. Karwinskii* Salm. As the descriptive list of species will have shewn, we propose to call the true **Sisal Agave** of Florida and India **A. sisalana,** *Perrine* (ex Engelmann) or more briefly **A. sisalana,** *Perrine.*

The species included in our brief Descriptive List are not of course of equal economic value: **B=Agave americana** *Linn.,* is not naturalized apparently in any part of India, but is grown in gardens and about houses as an ornament, the particoloured kinds being in vogue chiefly. Small articles have been made from its fibre as curiosities, or for exhibition purposes, but this species does not seem to be grown or utilized for economic purposes in India, or indeed anywhere. When "*A. americana*" is spoken of as a "*Fibre Aloe,*" some other species almost always is intended.

There is a widespread idea that there is quite a number of varieties of "*Agave americana.*" There are several variations of the leaf, *e.g.*, with white bands along the edges, or a white stripe down the middle, due to the industry of horticulturists, but,—like other **Euagaves** so far as we have seen,—the essential characters of this well known garden species are particularly constant.

The native country is unknown (*A. De Candolle, Geograph. Botanique, p. 983*), but may be in the W. India Islands.

As regards the fibre of **Agave D.,** *i.e.*, **A. Vera-Cruz** *Miller,* (= "*A. lurida*" of the *Calcutta Garden*) we have practically no information. We believe that this is the **Agave** which is naturalized on a great scale in S. Europe and N. Africa; in S. Europe it is often called "*Agave americana,*" and it was most likely the "*American Aloe*" of the earlier writers till *Linné* appropriated the specific name for the garden plant of N. Europe. In India it is established as a hedge plant in Bengal and S. India; there are specimens from the Bombay neighbourhood also, but how far it may have run wild on that side

of India remains doubtful. It occurs with other **Agaves** throughout the Gangetic Plain as far north as Cawnpore but usually though not always planted. Further to the north and west it seems little known and we suspect that the climate of Hindustan and the Panjab is not well suited to it. In the Royal Garden at Sibpur, where it was introduced by *Lord Auckland* when Governor-General in 1836, this **Agave** luxuriates. Its range in Europe (under the continental name of "*Agave americana*") is shewn in an account and chart in *Gartenflora* 1875 by *H. Hoffmann** (*p. 70 and t. 825 No. 1*).

Sharp frosts are evidently fatal to it, unless it is artificially protected. This might be expected if it was the plant which *Schiede* and *Deppe* saw wild in the country between Vera Cruz and the table-land of Mexico (*Linnaea, IV pp. 208, 582 etc.*) but the brief description of that rather suggests **A. Wightii.**

The reasons for giving **C** a place in the Descriptive List will be found under Part II, where it is suggested that this handsome species (formerly named "*Jacquiniana*" in the Saharanpur Garden) may be *Karwinski's* **A. atrovirens** or some closely allied form.

An important point about the next species in the List (**E. = A. Cantala** *Roxb.*) is that though utterly distinct from **J** of the same = "*A. vivipara*" of *Wight,* (in place of which we recommend the name of **A. Wightii**), it has nevertheless been very frequently confused with it, as will be explained more fully in Part II of this paper. **A. Cantala** appears to have been the first **Agave** to reach the East Indies, which it did most likely from the Pacific Coast of Central America. It is well figured in *Rumpf's Herb. Amboyn.*, and that illustration is quoted by *Roxburgh* as applying to his **A. Cantala,** which he supposed to be a native of India.

This seems to be a common hedge plant near Bombay, in the north of Madras, and in the Gangetic Plain, and extends

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* He includes certain stations of flowering in the open in Brittany and the S. W. of England which are usually given to the true *A. americana,* but it is quite possible that the plants which flowered there were *A. Vera-Cruz. A. americana* seems to be much hardier, as *Miller* has noted. The variegated specimen (see *Sir W. Hooker's* note in Sims) from which plate 3654 Bot. Mag. was taken flowered at Aikenhead in Scotland.

In August 1901 *A. americana* Linn. flowered in the open at Kingcausie, Maryculter, Kincardineshire in the N. E. of Scotland (*Dr. Irvine Fortescue*).

into the submontane Districts of the Agra Province and the Panjab.

Fibre has undoubtedly been extracted from this species on a considerable scale, but opinions on its quality are conflicting.

In the Dehra Dun and in the Panjab Siwaliks still another **Euagave** occurs in a half-wild condition from which a good fibre has been got for certain purposes, and the same has been planted on a marketable scale in the dry tract between the Chambal and the Jamna. This was sent to the Calcutta Garden as *A. mexicana*, but as will be seen under Part II, *Lamarck's* "*mexicana*" is not a good species, and the rules of nomenclature debar the reapplication of the title to a different species. We have not been able to identify the species clearly with any named **Agave** of which we have the description, and it has therefore to appear in the Descriptive List anonymously as **Agave "F."**, but it is pretty certainly the same as a species which blossomed in London in 1849 and was doubtingly referred by *Moore* to the *A. mexicana* of Haworth (which is *not* that of *Lamarck*).

"**H**" is a fine **Euagave** which occurs in several parts of Bengal and the Gangetic Plain as far North as Saharanpur, where it has run wild in the Botanic Garden, and is known, but incorrectly, as "*A. lurida*." There does not seem to be any record of experiments with the fibre of this species, but the late *Mr. Gollan*, who had extracted it, informed us that it is of good quality so far as he could judge, and that the leaves are easy for the work people to handle.

It flourishes under the same conditions as **A. Wightii**, and the two, though otherwise strongly dissimilar, are often found in the same hedge, though not necessarily planted out at the same period.

This has the largest leaf of all the **Agaveæ** hitherto observed in India attaining 7 to 8 feet and over, with a corresponding breadth, though the leaf is narrower proportionately than in **A. Vera-Cruz** for example. We are disposed to refer it to the **Sisalana** group of **Euagave**. There are specimens from Madras, which we had placed under this species, but they seem poorly developed in comparison with those from N. India.

We have not yet mentioned the first species in the List, viz. **A**, which differs from all the others by the margin of the leaf.

It is included because the Saharanpur plant is possibly the same as a form received in the Sibpur Garden from Burma, and said to be naturalized in that country. Very little is known of this **Agave**, which is also unidentified; further remarks upon it will be found under Part II.

The last naturalized **Euagave** in the Descriptive List is a well-known form in Southern, Central, and North-Western India. In the N. W. it is looked on (as **A. Cantala** is in some parts of India) as "*desi*," or "native," but this means no more than that it spreads itself without the direct aid of man, and that there is no current tradition of its introduction. This species should be recognized easily by its round compact rosette, by the rather pale tint of the leaves, and their stiff habit. It is the only **Agave** in North India moreover that develops a conspicuous trunk, though this does not always happen.

The division which has sometimes been adopted of **Euagave** into two groups of "*caulescent*" species and "*stemless*" seems inconvenient. The same species may under one set of conditions, or at a particular stage of its development, appear to be stemless and yet develop a conspicuous stem or "*caudex*,"—somewhat on the plan of a small **Palm** or a **Yucca**,—at a later period or under altered surroundings. The truth seems to be that all the **Euagaves** have more or less of a stem above the crown of the rhizome though it usually is concealed by the outer leaves in most of them. At the same time certain species are more apt to develop a manifest trunk than others, although no known **Agave** attains in this respect the stage arrived at by one of the **Furcraeas** (**F. longaeva** *Zuccarini*). Probably the "cauiescent" species shed their outer leaves periodically, pushing up the vegetative cone with more rapidity than the so-called stemless forms, so that the portion of the trunk which has shed the older leaves is large and conspicuous.

At all events this is something like the process which takes place in the species figured by *Wight* as "*A. vivipara*" (l. c. 2024). This well-marked **Agave** is that most widely spread in the drier parts of India, from Mysore to the Panjab, though from many intervening parts it has not been reported. It extends to the very south of India and east to Bengal and Assam, but does not thrive well in a damp climate. *Wight*, following *Buchanan* probably, referred his plant to the

"*vivipara*" of the *Species Plantarum*, but that is an utterly ambiguous species not founded on living or Herbarium material so far as we can discover, and the proper course is to drop the name altogether. *Miller's* "*vivipara*," which may be the "*vivipara*" of some continental authors, is obscure, but it was certainly remote from the plant of *Wight* and *Buchanan*, and we have proposed **Agave Wightii** accordingly.

There remains only "**G**" of the Descriptive List, the "**true sisal**" which was introduced into Bengal some twelve years ago, as explained in *Bulletin* No. 5, 1899 of this Department (**Agave sisalana**).

Under Part II, the history of this staple in America is fully considered, and reasons stated for re-placing the present scientific name ("*A. rigida*, var. *sisalana*") by **A. sisalana** simply, as was done indeed by *Col. Prain* in the Bulletin just quoted.

About the same time that the Bengal Government was bringing "**Sisal**" into N. India, it was being introduced into the Mysore State as set out in an interesting note by *Mr. Cameron*, Superintendent of Government Gardens, Bangalore, from which an extract is subjoined as follows:—

> "Acting on my advice, and kindly assisted by the authorities at Kew, the late Mr. Ricketts was able, in 1892, to import 5,000 plants direct from Florida. Prior to this date a few plants of *Agave rigida* had found their way into the Botanical Gardens, but it is quite impossible that the variety *Sisalana* had ever appeared in the Province before. We may therefore take 1892 as the starting period of this important cultivation.
>
> "The plants from Florida arrived in excellent condition and were at once planted out in the Lal Bagh. In view to hardening them off and inducing them to reproduce their kind, it was decided to plant thickly in an open field which had formerly been cropped with ragi and other dry crops. The bulk of the consignment was therefore laid down in a plot of land measuring only ⅛ of an acre. With exception of occasional thinning out to relieve congestion and meet small indents, the original plants still remain in this position where they form an overcrowded and conspicuous clump. Suckers were

allowed to grow and the matured leaves of parent plants have not been cut, hence poling commenced in the 9th year, or in 1901. Poling or the growth of the floral axis, forming flowers, fruit, seed, and adventitious buds renders propagation easy as each pole gives birth to upwards of 2,000 buds, which shortly develop into bulblets that mature and fall to the ground.

"It will thus be seen that the main object of cultivation in the Lal Bagh during the period under report has been to induce poling and render the plants hardy. We shall now have ample material to commence cultivation for another object, if desired, viz., to produce Sisal Hemp, the valuable product of the leaf. During the current official year 45,000 plants have been sold for that purpose, at a cost of Rs. 1,000; a sum which more than twice covers the original outlay for introducing the species from Florida.

"In my opinion, cultivation should be left to private enterprise, though in the case of arid tracts where ragi often fails to reward the raiyat, it may be feasible to substitute a crop of the kind. But that could only be done when a real demand for hemp arises at convenient centres. The advantages of the cultivation may be briefly stated as follows:—

1. Land of a gravelly and stony nature is suitable.
2. When land is planted up, the cultivation practically ceases for a period of 4 years, or until the matured leaves are ready for cutting.
3. On suitable land failure of crop has never been heard of.
4. The profit on an acre of land yielding crop is estimated at £4 to £5 per annum, that is 60 to 75 rupees.

"The large succulent growth obtained in rich land is inimical both to the quantity and quality of fibre produced; therefore somewhat poor land of a loose

stony nature is always preferred, as in addition to giving better results generally it accommodates a larger number of plants to the acre. Mysore possesses plenty of such land, and if the latter can produce leaves of four feet in length it will do. But there is a reduction in value, as well as difficulty in extracting the fibre, when the leaves are under three feet in length. In Yucatan, plants are put out in rows at 7, 8, 9 and even 12 feet apart, according to the nature of the soil. But the general practice is to allow nothing under 400 plants to the acre, while 660 is considered about the maximum number. In the Bahamas the planting is somewhat closer. When a plantation is once established it may be profitably worked for a life time, care being taken not to let the plants pole or become exhausted from over-cutting. In a large plantation drives are left at convenient intervals to facilitate the easy removal of leaves."

* * * * *

Recent information on the growing of A. **sisalana** will be found in the Year Book of the United States Department of Agriculture for 1903 (*Washington 1904, pp. 395—396*).

The only **Furcraea** that is grown on any scale in India is the "**Mauritius Hemp.**" This is established in the extreme S. W. of India; in N. India it has recently been used for fibre with other **Agaveæ**; but it is not known to what extent it is in cultivation for this purpose; the identification of this species is considered in the Descriptive List under **Furcræa.**

To sum up as regards Indian economic species of **Agave,** those at persent known are **E,—F,—G,—J** of the Descriptive List;—

E. is **Agave Cantala** *Roxb.*

G. is **A.——sisalana** *Perrine.*

J. is **A.——vivipara** *Wight*, which we have called instead **A. Wightii.**

"**F**" unfortunately is without a name for the present. It seems intermediate between **A. Cantala** and the **Sisalana** series, and would probably repay investigation.

We suspect that "**H**" (the large species wrongly called "*lurida*" at Saharanpur) is also allied to the **Sisalana** group,—and careful experiments upon its fibre are very desirable.

"**J**" will doubtless hold its own as a hedge plant, especially in the drier provinces, but the shortness of the leaf handicaps it as against other species.

We know nothing really about **A. Vera-Cruz (D)** as regards its fibre, but the prickly margin of the leaf has to be reckoned with. This species stands a moist atmosphere rather better than **A. sisalana** possibly, but the species "**H**" is perhaps the most adaptable to varieties of climate. We do not pretend to offer an opinion as to soils for planting **Agave**, but botanical considerations, as well as experience in the different gardens, suggest that the composition of the soil is not of much importance,—always provided it is well drained and sloped, or elevated sufficiently to guard against water-logging. An important factor, of course, in the cultivation of **Agave** or **Furcræa** is the provision necessary to meet the effects of poling; but where space is available this can be met by marking out the plantation into blocks, and planting these on a fixed working plan in successive years, so as to maintain a continuous supply of leaves of the proper age from the different blocks in rotation.

In a letter from the State of Vera Cruz the following remarks on the native soil and climate of the **Agaves** occur:—"In our rich clay loams here with 125 inches of rain distributed over nearly nine months of the year—as might be expected—Agaves are non-existent," but it is added, that "on the Pacific side of the Isthmus, * * in the State of Oaxaca, where the rainfall dwindles away to 30 or 40 inches with over eight months' dry season, and a gravelly or rocky soil, I have observed Agave and Cacti in abundance." This lends confirmation to Mr. Cameron's suggestions; but the merit of such situations probably depends on their facility for drainage.

Our reasons for including "**K**" in the List will be found in the following Part (II) of this paper. It is the **A. decipiens** of *Mr. J. G. Baker* which is possibly the same as **A. Ixtli** of *Karwinski* and is known in Florida as "**false Sisal.**" It is only known in India in Botanical collections at present.

PART II.—HISTORICAL AND SYSTEMATIC.

The genus **Agave** was founded by *Linnaeus* on a species which he introduced into the University Garden at Upsala. From an MS. work of his in Swedish, printed at Upsala by T. M. Fries in 1899, it appears that a specimen of the plant which he afterwards described as *Agave foliis spinodentatis mucronatisque* in the *Hortus Upsaliensis* (*Stockholm, 1748, p. 89*) flowered at Noor between Stockholm and Upsala in 1708 and in this MS. (" *Hortus Uplandicus* ") *Linnaeus* identifies the plant that flowered at Noor with the *Aloe ex America* of *Dodoens* and the *Aloe folio in oblongum aculeum abeunte* of *Tournefort.* These synonyms among others are given in the *Hortus Cliffortianus* (*Amsterdam 1737*) for the plant to which he subsequently gave the name of **Agave americana** (*Sp. Pl. ed. 3, 1764, Tom. I. 461*). We will return to the **Agaves** in Clifford's garden later, observing meantime that when first imported into Europe from the New World, **Agaves** were classed by the science of the day with the *Aloe* of *Dioscorides* (or " *Bitter Aloe* ") owing to the similarity of foliage.

It has been questioned (*Bertoloni Fl. It. IV. 157, also Visiani Fl. Dalmat. I., 124*) whether the **Agave** which has become widely naturalized in S. Europe was in fact imported and not actually indigenous; but the evidence against any **Agave** being a native of Europe is overwhelming.

The ingenious argument of *Ernst Meyer* (*Bot. Zeit. 25, April, 1856*) turns on a drawing made in the 15th century, or earlier, of a plant said to occur in India, Persia, Greece, and Apulia in a work on Simples composed by one *Mathias Platearius*, principal (in the 11th century ?) of the Medical School at Salerno founded by Charlemagne ; but it is difficult to distinguish figures of *Aloe* and *Agave* in the old authors when, —as *Herr Meyer* states was the case with the Salernian drawing, —no inflorescence is given. Probably a species of *Aloe* introduced by the Saracens into S. Italy was intended. The **Agave** is known in Calabria and Sicily by different names, of which one at least is derived from the Arabic " *Sabare* " * which is still the designation of the *Bitter Aloe* in the North of Africa.

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* From a root meaning (inter alia) "to turn sour or bitter," or from a derivative that means "arid rocky places," which the best medical Aloe inhabits.

That the genus **Agave** has its head-quarters in the New World is quite certain. *Mr. W. B. Hemsley* (*Introduction to Biolog. Centr. Amer. App. p. 272*) gives the range of the true **Agaves** as from Texas and Arizona on the North to Southern Mexico, with outlying representatives. He further indicates that the type diminishes as one passes out of Central into S. America.

If the group of which **Agave virginica,** *Linn.*, is a type be not made a separate genus (**Manfreda** *Salisb.*) then the north-east limit of **Agave** would be found in the State of Virginia, the most southerly record being one which may be translated as "at the bottom of warm cañons in the province of Huanaco in Peru" (*Ruiz and Paron, III, 66-67*) that is about nine degrees south of the Line in 75° W. Long.

The authority of *Humboldt** has been long quoted for the statement that his *Agave americana* extends over the whole of tropical America to 7,600 feet from the sea level, but the student has as a rule been left to discover for himself that the **Agaves** which *Humboldt* observed abundantly in Central America were always cultivated, that (as he expressly states) there are several varieties in Mexico, also that the **Maguey** of the Spanish colonies included several sorts some of which (for reasons given in his text) probably belong to other genera.

All this is very clear from *Humboldt's* own writings, but, as the point is of importance, we may add the testimony as to S. America of *Martius* (*Flora Brasiliensis,* III. 1. p. 183) that the *Agave americana* was not even cultivated in Brazil in his time except in gardens or about mansions (*Cf. also W. B. Hemsley loc. sup. cit., p. 273* for remarks on the distribution of **Agave** and **Furcræa**).

Humboldt remarks that the several varieties of the "**Agave americana**" constitute the **Maguey** or **Metl** of the Aztec-speaking peoples. **Metl** evidently was a general term applied to different **Agaves** (and **Furcræas**) as well as to certain useful plants of the Pineapple Family **(Bromeliaceæ)**. This appears from *Hernandez* (*Rer. Med. N. Hisp. Theasaurus a Nardo Anton. Recchо Collecta, etc., Romae 1651*) *Hernandez*, who was body physician to Philip II of Spain, had spent a

* The most important statement is in the "*Essai Politique*" and is translated at some length in the letterpress to plate 3654 in Curtis's Botanical Magazine, Vol. XII, N. S. 1839.

great part of his earlier life in the Mexican possessions, and was manifestly a close and intelligent observer.

The *Thesaurus* (Cap. XII) gives about twenty different sorts of *Metl* with woodcuts of nine which, though rough, are usually good, but in the case of "*Maguei*" the inflorescence seems to have been added wrongly, as the flower is not that of an *Amaryllidea* at all or indeed attributable to any allied order. This is repeated by *Morison* (*Plant. Hist. Oxon. ed. 1680 p. 417 and t. 22 Sect. 4*), for his "*Aloe* (3) *americana flore luteo.*" His letterpress is largely taken, as regards the "American Aloes," from *Hernandez.*

The earliest mention of the **Maguei** that we have been able to trace is attributed to *Peter Martyr* (*De Rebus Oc. et Orbe Novo, Basel*, 1533) as quoted by *Martius,* l.c., p. 192 and by *Danielli, Nuovo Giorn. Bot. Vol. XVII, Fasc.* II, *April 1885.*

Peter Martyr seems to have known the plants, which were produced in San Domingo; he compares them to palms, and says that the inner leaves were eaten by the natives. He further states that the name in the Haitian language signified a drum (or cymbal?). In the older books it is noted that a kind of parchment or paper was made from the leaves of **Agave,** so it is possible that *Peter Martyr* was mistaken, and that the tambourines of the Haitians were called after the **Agave** and not, as the quotation suggests, the plant from the instrument.*

Oviedo (v. *Martius,* also *Danielli,* ll. cc.) in the 16th century mentions at least three kinds of fibre-yielding plants of the West Indies, viz.:—

(1) **Henequen,** (2) **la Cabuja,** (3) **Maguey.**

Martius (*Beitrag zur Natur-und Literatur-geschichte der Agaveen*) has gone fully into *Oviedo's* account and regards four species as indicated; he concludes that the **Maguey** Agave was not "*A. americana*" (of *Humboldt* and others) but a species of the Islands which he specifies as "*Agave vivipara.*" He quotes a passage in which *Oviedo* refers to the Maguey of the Mainland, and this seems to support the conclusion that the species of the Islands from which soap and fibre are obtained differed from the Maguey of Mexico.

From 1568 to 1572 an Englishman named *John Chilton* travelled over nearly the whole of Central America and in his

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* *Zambarone,* one of the names of **Agave** on the Adriatic littoral, which is usually regarded as a corruption of the Saracenic term already mentioned, looks more as if it might be derived from the oriental name of the Kettledrum or Turkish cymbals (Zambúr). The Apaches (Northern Mexico) use the central shoot of a species of *Agave* for making fiddles [Miss. Gard. Rep. VII p. 58].

account (see "*A notable Discourse, etc.,*" *in Hakluyt's Voyages, London, 1598, Vol. III., p 462*) it is noted that, "*about Mexico and other places in Nova Hispania there groweth a certain plant called Magueis which yieldeth wine, vineger, hony, and blacke sugar, and of the leaves of it dried they make hempe, ropes, shooes which they use, and tiles* for their houses, and at the end of every leaf there groweth a sharp point like an awle, wherewith they use to bore or pearce thorow anything.*" *Hawkes,* a merchant who resided in New Spain about the same period (*l.c.* p. 463) also mentions the "*Magueiz*" as the source of a wine which is called "*Pulco.*" In 1601 *Hakluyt* published a translation of the "*Descobriomentes*" (published 1563) by *Antonie Galuano* who was Governor of the Portuguese East Indies in the earlier half of the 16th century. This contains a full account (among other wonders of New Spain, such as the Humming Birds) of the **Metl** or **Honey Tree,** which is unmistakeably the **Maguey** or **Metl**† of *Humboldt.*

F. Lopez de Gomara (author of the *Life of Cortes*) gives a similar but more exact account of the *Metl,* adding that the Spaniards call it *Cardon.*

In his *General History of the Spanish Indies* published about the same period *Acosta* (*v. Danielli, l.c., p. 68, quoting Martius*) describes "*El Arbor de las Maravillas es el Maguey*" as a *Peruvian* species differing from that of New Spain (*i.e.* Mexico).

From these different histories it is clear that one kind of **Maguey** was known in San Domingo and other West Indian Islands from the time of their discovery by Europeans, and that different plants, probably **Agaves** or **Furcræas,** which were employed for various economic uses on the mainland were identified with the Island kinds by the Spanish ‡ conquerors, of which the best known was the wine-producing **Metl** of the Mexicans. As has been noted, however, there were several kinds of **Metl.**

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* This use is noted in the *Canaries,* where **Agave** is natur alized, by Leopold von Buch (*French translation of Chap. IV. of the main work reprinted from Archives de Botanique after 1817*).

† The early writers, whose etymology was comprehensive, clearly connected this Aztec appellation with the "honey" which distils in the perianth of different species of Agaveae.

‡ This was written before we had seen Martius' "*Beitrag, etc.,*" in which he arrives at a similar conclusion.

The Spanish conquests in Central America were established by the year 1525 and not long afterwards at least one species of **Agave** had appeared in S. Europe.

Charles de Lecluse (*Clusius*) while travelling in Spain about the third quarter of the 16th century saw a plant growing in a convent garden near Valentia, which he has described as *Aloe americana* (*Rariorum Stirp. per Hisp. 1576;* also *Rar. Pl. Hist. Antwerp, 1601, p. 160*), and identifies with the *Metl* or *Maguey* of *Gomara,* whose account he incorporates. *De Lecluse* took offsets from the convent specimen (which had not yet flowered) and sent one of these to a friend's garden in the Netherlands. *M. Charles Martins* (*Bull. Soc. Bot. de France, II., p. 9*) notes that the woodcut in the *Historia* was taken from the specimen that was sent to this friend and that this subsequently flowered at Antwerp. This figure gives a fair representation of an **Agave** of the type of *Humboldt's* "*americana.*"

Almost simultaneously or a little later, *Caesalpino* saw an **Agave** in flower in the garden of the Bishop Tornaboni, probably near Pisa, which is eloquently described in Cap. XXXII of his "*De Plantis*" as "*Alterum genus* [viz.: *Aloes*] *ex India Occidentale advectum etc.*"

Danielli says, with much justice, of the accounts which occur from this period with increasing frequency of "*Aloe americana*" having flowered at such and such a spot in Europe, that it is impossible to say which of the species of **Agave** (Sect. *Euagave*) was seen by the observers; but *Caesalpino's* excellent description suggests that the specimen he saw was not **A. americana** of *Linnaeus.*

Cortuso, Superintendent of the Botanic Garden at Padua, had an **Agave** in cultivation before 1561, which is said to have been the first introduced into Italy (*not* Europe, as by a slip,—often pointed out,—was stated in the *Species Plantarum*).

The story that the **Agave** first flowered in Europe at the papal city of *Avignon** in South-Eastern France in 1599, seems to rest upon a pious opinion, of which the genesis can be divined by consulting the original authorities (for references see Danielli, l.c., pp. 84—85, and Ch. Martins, l.c., 9 to 11).

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* *Danielli* notes that the **Agave** was probably taken by Italians settled in Avignon to that city from Tuscany. In a French work on the plants of the Trianon garden it is said that "A. americana" was first brought to Paris from the Mauritius in the 17th century.

An account by *Pierre Borel*, a Languedocian who was some time physician to Louis XIV ("*Hortus * * * cum accurata descriptione, etc.*," *Castries 1666 Paris 1669.*) has been the source of sundry evergreen traditions about "*Agave americana.*" Borel is quoted in the *Historia Plantarum* (*London 1686*, p. *1198*) as follows:—

"*Petrus Borellus Aloe plantæ caulem cum perl ongum tempus sine eo remanserit tandem erumpere scribit cum fragore et strepitu ut impetu facto tota in truncum fere convertatur coram mirantibus hominibus incrementum tantum suscipere ut etiam Quercum mediocrem aequet et 30 circiter palmaram altitudinem, et femoris crassitiem acquirat, floribusque in summitate decoretur. Quodque magis mirandum intra paucos dies* [*quatuor vel quinque*] *hanc molem attingere, adeo ut incrementum ejus etiam oculis percipi potuit. Tale quid visum nuper apud Monspelienses etc. credat Judaeus Apella.*"

The last three words are not, of course, in Borel but are *Ray's* comment, and produced later dissertations; but the facts collated by *M. Charles Martins* (of Montpellier), *Danielli* and others shew that the flowering of different species of **Agave** (Euagave) in Europe may be delayed from the sixth to the eighty-second year of the life of the individual offset.

Borel's specimen flowered at Pezénas near Montpellier during 1641 and the then King of France with Cardinal de Richelieu and the whole Court went to view it. This climate is that, in all Europe, perhaps most congenial to the **Agaveae**, and in the adjoining Sub-Pyrenean County of Rousillon, more especially about Perpignan, an **Agave** is naturalized on a great scale. (*Le Grand in Bull. Soc. de France, XVII, p. 95.*)

Bock (*Tragus*) about 1552, and *Mattioli* in the 1563 edition of the *Kreuterbuch* make no allusion to any plant that could be an **Agave** or **Furcræa**, though they deal fully with "*Aloe*," but in *Camerarius'* edition of the *Kreuterbuch* (*Frankfurt am Main*, 1590) *Aloe americana* is described and two illustrations are given. The letterpress is taken from *Cæsalpinius* and *Clusius* almost bodily, but it is expressly noted that the plant had come to North Europe from the West Indian Islands, though the usual identification with the **Metl** of the American Continent is added. One of the figures appears to be copied from *Clusius*, with an addition which will presently be noted. The other shows a flowering **Agave** in a gardener's "tub," which might be almost any of the **Euagave** section. This was sent by a correspondent in Italy to show how the American Aloe "poled" in Tuscany.

The addition to the figure borrowed from *De Lecluse* represents the terminal spine of an **Agave** which can only be that known in English gardens now as **Agave americana**. A flower is figured in the margin of the Florentine drawing, which was probably meant to be of the natural size, but this does not agree with either of the species which we suppose to

have been up to that time introduced into South Europe. *Camerarius* has helped a good deal, we think, to perpetuate the general assumption that the **Agave** which has been long cultivated in N. Europe (**Agave americana** of *Linnaeus*) is the same species as that which has run wild on the Mediterranean littoral.

Kaspar Bauhin ("*Pinax, etc.*" *Basel, 1671, p. 286*) gives under *Aloe* (*1*) *Vulgaris*, (*2*) *Aloe folio in oblongum aculeum abeunte*, quoting for the second *Aloe americana* of *Clusius* and *Aloe alterum genus* of *Cœsalpinius*. Up to this time authors were contented to distinguish what we now call **Agave** from the true **Aloe**, and when further kinds began to be discriminated the definitions did not aim so much at sorting out the species under either genus, but referred to "*Aloe vulgaris*" as the point of departure, which has led to no little difficulty and misunderstanding.

K. Bauhin quotes a work by Linschoten on the East Indies (which we have not been able to consult) for his second *Aloe*, but it appears from other sources that Linschoten saw or heard of that *Agave* in Africa or the Atlantic Islands.

The earliest reference to **Agave** in the East Indies that we have traced occurs in a book which professes to contain notes by a pupil of *Boerhaave* of lectures delivered by that acute student of nature towards the close of the 17th century at Leyden. This indicates that a species of **Agave** was by that time established in the Dutch East Indies where it was planted chiefly as a means of keeping out intruders.*

From this work it seems that *Boerhaave* (who taught a system based in the main on an embryological foundation) placed the genus "*Aloe*" in his class of "*Monocotyledones bracteatæ*" and recognized in all six species, of which No. 3 was the true *Aloe* from the island of Socotra (for which see *Bailey Balfour, Botany of Socotra, Edinburgh, 1883*). Nos. 1 and 2 were also species of **Aloe**. From the virtues attributed to the fifth and sixth kinds they were evidently **Agaves** (or **Furcræas**) and American. Of the fourth it is said—"*Quarta laudatur pro summo nutrimento in usus humanos, uti incolae testantur circa Mekiam, crescit in ingentem altitudinem folia rigidissima habet. Hae pro muris in propugnaculis inserviunt*

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* *Galuano* (v. sup.) makes no allusion to any **Agave** as introduced in his time into the E. Indies.

arcendis praedonibus, totum folium spinosum & filamentosum est nostratibus Naeldendraet, succus ex calice est edulis et nutrit ut rapa."

Mekia or Makian is a volcanic island about half a degree north of the Equator in 127° E. Long.,—the most southerly of the Ternate group, the original Moluccas or Spice Islands. In 1605 the Dutch expelled the Portuguese from the Moluccas, and in 1664 the Spaniards who had occupied Tidore surrendered that also. In the meantime the colony on Makian had been destroyed and scattered by a great eruption and earthquake in 1646, but the island was reoccupied after a few years, only to be laid waste again some twenty-five years later. We know that there were two ports on the South Sea coast of New Spain for trade with the Philippines and Moluccas, and that ships were built at one of these expressly for the South Sea navigation; so that plants from Mexico might easily find their way to the East Indian Archipelago in the 17th century, but it is remarkable that *Valentyn* ("*Amboyna*," *Dordrecht, 1726*) makes no allusion to the **Agave** though he includes in his List of native and cultivated Trees and Plants the *Lidah Boaya* (*i.e.* Alligator's Tongue) or true **Aloe.**

Rumpf (*Herb. Amb. V. pp. 271—274, tab. XCIV*) gives a full account of *Lidah Boaya* as "*Sempervivum majus indicum*" which he introduced into *Amboyna* in 1661, and notes that it differs from the *Aloe americana* of *Clusius* 'that being more akin to *Pandanus*'. "*Sempervivum*," it may be noted, was a name applied, it is said, to the true **Aloe** by the traders of Antwerp, who often kept a plant hanging from their roofs as a curiosity.

Burmann—the editor of the *Herb. Amb.*—adds a later note by *Rumphius* dealing very fully with another succulent plant that was first brought to his notice in a deserted plantation (near Amboyna apparently) in 1697, but was spreading in the Colony. The natives called it *Nanas utan, i.e.* 'woodland (or wild) pineapple,' or *Nana boaya* (Bwaya = crocodile in the Malay lingua franca, *v. Crawfurd,* etc.) and said that it had been introduced from Macassar.—*Rumpf* compares his plant, of which the figure as regards the general habit is excellent, with the *Aloe americana* of *Clusius* which he knew only by description, noting at the same time that there are discrepancies between his living plant and the description which may be due to climate or casual variation.

The note concludes by remarking that the plant seems to multiply by proliferous gemmation (*i.e.*, from what he calls the second sort of flowers or false blossoms) or by suckers or in either manner, but his observations could not be completed, for which he gives reasons.

Rumpf's plant we consider is an **Agave** that is established as a denizen in India, and is markedly distinct from the species naturalized in S. Europe, as well as from the true **Agave americana** of *Linnaeus*, namely **(E)** of our Descriptive List—**A. Cantala**, Roxb.

We must now return to the "American Aloe" in Europe. *Hermann*, Professor of Medicine and Botany at Leyden, in his Catalogue of the Botanic Garden there (1687) enumerates five species of *Aloe* of which three are true Aloes, one is the "*Aloe folio in oblongum aculeum abeunte*" of *K. Bauhin's Pinax*, while the fourth from the figure (at p. 17) is an **Euagave** which he describes and calls *Aloe americana sobolifera*. It was brought from America and flowered in a private garden at Harlem shortly before the compilation of the Catalogue.

In the *Historia Plantarum* (*Lond. typ. Maria Clerk, 1688, pp. 1195—1201*) *Ray* describes four species of the true *Aloe*. He then deals with *Aloe americana* and distinguishes,

(1) *Aloe americana*, Clusius
(2) *Aloe americana minor*, Munting
(3) *Aloe serrata major umbellifera*, Munting
(4) *Aloe purpurea laevis*, Munting
(5) *Aloe brasiliensis* (=*caraguata*) Markgraf.

Three species of *Caraguata* (all of Markgraf*) follow, and the chapter concludes with

(6) *Aloe ferox*, Munting

Ray's succeeding chapter discusses certain species described by *Hernandez* (v. supra) under Mexican names which *Ray* considered (though not without doubt in some instances apparently) to be referable to the group (so to speak) of *Aloe americana*. Two of these had been included in the previous chapter (VII).

Before discussing the identity of *Ray's* species it will be convenient to refer to certain other authors, mostly his contemporaries. *Plukenet* (London, 1696)

* We have not made extracts from the works of *Piso* and *Markgraf* (*ed. De Laet, Amsterdam ap. Elzevir. 1658*) because all that is important in their writings can be traced in works ordinarily more accessible.

has enumerated (besides *Aloe palustris anglicana* which is = *Stratiotes aloides* Linn.) twenty-two *Aloes*. Out of these there are eight belonging to genera other than **Agave** or **Furcræa** which are chiefly true **Aloe** and received mostly from Africa.

His first species "*Aloe perrara Andalusiae*" was obtained from the South of Spain and does not appear to have been taken up subsequently. The remainder seem to be species (or at least forms) of **Agave** and **Furcræa**: of *Ray's* species he appears to include the following,—

(1) *folio in oblongum aculeum abeunte*
(2) *Theometel*
(3) *serrata major umbellifera* (Munting)
(4) *purpurea laevis* (Munting)

also the *Caraguata guaçu* of *Ray*, for which however he quotes *Piso* and calls the plant *Aloe americana spinifera*, ignoring seemingly the *Caraguata* and the *Caraguata açanga* of *Markgraf*, which *Ray* had distinguished. He has evidently merged *Ray's* No. iii *serrata umbellifera* of *Munting* in his *americana sobolifera* for which he quotes *Hermann* (v. sup.).

He throws some doubt on *Ray's* identification of *Hernandez'* "*Metl lenissimum*" on grounds which hardly seem forcible. A variegated kind of *Aloe americana* is mentioned which was evidently regarded as a form of "*sobolifera.*" "*Aloe americana radice tuberosa fœtida major,*" = *Pit* or *Pita* of *Parkinson,*—is quoted as being the "*Piet* of the natives" [*i.e.* of the West Indies] and a picture is given in the *Phytographia*. Two varieties are mentioned, one with marginal spines, the other spineless, of which the latter is perhaps a *Furcræa* (*F. gigantea* Vent. ex. *Mgrtius Fl. Brasil, III. p. I. 187.*)

Parkinson's "*Aloe americana foliis cæsiis latioribus*" is doubtfully identified with the "*Aloe americana ex Vera Cruce foliis latioribus glaucis*" of the *Hortus Beaumontianus*. We have not been able, unfortunately, to see figures of either, but the brief descriptions pretty surely refer to one or other of the glaucous **Euagaves** that are now diffused in Europe.

In the "*Institutions*" (Lyons ed. 1706) *Tournefort* has a figure which contrasts the flower of **Agave**, with that of the true **Aloes**, but he got no further, and his list of species does not differ materially from that of *Plukenet* except that it is briefer.

In 1696 *Sir Hans Sloane*, a Fellow of the Royal Society, and afterwards its President, published his *Catalogus Plantarum* as the result of travel, chiefly in the West India Islands. The plants enumerated are those of Jamaica principally, but the book contains many valuable references as regards the Caribean region generally.

The *Catalogue* gives only four "*Aloes*," viz.—

(*a*) *Aloe Dioscoridis*
(*b*) *Aloe secunda seu folio in oblongum aculeum abeunte*
(*c*) *Aloe Yuccae foliis*
(*d*) *Aloe visci in modum arboribus innascens*

(*a*) is a true *Aloe*, and (*d*) a *Tillandsia* or allied *Bromeliacea*.

(*b*) should be *Agave americana* of *Linnaeus*, because *Kaspar Bauhin*, *Clusius* and *Cæsalpinius* are cited for the species, but its identity with the Mexican "**Metl**" or "**Manguei**" is questioned, very full references being given to the Spanish and English authors, who had dealt with the "**Metl.**"

The local name of the Jamaican plant is given as "**Caraca,**" and it is said to be frequent on the stonier and drier hills of that island.

Several accounts of "**Caraguata**" are referred to also, and we may say at once that "**Caraguata**" or "**Keratto**" is a comprehensive name locally applied in different countries to different **Agaveæ**, though usually, perhaps, to certain species of **Furcræa**: but in S. America to sundry **Bromeliaceae** also.

(*c*) is identified by *Sloane* with the **Henequen** of older travellers, and he suggests that it may be one of the "*deux dernieres pites qui n'a des petits picquans aux feuilles comme l'ananas*" mentioned by *Du Tertre*, as well as the "**Pati** *seu* **Metl lenissimum**" of *Hernandez*. Of this he says "*ad margines viarum Insulæ Jamaicæ locis campestribus et sylvosis crescentem observavi.*" *Martius* (l.c.) observes that the name "**Henequen**" belongs to the ancient language of Haiti, and was applied in the Antilles indiscriminately to different species of **Furcræa** and **Agave**, the corresponding Carib term being "**Pita.**" There are other grounds for thinking that the **Sisal Agave** had been already naturalized in the West Indies before its recent re-introduction, and on the whole it seems likely that the **Pati** of *Hernandez* and *Sloane's* **Henequen** represent **Agave sisalana**, *Perrine*.

Towards the end of the same 17th century the *Commelins*,—*Jan* and *Kaspar* (uncle and nephew)—were successively in charge of the Amsterdam Garden, and published tracts on different species of **Agave**, the most important for the present purpose being the younger *Commelin's* Excursus in the *Præludia* (*Leyden, 1703*) on a species which he describes and figures as *Aloe americana polygona*, and identifies with *Munting's Aloe americana minor* which is Ray's No. II.

Commelin, relying, as we suspect, on *Ray*, or perhaps *Munting*, who were in their turn influenced no doubt by the drawing in *Hernandez*, says that his plant is the *Theometel* of

the Spanish author. *Mr. Baker* (*Gard. Chron. 1877, vol. VII, p. 200*) keeps up an **Agave Theometel,** *Zuccagni.* *Zuccagni* identified his species with the *Theometel* of *Hernandez,* but *Mr. Baker* remarks that it may be a mere variety of **A. americana** *Linn.*

Returning now to the *Historia Plantarum,* *Ray's* first **Euagave** is clearly **A americana** *Linn.,* and his second we may take as=**A. Theometel** of *Zuccagni.* In his account of the uses of the first he has not escaped the general confusion, and attributes qualities to the **A. americana** of N. Europe gardens which it cannot claim, but the species that he meant to indicate was that which *Linnaeus* afterwards named "*americana,*" although *Clusius* is cited.

The third kind of this group rests on a description which seems to be quoted from *Hermann* but is not to be found in the *Paradisus* or the *Catalogue.* This description answers to the woodcut of the "**Maguey**" in *Hernandez,* which as already said cannot be an **Agave.**

Boerhaave (*Catalogue of Plants in the Leyden Garden* 1720) does not refer to it, and from the flowers it cannot be *Hermann's* "*sobolifera*" with which *Plukenet* and others have identified it.

There remains the *Aloe purpurea laevis* of *Munting* of presumed Agaves. As already said we think this must have been **Agave sisalana** *Perrine,* though the purple tint ascribed to the edges of the leaves would fit **Sansevieria** better; as it happens, however, the leaves of the bulbils in **A. sisalana** as well as the species **H** of our descriptive list are spotted with violet-purple, which we have not observed in any other **Euagave.**

The *first Caraguata* (*aloe brasiliensis*) seems to be an **Agave** of the *Littaea* group; and the second may belong there also.

The third (*caraguataguaçu*) has been usually supposed to be a **Furcræa** and is probably = **Furcræa tuberosa,** *Aiton.*

The *Caraguata açanga* manifestly belongs to the **Bromeliaceae** and is doubtless, as observed by *Ray* himself, the *Mexocotl* of *Hernandez.*

In the *Hortus Cliffortianus,* 1737, *Linné* describes certain species of *Aloe* (out of which, as before, we exclude all but those belonging to the tribe or natural order of **Agaveæ**) as follows:—

1. *Aloe foliis lanceolatis dentatis spina cartilaginea terminatis radicalibus* [Synonyms] *A. folio in oblongum aculeum abeunte* Bauh. Pinax [Morison's tab. 22, f. 2 and 3 are also cited; of these fig. 2 is that of *Clusius* without the addition made by *Camerarius*] *Aloe secunda, etc.*, Sloane; *Aloe americana muricata* Bauh. Hist., [and] Boerhaave, *Aloe americana* Besl. Eyst., *Aloe alterum genus ex India occidentale* Caesalp. Syst. 418. *Caraguata guaçu* Markgr. Bras. 87. [A variety is given as *Aloe americana ex vera cruce foliis latioribus et glaucis* Comm. hort. 2 p. 31. t. 16.;—and the native country is said to be "*in sterilioribus aridioribus et saxosis collibus americae jamaicae, etc.*"]

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13. *Aloe foliis lanceolatis integerrimis patentiusculis aculeis terminatis radice caulescente* [Synonyms] *Aloe americana viridi rigidissimo et fœtido folio Piet dicto indigenis*, Kiggelaar in Comm. hort. 2. p. 35 t. 18; Boerhaave Lugdb. 2 p. 129. n. 10; *Aloe americana tuberosa fœtida major Pit Pita* Herm. Prod. 306; *Aloe americana radice tuberosa minor* Pluk. Alm. 19 t. 258 f. 2. [Native country] *Curaçao.*

[A variety is described as *Aloe americana foliis angustioribus ex Vera Cruce. Hort. Carol. 4.*]

The figure cited under 13 from the Phytographia * is referred in the Almagestum (p. 19 as cited by Linnæus) to "*Aloe americana radice tuberosa fœtida major Pit Pita P. B. P.* * * **Eadem minor non spinosa*" which *Plukenet* identifies with *Aloe americana viridi rigidissimo et fœtido folio Piet dicto indigenis* of the Hort. Beaumont, but these identifications cannot be relied on, and all that can be said is that *Linnaeus'* Harlem plant was pretty certainly a spineless *Furcræa.*

With respect to 1, it is a fair inference that *Linné* looked on the two distinct plants that are often included under *Agave americana* on the continent of Europe as forms of one species.

We have not been able to inspect ** the figure published by the elder *Commelin*, but there is every likelihood that the glaucous variety of Clifford's collection was the type known in the Calcutta Garden as *A. lurida* and long supposed to be identical with the *Agave lurida* of *Aiton's Hortus Kewensis.* This garden possesses plants received from the great collection of *Sir Thomas Hanbury* at *La Mortola* as *Agave lurida*, which appear to us

* What follows applies to the only copy to which we could refer:—the "*Eadem minor non spinosa*" is what we should now call a subspecies, made by *Plukenet* himself.

** Since seen: it is evidently *Agave lurida* H. B. C. = **A. Vera-Cruz, Mill.**

to be identical with the Calcutta *lurida*:—and this is the species which we understand to be naturalized in South-Eastern Europe and North Africa; though in Spain, and possibly in Algeria (where a second **Agave** is distinguished by the French Botanists as "*A. mexicana*)" other species may have run wild.

*Brotero** (*Fl. Lusitanica*, p. I. p. 539) says "*In Algarbiis nunc ad sepes aliam Agaves speciem colere inceperunt foliis saturate viridibus minus crassis florentem non vidi an A. vivipara L.? an mexicana Lam.?*"

Without careful examination on the spot it is impossible to clear up these points, but there seems small likelihood that the **Agave americana** of the "*Species Plantarum*" has run wild anywhere in Europe or Asia. The "*lurida*" of La Mortola is usually called in Gardens of the South of Europe "*A. americana*" or "*A. mexicana.*"

To distinguish the plant (allied to the true **americana**), which is naturalized in India and (as we believe) in S. France, in parts of Italy,—on the Dalmatic shore,—in the Mediterranean Islands and in N. Africa,—this will be referred to for the present as "*A lurida H. B. C.*", to distinguish it from the true (cultivated) **A. americana** *Linn.*, and the different garden varieties of the latter.

At the time *Linné* compiled the *Hortus Cliffortianus* he had seen only a few specimens of **Agaveæ** in gardens, for he writes:—

"*Flores dum explicat spectatores tanquam ad portentum allicit, at absoluto brevi gaudio perit planta radicibus.*"

Closer opportunities have taught later observers that it is only the one shoot which flowers that is exhausted, and that in a vigorous example several shoots may come to maturity and flower in succession. Conversely, under certain conditions, several branches from the main stem may "pole" simultaneously (*Bull. Soc. Bot. de France* III. *Rev. Bibl. p. 205; also* VI. *p. 187*).

Agave† was first distinguished in the *Hortis Upsaliensis* (*Stockholm, 1748. p. 87*), but the genus dates technically from

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* It should be noted that *Brotero* does not seem to have been aware that the mode of flowering in **Agave** is very different from that which prevails in **Aloe**.

† *Linnæus* states that he selected the name (v. Hort. Upsal. l.c.) thus, "*Africanae et Asiaticae*" [viz., Aloes species] "*utpote officinales, diutius notae*

the sixth edition of the "*Genera Plantarum*" (*Stockholm, 1764, No. 431 p. 171*). In the *Species Plantarum Ed. 1. Vol. I. p. 323* (*Stockholm, 1783*) there are four species of **Agave** named and described on the Linnæan system, viz.:—

1. *A. americana*
2. *A vivipara*
3. *A. virginica*
4. *A. fœtida*

No. 3 may be dismissed at once. It has never been known in India out of a Botanic Garden,—it yields no fibre, and belongs to a group so different in vital respects from the **Euagaves** that it has been more than once proposed to separate the group to which **A. virginica** belongs as an independent genus.

A. fœtida is No. 13. of the *Hortus Cliffortianus* and is currently identified with **Furcræa gigantea**, *Vent.* How far this is a correct identification may be left for the present.

No. 1 *A. americana* does not call for any long discussion either. The plant which *Linné* had seen, and knew—founding his genus **Agave** on it,—was undoubtedly the **Agave americana** L. of *Andrews' Repository* (*London, 1799—1811, Vol. 7, 433* †) and of the *Botanical Magazine, No. 3654* (*Vol. XII. N.S. London, 1839*), so far as the pictures and the technical descriptions are concerned.

The Jamaican habitat given in the *Hortus Cliffortianus* is omitted, and the *Vera Cruz* variety which found a place there also.

It is said of **A. americana** "*Ex ea hodie sepes in Lusitania,*" and it is probably in consequenee of this remark that the species which is largely naturalized in S. Europe is often, if not usually, called *A. americana* on the continent.

The second species, *Agave vivipara*, clearly was not known in a living state to *Linnaeus.* The description is "*Foliis dentatis staminibus corollam æquantibus,*" which was taken probably from the plate in *Commelin's* Praeludia, already quoted, of "*Aloe americana polygona*" cited by *Linnaeus* as

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retineant nomen officinale et usitatissimum; aliud his" [viz., Agavæ speciebus] "*imponatur, inter synonyma nullum dignum occurit, licet antiquo generi antiquum nomen competeret, ideoque dixi Agave quasi plantam admirabilem.*" It is usually stated that the name is derived from a Greek adjective meaning "wonderful," but Linnæus probably did not forget the Amazon or the other mythological personages of whose existence we are reminded by *Danielli* (l.c. p. 69 annot. 2).

† On the plate by an error CCCCXXXVIII.

a synonym for his *vivipara*. In the text of *Commelin* nothing is said of the stamens being equal to the corolla; and it is expressly stated that the *Aloe americana sobolifera* of *Hermann*, which *Linnaeus* excludes altogether but compares with his *vivipara*, is a totally different plant from the *polygona*.

Commelin is positive that his *polygona* is the *Aloe americana minor* of *Munting* and his engraving corresponds with *Ray's* description (based on the *Aloidarium* presumably), but the further identification with the *Theometel* of *Hernandez* rests on the statement of a ship's captain who had brought the plant to Europe as a febrifuge with the native name *Theometel*, which *Hernandez* had rendered as "*Maguey divinum.*"

Aloe americana minor, however, from the description would seem to differ from the plant which is figured by *Wight* (*Icones*, *2024*) as naturalized in India and referred to the Linnæan "*vivipara.*" *Wight's* species, which is at once recognizable from other **Euagaves**, has a strong likeness to a rough sketch in *Hernandez*, but this is not his *Theometel*.

In the 2nd ed. of the Species Plantarum, *Linnaeus* added as a further synomym for his "*vivipara*" *Aloe americana*, *Rumph. 5. p. 273 t. 94.* *Rumpf* did not intend apparently to identify his plant with that of *De Lecluse*, but in any case it is certain that they are perfectly distinct whether what *De Lecluse* saw was **A. americana** of *Linnaeus* or another species. If *De Lecluse'* drawing was taken from an offset, as is stated, it was probably = *A. lurida H. B. C.*, but it is difficult to separate young plants of this from true **americana**.

Following the later editions of the *Species Plantarum*, the real plant of *Rumpf* has been often called *Agave vivipara*, especially in the East Indies.

In the *Hortus Elthamensis* (*Amsterdam, 1774*) *Dillwyn* figures a plant in *Sherard's* garden (in England) which is styled on the plate "*Aloe barbadensis mitior laete virens et splendens*"; in a List in which the plants are harmonized with the *Species Plantarum* this is reduced to *Agave americana* of Linnæus.

If the identification be correct and the specimen came from Barbadoes this would shew that the true "**americana**" was then in the West Indian Islands, but the drawing is indifferent.

In the fourth volume of the *Collectanea* (*Vienna, 1790, p. 94. t. 1*) *Jacquin* figured and described his *Agave lurida*, which he identified with a species published under that name in the *Hortus Kewensis* of *Aiton* (*1st ed., London, 1789*), at the same time stating that it was well known in Botanic Gardens as the

Aloe ex Vera Cruz, but had flowered for the first time at Schönbrunn, where it had been received in 1753 from Holland.

The description does not quite fit any **Euagave** with which the writers are acquainted; the coloured figure shews a plant* which, whatever it may be, is not **A. americana**, *Linn.*, nor *A. lurida* of the *Calcutta* Garden. It may be presumed that the *Vera Cruz Aloe* of gardens was either identical with the *Aloe ex vera cruce*(1) of the *Hortus Cliffortianus* or was so far like it that the two were identified. *Aiton* (*in the 2nd edition*) does not say that his *Agave lurida* was the *Vera Cruz Aloe* of *Miller*, but he quotes *Willdenow* who took his *A. lurida* from *Aiton's* 1st edition and *Willdenow* gives two varieties, of which *foliis latioribus* is expressly said to be the **Agave Vera Cruz** of *Miller*. *Willdenow* arranged his **Agaves** under two groups—*Acaules* and *Caulescentes*,—*lurida* being in the latter.

Turning now to *Miller* (*Gardener's Dictionary, VIII ed.*) who, though he made full use of the Linnæan genera, adhered in the main to *Ray* and *Tournefort*, we find three **Agaves** of the Species Plantarum, viz :—

1. *A. americana* 2. *A. fœtida* 3. *A. vivipara*

He had No. 3 in cultivation and describes it as *foliis reflexis marginibus dentatis*, and identifies it with the *Aloe sobolifera* of *Hermann* without hesitation, though *Linnaeus* was doubtful and *Commelin* says flatly that they have nothing in common. *Willdenow* had concurred with *Commelin*, at the same time questioning *Linnaeus'* citation of *Rumphius*.

We may say at once that the *Agave vivipara* of *Miller* must be utterly distinct from the plant of *Wight's Icones*.

Miller's second species is *Agave* (*virginia*)† which is altogether different from *Linnaeus' A. virginica*.

The following plants not known to *Linnaeus* are common to *Miller* and *Aiton*—

Gard. Dict.		*Hort. Kewensis (2nd ed.)*
(1) *Agave tuberosa*	=	*Furcræa tuberosa.*
(2) *A. Karatto*	=	*A. americana B. foliis margine fuscis.*
(3) *A. rigida*	=	*A. lurida B. foliis angustioribus.*

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* The capsule and seeds are those of **A. Wightii** *nobis*, which would seem (from *Schiede*), to occur near *Vera Cruz* in plenty.

† Not, as sometimes quoted, "*virginica*" following a mistake by **Martyn** in Vol. I. Pt. I. of the "*Gardener's and Botanists Dictionary*," London 1807.

With *Agave* (*virginia*) this makes seven species. *Miller's* eighth and last is *Agave* (*Vera Cruz*) which from his description is *Agave lurida H. B. C.*, or a very closely allied species.

In the tenth Edition of the Gardener's Dictionary (*edited by Thomas Martyn, London, 1807*) in which there are numerous alterations, there are a few notes of interest for our present purpose, *e.g.*, that there was a large variegated **Agave** in the Cambridge Botanic Garden, which had come from *Sherard's* Eltham Garden, that had reached the age of 60 years without flowering. This was no doubt a true **Agave americana**, *Linn.* Again Mr. Cowell flowered an **Agave** in 1729 at Hoxton about which there was controversy, the owner maintaining that specimens flowered in England previously were not the "true great American Aloe," which suggests that there* was at least one other species of the **Agave—Furcraea** group then in cultivation. The third note is worth extracting,

"*There are now hedges of the common Agave in Spain, Portugal, Sicily, and Calabria; it flourishes also about Naples, between Villafranca and Monaco and in other parts of Italy.*" But the common **Agave** of the Mediterranean is the *lurida* of the Calcutta Garden.

We have seen that *Linnaeus*, for the sake of brevity perhaps, omitted the Jamaica habitat for his **Agave americana** from the Species Plantarum, while *Sir Hans Sloane* has given what should be the same plant as a native of stony barren hills in that island, stating that the local name is *Curaca*.

Dr. Patrick Browne in his "*History of Jamaica*" (*London, 1789*) states that an **Agave** is indigenous and common in Jamaica, the name is *Corato* or *Curaça*. He gives several synonyms, of which one is the Linnæan description of "*A. vivipara*," with the specific designation omitted, but no weight can be attached to these citations because *Bauhin's* species, which is the **A. americana** of *Linnaeus*, is included, to say nothing of the *Aloe sobolifera* of *Hermann*. *Grisebach* (*Flora of Br. W. Indian Islands, London, 1864, p. 582*) quotes *Browne* for the occurrence of **Agave americana** *Linn.* in Jamaica. He also notes that he has seen specimens from Antigua and (naturalized) from S. Europe, and the E. Indies. As it happens, **Agave americana** *Linn.*, is *not* naturalized anywhere in the

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* In the "*Figures of Plants*" (*London, 1760, Vol. II. p. 148, Plate CCXXII*) which were designed to illustrate the earlier editions of the "Dictionary," *Miller* has given an **Agave** that flowered at the Chelsea Garden during 1757. *Martyn* says this was a mere variety of *A. americana* which does not seem likely, but we have not been able so far to refer it clearly to any of the species described by *Miller* himself or by any other author. This illustration is the only one cited by *Ruiz and Pavon* for the Peruvian plant which they have identified with *A. americana, Linn.*, but they admit that there were certain discrepancies.

East Indies: *Grisebach* no doubt had seen Herbarium specimens labelled "*A. americana*," but belonging to another species. He observes that no other **Agave** occurs in West Indian collections, but refers to the *A. Antillarum* of *Descourtilz* comparing it with **A. sobolifera** of *Salm-Dyck*, which that author understood to have come from Haiti and Jamaica.

A. sobolifera of *Hermann* seems to be a well-marked species; it is figured* by *Lamarck* (*Encyc. Methodique, Pl. 235, fig. 1*) as *A. vivipara, L.*; '*A. americana, Rumph.*,' is quoted as a synonym, and *Commelin* (*Praeludia*) is also cited. *Lamarck's* plant is said to occur in San Domingo (*i. e.* Haiti) and Jamaica. It seems likely that the account of *Browne* relates, in part at least, to a **Furcræa,** and that this led authors to refer to the *Agave vivipara* of the Species Plantarum, which had stamens not exceeding the corolla. On the other hand both *Browne* and *Descourtilz* lay stress on the conspicuous yellow colour of the blossoms, and it is quite possible that two or more species of **Euagave** are diffused in the West Indian Islands, one being *Hermann's* "*sobolifera*," which seems to be very little known, if known at all, in England.

Lamarck is quoted for another book species which hardly admits of practical identification, viz., *Agave mexicana* (*Dict. I. p. 52 and Encycl. Meth. I. 241*). In either work the plant is said to be the **Maguey** of the Mexicans. *Furcraea odorata, Persoon*, and *Agave cubensis, Jacq.*, are given as synonyms which are = **Furcræa cubensis,** *Vent.* The *Encyc. Meth.* gives no description, and that in the *Dict.* plainly indicates **Furcræa,** so that *Agave mexicana* falls to the ground as a species. His *Agave americana* is evidently = *A. lurida H. B. C.*, as he says it was naturalized in S. Europe, and he had seen living specimens.

In *Roemer's Collectanea* (*Zurich, 1809, p. 138, Tab. I.*) *Zuccagni* figured and described an **Agave,** which he identified with the *Theometel* of *Hernandez.* The description might be meant for the species figured by *Wight* in the Icones, but we hardly think, after full consideration, that they can be identical. *Roemer's* main engraving is not very good and follows possibly that

* The figure appears to be taken from Hermana.

of *Commelin's* "*Aloe polygona*" (which is not cited, however), but the enlarged drawings of the flower do not match the Indian "*vivipara.*" It is not stated whence this **Agave** was brought to the Florence Botanic Garden, where it flowered, and was described in 1806 by *Zuccagni.*

The List of **Agaves** in the *Jardin Du Roi* published at Paris by *Desfontaines* (1815) is as follows:—

* (1) *americana, L.—variegata*
(2) *lurida, Jacq. Coll.*
mexicana
angustifolia
(3) *vivipara, L.*
(4) *fœtida, L.*
(5) *Manguai*
bulbifera, Bonpland
(6) *yuccæfolia, Red. Lil.*
(7) *spicata, Dec. Cat.*

Nos. 6 and 7 are well known species of a different group from the **Euagaves**, with which alone we are so far concerned in India. No. (4) is a **Furcræa**; so most probably was No. (3).—No. (1) was evidently true **Agave americana**, *Linn. Desfontaines* must have seen the naturalized **Agave** of S. Europe and N. Africa, and as he doubted the identity of his No. 2 with the *lurida* of *Jacquin* it was very possibly = *A. lurida, H. B. C.*, i.e., *Aloe americana* of *Clusius.* The suggestion that it was the "*A. mexicana,*" which the bracket implies, supports this.

In the beginning of the 19th century, therefore, it appears that the following species of **Euagave** and **Furcræa** were known to science, viz.—

Agave (Euagave)

I. **Agave americana** *Linn.*

Origin unknown, cultivated as an ornament in the gardens of Europe.

II. **Agave Vera-Cruz** *Miller*

Introduced from Mexico; probably the *Aloe americana* of *Clusius*† naturalized in S. Europe and N. Africa (= *A. lurida H. B. C.*).

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* The numbering is ours.

† Hb. H. B. C. possesses a specimen from Xeres in S. Spain, collected by E. Bourgeau (No. 468) named *A. americana* by *Cosson*, which is identical with the *A. lurida* of the Calcutta Garden. This No. of E. Bourgeau is quoted by *Nyman* (*Consp. Fl. Europ.*) for **A. americana**, Linn., which he gives as naturalized along the shore and in the islands of the Mediterranean.

The figure (28) of *A. americana* in *Baillon Hist. des Plantes, XIII*, 16, is a fair portrait of *A lurida H. B. C.*, particularly as regards the inflorescence. The enlarged sketch of the flower is decisive.

III. **Agave Theometel** *Zuccagni*,

Native country doubtful, probably the N.-W. of Central America; flowered at Florence, 1806, or earlier;

not = *A vivipara*, *Linn.*

nor of *Lamarck*

nor of *Schultes Syst. VII. p. 717*

nor of *Kunth Enum. V. p. 823*

nor = *A. vivipara* of *Wight Ic. 2024*

perhaps = *Theometel* of *Hernandez* (*Anton. Recch. VIII. p. 274*)

IV. *Aloe sobolifera* of *Hermann*,

Native country doubtful, perhaps the Antilles and = **A. sobolifera** *Salm-Dyck* (*Kunth Enum. V. 822*)

V. *A. lurida*, *Jacquin* (*Collect. l.c.*),

Native country unknown;

not = *A. lurida*, *Ait.*

nor = *A. lurida*, *Gawler* (*Bot. Mag.—1522*)

nor = *A. lurida*, *Baker in Saunders' Refugium* (*V. 307*)

nor = *Aloe americana*, *Clusius*

nor = *A. lurida H.B.C.*

VI. *A.* (*species*) (sub "*Sempervivum majus.*") *Rumph. Herb. Amb.* (*ed. Burmann, p. 273 t. 94*)

Native country unknown, introduced before 17th century to Amboyna; probably = *Naelden-draet* of Dutch settlers in Moluccas mentioned by Boerhaave;—

not = *Aloe americana* of *Clusius*

nor = *A. americana*, *Linn.*

nor = *A. vivipara*, *Linn.*

nor = *A. vivipara*, *Lam.*

nor = *A. vivipara*, *Wight*

but = ***A. Cantala.** *Roxb*

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* *Pr. V. Salm-Dyck*, who appears to have suggested that Rumph's plant was a Bromeliacea, had probably never seen **A. Cantala** *Roxb.*

VII *Aloe Yuccæ foliis* of *Sloane, Cat. p. 118* in part
= *Henequen* of *Oviedo*
= *Pati seu Metl lenissimum* of *Hernandez* (*Ant. Recch. p. 275*)
Native country unknown, cultivated and naturalized in the Caribean region ;—perhaps = **A. sisalana,** *Perrine.*

VIII. *Quetzalychitl quem alii Metl Pitae vocant. (Hernandez l.c.)*
Native country unknown, cultivated in Central America. If this was a **Euagave** it is possibly = our **A. Wightii.**

*IX. **A. Keratto** *Miller* (not of *Salm-Dyck*).
Native or naturalized in the island of St. Christopher.

(We have excluded from this list of **Agaves** all forms that we refer to **Furcræa** as also a few the identity of which is at present hopelessly involved and doubtful.)

Furcræa

1. **F. gigantea** *Vent.*
Native country unknown ; cult. and naturalized from Central America and the Caribean region to Northern Brazil.

2. **F. Commelynii** *Salm-Dyck*
= *Aloe americana tuberosa minor* of *Comm. Hort. Amst. 2 f. 19 (f. Salm-Dyck)* (*v. Kunth. Enum. v. 842*).
Native country doubtful.

3. **F. tuberosa,** *Ait.*
= *Agave tuberosa, Mill.* (*excl. A. Commelynii f. Salm-Dyck*) native or cultivated and naturalized (?) in West Indian Islands.

4. **F. cubensis,** *Vent.*
= *Agave cubensis Jacq.* (also *Willd.*)
= *Agave mexicana, Lam.*
Native country unknown ;—naturalized in the Caribean region and introduced in S. America.

It thus appears that with scanty exceptions the original home of these forms of **Agaveæ** is not satisfactorily established,

* ***Agave rigida,*** Miller is excluded, as its identity is altogether doubtful.

while at least three kinds (all of **Agave**) that had been described by præ-Linnean authors remain unidentified. The localities mentioned in the old books give no certain clue, because the writers did not distinguish between native species and those naturalized or even between wild and cultivated forms.

Agave americana is believed by *Martius* (*Fl. Brasil III. P. I. p. 187*) to be a native of high mountains in Mexico, but his authority is not given, and the plant was probably a different one. **Furcræa tuberosa** *Ait.*, is reported by *Seemann* from the slopes of Chiriqui, a volcano on the borders of Panama and Costa Rica. (*Hemsley Biolog. Central Amer.* l.c. app. p. 273.) A statement by another traveller is quoted for the occurrence of *Agave americana* wild in the same belt on Chiriqui at 4,000—8,000 feet above sea level, but *Mr. Hemsley* thinks that the **Furcræa** may have been mistaken for it. We think there can be little doubt of this, and further that the **Maguey cimarron** (*i.e.* wild maguey) seen by *Schiede* and *Deppe* in the "regio frigida" of Mexico Proper, whatever it may have been, was not true **A. americana** (*Linnaea IV. 581*). The very circumstance that the Mexicans distinguish the mountain sort as wild shows they are well aware that "*die allbekannte A. americana*," as *Dr. Schiede* styles the **Pulque Agave**, is unknown except in cultivation.

The first account we can trace of any **Agave** in India Proper is in a series of papers by *Dr. W. Roxburgh* which exists in two forms; one of these pamphlets was printed officially, the other appears in the XXII. Vol. of the transactions of the Society of Arts of London 1804 (which voted its thanks to the author), under the title "*Observations on the culture properties and comparative strength of Hemp, Sun, Jute, and other vegetable fibres the growth of India.*"

In a comparative statement appended with the "*Observations*" we find '*Agave americana*" given as No. 11 of the staples on which *Roxburgh* had conducted experiments.

In the official correspondence the same plant is described as a new *Agave;* in both it is referred to as found wild in plenty, though where is not stated, and there can be no doubt that the species is that afterwards described in the *Flora Indica* (*Ed. C. B. Clarke p. 296*) as **A. cantula.**

In the *Hortus Bengalensis* (*Serampore, 1814*) three **Agaves** are shown as cultivated in the *Calcutta* (*Sibpur*) Botanic Garden, viz. :—

(1) *A.* Cantala R.* (2) *A. lurida* (3) *A. tuberosa*

No. (1) is noted as introduced before 1794 from India, and as having a Sanscrit name which would now-a-days be transcribed as "*Kantala*" No. (2) is said to be a native of America, (date of introduction not given). A footnote states that No. (3) had been received from Kew, but that the species was then already in the Garden (from America 1799) under the name of "*Yucca superba.*"

In the *Hortus Suburbanus Calcuttensis* (*Bishop's College, 1845*) there is no *Agave Cantala*, but a *Fourcroya Cantula* of *Haworth* appears as synonymous with the "*Agave Cantula*" of the *Flora Indica.* The Bengali name is given as "*Bilati Ananas*" and the source, doubtfully, as the Moluccas or S. China. *Graham* (*Cat. Bombay Plants., p. 272*) is cited, also *Rumpf* (*l.c.*) the usual error being admitted as to *Rumpf* having called his plant "*Aloe americana.*"

What *Rumpf* said was that the Amboyna "*Aloe*" was a very different vegetable from the true *Aloe* or "*Sempervivum*" (Lidah Boaya) and was manifestly *akin* to *Clusius' Aloe americana,* the differences being due perhaps to soil and climate.

We have not seen the original** work of *Haworth,* but his transfer of *Roxburgh's* "*Cantula*" to *Furcraea* was pretty surely an error. *Voigt* (*Hort. Suburb l.c.*) further gives "*Fourcroya tuberosa*" (no doubt the "*Yucca superba*)" and two **Agaves,** viz., 1. *lurida Ait.* 2. *Vera Crucis Haw.* He says expressly that his "*lurida*" is that of the *Hortus Bengalensis.* The first edition of *Aiton's Hortus Kewensis* issued in 1789, so that it is possible that *Roxburgh's* "*A. lurida*" was named with reference to that work, but it does not follow that the Calcutta plant and that of Kew (which appears to be extinct) were identical.

As regards the *A. Vera Crucis Haw.* of *Voigt,* there is happily a clear record. A note by *Wallich* in the unpublished records of the Sibpur Herbarium shews that this was introduced

* The name as spelt in the Hortus Bengalensis has priority and the species is therefore **A. Cantala,** Roxb., not *A. Cantula,* as in the Flora Indica.

** Since seen: the emendation was gratuitous; Roxburgh's plant is a true Agave.

from the Chelsea Garden by *Lord Auckland* during 1836, and was looked on by *Wallich* as doubtfully distinct from the existing "*lurida*." There can be little question that the plant *Haworth* meant was *Miller's* "*Vera Cruz*" *Agave*, and this presumbly is the *Vera Cruz* variety of the *Hortus Cliffortianus* also; that it is the present "*lurida*" of the Calcutta Garden we consider certain. What the "*lurida*" of *Roxburgh's* day may have been remains to be seen, if indeed we are to think that it was distinct from the "*Vera Crucis*" of the *Hortus Suburbanus*, but it certainly was not "*Cantala*." *Roxburgh's* "*Cantala*" seems to have been lost between 1840 and 1847, at which period extensive alterations were in progress. There is a Catalogue of 1847 (which is however probably not exhaustive), in which no **Furcræas** are shewn, and only two **Agaves**, viz., *A. americana Linn.* and *Vera Crucis Haworth.* The "*americana*," if it was the true *americana* of *Linnaeus*, must have been a recent introduction, because this is included in *Voigt's* list of garden desiderata.

The next after *Roxburgh* to observe an **Agave** naturalized in India was *Dr. Francis Buchanan* (afterwards *Hamilton*).

The following is from the "*Journey*" (*London 1807, p. 36*) [march of 6th May 1800, Baydamangulum to Tayculum.]

"*The natives here plant also many aloes* (*Agave vivipara*) *in their hedges and use the leaves for making cordage. It forms a strong defence against both man and beast, and thrives better in the arid soil of Mysore than in any other place that I have seen;—its Canarese or Karnataca name is Ravana Meshid.*"

There is nothing to shew why *Buchanan* named his plant (which is pretty certainly the same as *Wight's*) *Agave vivipara*, but most likely he was led by *Linnaeus'* citations in the *Species Plantarum*.

Moon's Catalogue (*Colombo, 1824, p. 25*) gives as growing in Ceylon *Agave americana*, *A. lurida*, and *Furcræa tuberosa*. No authorities are cited, but as the English name of "*lurida*" is given as "*Vera Cruz*" (Aloe) the species doubtless was = *A. lurida H. B. C.* What Moon's *A. americana* may have been, we cannot say, and the same applies to records from the Mascarene Islands, from the Cape of Good Hope, and Saint Helena also. A St. Helena plant cultivated in the Botanic Garden at Buitenzorg (Java) has been described as a distinct species by *Haworth* under the name of *A. angustifolia*.

In the Flora Capensis (*Stuttgardt, 1823*) *Thunberg* mentions "*Agave americana*" as naturalized on Table Mountain, etc.

Certain *Agaveæ* have been long naturalized in the Mauritius. *Mr. Baker* (Flora of Mauritius, 1877) shews *Agave americana* and *Furcraea gigantea* as established. A *Furcraea* known as "*Mauritius Hemp*" is grown in parts of Southern India.

In his *Catalogue of the plants of Bombay and its vicinity*, **Graham** has the following:—"*1572 A. Cantula Roxb. Flora "Ind. 2 p. 167. Aloe americana Rumph. Hort. Amb. 5. t. 94.* "**A** *stately Aloe-looking plant, the central scape rising to the height "of 15 to 20 ft., flowers in rains; in gardens, Bombay, Seroor.* "*There is a variety with long flexuous leaves. The seeds germinate* "*in the capsules before they drop off, as in A. vivipara.*"

The common **Agave** of to-day in hedges near Bombay and Poona is a plant which we identify with **Rumpf's** figure and with **Roxburgh's** "**Cantala.**" It seems doubtful if there are specimens of this from the New World in European collections, unless it be *Agave laxa* of **Zuccarini** (for which see **Baker** in *Gard. Chronicle Vol. VIII. 1877. p. 780, figure 151.*). **Mr. Baker's** figure is not unlike a form that is common in hedges at Saharanpur (in the Agra Province). This form was referred by the late **Mr. Gollan** to an **Agave** that is identical with specimens recently collected in the Bombay neighbourhood, which we refer to **A. Cantala.**

The Saharanpur Catalogue of 1855 shews the following,—*A. procumbens, A. tuberosa, A. cantula, A. americana, and Littaea geminiflora.* The last named is an **Agave** of a different section from the **Euagaves**, and for our purpose negligible. The "*A. tuberosa*" was probably a **Furcræa** which is still represented in the Garden, though not naturalized anywhere in N. India. "*A. americana*" probably covered **A. americana**, *Linn.* (cultivated in the Garden solely) as well as a quite different species which has run wild in waste places and hedges through the whole Civil Station. On what authority we have not been able to discover, the second species has been called "*A. lurida*" at Saharanpur for some time past. To this Saharanpur "*lurida*" (which is *not=lurida H. B. C.*) the natives give the name of "*Rámbanskeora*" to distinguish it from the ordinary "*Banskeora*" which at Saharanpur is usually applied to Wight's *A. vivipara.*

In **Dr. Jameson's** Catalogue "*Banskeora*" is appropriated to his "*Agave procumbens,*" but this is possibly a slip. If, however, the vernacular name was deliberately restricted to "*A. procumbens,*" then "*A. procumbens*" was most likely meant for Wight's "*vivipara,*" the allusion being to the way the trunk often lies along the banks of ditches and other sites where "*vivipara*" luxuriates, particularly near the old Rohilla fortifications.

If *procumbens* was=*vivipara* (Wight), then *A. cantula* must have been Roxburgh's species.

The *Agaves* now existing in a naturalized condition in and about the Saharanpur Garden are as follows,—

(*i*) ***A. vivipara*** (*Wight*)

(*ii*) ***A. Cantala*** (*Roxb.*)

(*iii*) *A.* not named; (believed by Mr. Gollan to be merely a form of the preceding) may we think be the same as ***Graham's*** "flexuous" variety of **A. Cantala.** It seems to have everywhere a poor reputation as a fibre plant, which is not the case with **A. Cantala** proper. This unnamed form has a weedy habit, the outer leaves often bending over almost from their point of origin.

(*iv*) "*A. lurida*" (Saharanpur).

A. Cantala is said to be widely spread in the Dehra Dun, and to extend to the outer* Himalaya, where it is used for hedges, but further enquiry is called for as to this, because it has not been always distinguished from another **Euagave** of which the Calcutta Garden possesses specimens, descended mostly from seed sent by ***Mr. J. S. Gamble, F. R. S.,*** from the Dehra Dun some years ago under the name of "*A. mexicana.*" Fibre was manufactured in the Dehra Jail formerly from a naturalized **Agave** described in accordance with the ordinary practice as "*Agave americana.*" It is doubtful if fibre has been ever made, save as an experiment, from the true **A. americana** of ***Linnaeus,*** which does not exist in the Dehra Dun, or anywhere else in India for that matter, so far as we know, in sufficient quantity.

The difficulties that confront the student in dealing with the **Agaveæ** are well illustrated by the case of ***Roxburgh's*** species. ***Mr. Baker*** (*Gard. Chron. 1877, Vol. VIII. p. 780*) refers *A. Cantula* of ***Roxburgh*** to *A. vivipara* of ***Linnaeus*** "*at any rate as regards the synonym Rumph. Amb. Vol. V. p. 273. tab. 94*" and at the same time cites the *A. vivipara* of ***Wight*** as another synonym. His view has been followed, as the best authority then available, in *Kew Bulletin No. 39, March 1890, CXXXV* **(Bombay Aloe Fibre).** He further identifies *A. Cantula* with *A. Rumphii, Hassk.* (*Cult. Hort. Bogor.*) which purports to be the plant figured in the *Herbarium Amboinense.* ***Rumpf's*** plate has often been taken for the plant figured by ***Wight,*** but on due examination of live specimens the

* To about 6,000 ft. above sea level in the station of Mussooree.

resemblance vanishes. *Hasskarl* published his species in a supplement to "*Flora*" (*II. 1842. p.* 5) as follows:—

"*Agave Rumphii mihi. Acaulis foliis lineari-lanceolatis, canaliculatis acuminatis spinis marginalibus nigris rigidis sursum arcuatis, scapo ramoso dein viviparo, staminibus corollam longe superantibus. Corollæ limbo revoluto. Ch. Sprg. S. V. II. 79— Willd. Sp. Pl. II. 195. Schlt. VII. 127. Rumph. Amb. v. 273. t. 94 Nom. Sund. Nannas sabrang=Bromelia transmarina.*"

He does not cite **A. Cantula** *Roxb.* as a synonym, and the revolute segments of the perianth of his description do not suit any species as yet observed in India. *Zollinger* (*Syst. Verz. der in Ind., Archipel, etc., Zurich, 1854*) sets aside *Hasskarl's* name in favour of *Roxburgh's;* he had at least one specimen before him and had seen the plant of *Hasskarl* living in the Buitenzorg Garden. In the latest Catalogue of that garden (*Teysmann and Binnendijk, Cat. Pl. H. B. Bogor, 1866*) *A. Cantula Roxb.,* is maintained and *A. Rumphii, Hasskarl* excluded.

In the Garden of *Sir Thomas Hanbury* at Mentone (*Syst. Cat. by G. Cronemeyer, Erfurt, 1889*) *Agave Rumphii, A. Cantula, A. vivipara,* and *A. Theometel* are all separately represented. *Mr. Watson* of the Kew Garden visited the Riviera during 1899 (*Kew Bulletin No. 36, Dec. 1889, CXXVI*) and his notes on **Agaves** include the following.

"*A. Rumphii Hassk.—Mr. Baker refers this to 'A. vivipara' but the plant under the former name in Mr. Hanbury's Garden looks like a gigantic A. rigida; it is a very fine* **Agave**, *the leaves about 5 feet long and very numerous.*"

* * * * *

"*A. vivipara Linn. (A. Cantula). A distinct species, more resembling a Furcraea. This lately flowered at Mentone.*"

In November 1891 *Mr. Baker* himself visited the Riviera (*Kew Bull. No. 61, January 1892, CCXXIII*).

We extract the following as it is material:—

"*A. rigida Miller. This, the most valuable and most variable of all the Agaves, is common and quite at home in the Riviera Gardens, flowering freely; and I had an opportunity of studying its characters and range of variation far better than I had ever done before and of seeing several forms with which I was not previously acquainted. The commonest forms in the Riviera show the characteristic small distant nearly black teeth, and agree very well with*

what has been described and figured as Ixtli and ixtlioides (*Bot. Mag. t. 5893*). *In Dr. Hern's garden, situated just on the French side of the Boundary Gorge at St. Louis, I saw a form with leaves much thicker than usual* (1½ *inches thick at the base*) *and forming a less dense rosette. The plants called Cantula and Rumphii in the Riviera gardens are forms of rigida. Mr. Hanbury has just flowered a spineless form that agrees very well with the sisalana of Yucatan and Florida. I am quite satisfied now that A. Houllettii, Jacobi, is nothing more than undeveloped sisalana, and the same holds good with a plant called laevis. One panicle of this species at La Mortola was producing copious bulbillæ. The peduncle, including the rhomboid panicle, does not reach a greater height than 12—15 feet. The bract leaves, like those of americana, are small and distinct as compared with those of atrovirens.*"

If this decision be accepted it is certain that the plants named "*Cantula*," and "*Rumphii*" at La Mortola cannot be the plants of *Roxburgh* and *Hasskarl* respectively. We possess in India specimens received from Kew as "*Agave rigida*" which differ absolutely from any species naturalized in the East Indies, and from *Rumphius*' figure also. The reference to the picture and account of *A. ixtlioides* in *Bot. Mag. 5893* complicates the question, for the plant there depicted,—after every allowance for the effects of artificial nurture,—could not pass as conspecific with the **Sisal Hemp** of India. That the Indian **Sisal** is the plant introduced from Yucatan to Florida by *Dr. Perrine*, is certain; see among other authorities *Kew Bulletin No. 62 of 1892, CCXXVII* (**Sisal Hemp**) and *Bulletin No. 5, 1899, Dept. of Land Records and Agriculture, Bengal,* (**Agave sisalana**).

A. sisalana in India varies as regards its leaves from margins absolutely smooth to fairly thorny, but there is one **Sisal Hemp** in this country and one only. Leaves with and without prickles may be found on the same individual.

To return to **A. Cantala,**—*Royle* had evidently never seen an authentic example of this (1853), nor had *Wight*, who does not even mention *Roxburgh's* species. *Wight* (*Icones VI.* pp. 18-19) says—(under *Agave vivipara*).

"*The Agave americana or as it is usually called American Aloe, now so common all over the country, belongs to the same genus and, as the name imports, comes from the same country. They are not Aloes. Rumphius has introduced a figure of this plant into his*

Herb. Amboynensis apparently on the supposition of its being indigenous in that island."

It is needless to comment on this passage in detail, but it is essential to observe that the plant with which "*Agave americana*" is being compared is the *Agave vivipera* (*sic*) of Linnaeus, and that it is for introducing a figure of Wight's own *Agave vivipara* that *Rumpf* is (unjustly as it happens) indited. The passage seems to have been often read as if the plant of which *Burmann* added (from *Rumphius*' "*Auctuarium*)" a plate to the original account of "*Sempervivum*," was '*Agave americana*.' Actually it is neither *A.* '*americana*' nor '*A. vivipara*' (of *Wight*) but **A. Cantala** Roxb.

Wight's illustration is not very good, but it cannot fail to be recognized by any one who is conversant with the Indian **Agaves**, and it should be equally impossible to confound either the species itself or *Wight's* artist's drawing with the plate in *Rumphius*. There is an unpublished drawing in the Herbarium H. B. C. marked as *A. vivipara*, *L.* in Wallich's handwriting under which is written "? *A. Cantula*, *Roxb.*" The species is unmistakably that of *Wight's* figure, the more so that both represent plants which have blossomed, when the appearance of the "rosette" or bunch of leaves (which in "*vivipara*" is highly characteristic) differs conspicuously from the previous condition.

Wallich's query was due probably to the original "**Cantala**" having been lost from the garden; and it must, we think, be answered in the negative.

In the first place, there is a plant which is fairly abundant and self-propagated in some parts of India answering to the figure and description in the *Herb. Amb.* which *Roxburgh* after mature consideration cited for his *Agave Cantula*.

In the second place, the Calcutta garden name for *Wight's* species is "*A. Cantula* var. *vivipara*," which suggests that the Roxburghian plant was readily distinguishable.

The plant which we identify with **A. Cantala** is proved by specimens to be plentiful about Bombay, and through the kindness of *Mr. I. H. Burkill, F.L.S.*, we have seen undoubted examples of this well-marked species from the Northern Circars, the scene of *Roxburgh's* own chief explorations.

Roughly speaking, **A. Cantala** extends from Central India (both E. and W. Coasts) to the N. W. Gangetic Plain and

the Sub-Siwalik tract as far as the Ravi. In the arid strip between Gwalior and Delhi it seems to be absent, but another **Agave** has found its way into this vacant corner.

From a suite of specimens which the Reporter on Economic Products to the Government of India has placed at our disposal, we think that this other Agave is identical with *Mr. Gamble's A. mexicana.*

Dalzell and Gibson (*Bombay Flora, Bombay, 1861*) mention three **Agaveæ** (under **Bromeliaceæ**) as follows:—

1. *Agave Cantula.* Aloe americana, Roxb. Fl. Ind. 2. 167. *A stately Aloe-looking plant, the central scape rising to the height of 15 or 20 feet, flowers in the rains. The broad ensiform leaves give material for rope or twine.*
2. *A. vivipara, is the narrower leaved plant, leaves flexuous and drooping, which may be seen growing in waste places; and is planted in situations where its roots may retain the earth when washed down by the rains. In the Madras Presidency it is employed in this way to keep up the earth near to the parapets of bridges, a practice which might with advantage be followed on our side of India.*
3. *Furcræa fœtida, Vent. in Usteri Ann. 19—54.—A plant similar in habit to Agave Cantula, but having thinner and more flaccid leaves, and green flowers. In gardens, Bombay, rare.*"

* * * * *

There can be little doubt that the "vivipara" of the Bombay Flora is the form with weak leaves that is common in hedges at Saharanpur.

Graham made it a variety of *A. Cantula Roxb. Dalzell and Gibson* repeat *Graham* for part of their remarks, but the "broad ensiform leaves" which they assign to *A. Cantula* are puzzling. Moreover, they seem to ignore *Wight* altogether. Possibly their *Cantula* is *Wight's vivipara.*

It is curious that *Mr. Watson* speaks of *A. Rumphii*, Hasskarl, as "*a very fine Agave, the leaves about 5 feet long and very numerous*" and as like a gigantic *A. rigida.*" We hardly think that *Wight's vivipara* would be described "as a stately Aloe" or as "a very fine Agave"; unfortunately we have no specimens or picture of the *A. Rumphii* or *A. Cantula* from La Mortola, but without attempting to decide whether *Dalzell and Gibson's A. Cantula* was the same as *Graham's*, we are convinced that what we regard as the true **Cantula** *i.e.* the **A. Cantala** of the *Hort. Bengal*, is a common hedge-plant in the Bombay neighbourhood.

In the Kew Bulletin No. 39, March 1890 CXXXI (**Bombay Aloe Fibre**) the source of this was taken to be *A. vivipara* as described by *Baker* in the Gardener's Chronicle (l.c.) which he had further identified with *Roxburgh's A. Cantula.*

It is impossible that this "Bombay Aloe" could be *Wight's* plant, because it had leaves 4—5 feet long and rather concave, whereas the leaves of *Wight's vivipara* are conspicuously flat on the upper surface, and the largest leaves observed have not exceeded three feet in length,—the average being two feet and a quarter.

It is clear from the correspondence printed with the Bulletin just quoted that the "**Bombay Aloe Fibre**" then being shipped to England was not grown at Bombay, but obtained (from more than one species most likely) in the Carnatic and Central India. Fibre is now shipped from Bombay that is raised in the immediate neighbourhood, and, so far as our information goes, this is largely taken from **A. Cantala** of *Roxb.* (=*A. vivipara L. according to Baker as above*, not in Gard. Chron.)

Reference to the "*Observations*" quoted above will show that *Roxburgh's* experiments gave a high place among the fibres tested to the **Agave** there mentioned, which we believe to have been the same that he published later as **A. Cantala.**

Further enquiry is very necessary to ascertain whether the weak "flexuous" variety of *Graham* is or is not distinct from **A. Cantala.** Its fibre,—rightly or wrongly,—seems to be generally looked on as worthless.

It may here be noted that in *Drury's Useful Plants of India* (*Madras 1858*) Wight's Icon 2024 is quoted for "*Agave americana*" although "*A vivipara L.*" is given on the next page without comment. Of *A. americana* it is stated:—

"It is much valued as a hedge-plant, but its chief importance arises from the "excellent fibres which it yelds. Not only are these produced from the leaves, "but a ligneous fibre is contained in the root familiarly known as the *Pita* thread. "This is much used in the Madras Presidency."

We have not been able to confirm the extraction* of fibre from the root of any **Agave,** and as the passage goes on to describe the process of making thread from the leaves, there is probably a clerical error somewhere.

This "ligneous fibre" reappears in Babu T. N. Mukerji's *Descriptive Catalogue of Indian Produce contributed to the Amsterdam Exhibition,* 1883, but it is there stated to be got from the "stem" (? scape) of "*Agave americana.*"

* *Hernandez* speaks of ropes being made with the roots themselves, which is a different matter.

We have so far tried to extricate the two species that are most widely spread in India, with the result that for the plant of *Roxburgh* the name given in the Hortus Bengalensis remains unaffected (species **E** of List = **A. Cantala** *Roxb.*).

For *Wight's* "*vivipara*" we conclude that a new name must be proposed, and have shown this in our List as Species **J** = "**A. Wightii**" accordingly.

Reasons have at the same time been adduced for holding that the **Sisal Hemp** (of India) has nothing to do with the plant usually styled *Agave rigida* in gardens.

We may now take up the species known in the Calcutta Garden as "*A. lurida.*" This is not the "*A. lurida*" of *Jacquin,* nor is it the plant portrayed at No. 1522 of *Sims' Bot. Magazine* and described as *A. lurida* of the *Hort. Kewensis* by *Gawler.* The leaves of that, as well as those of the *A. lurida* of *Baker* (*in Saunders' Refugium T. 307*) are on far too small a scale for the Calcutta "*lurida,*" while the habit of the latter is quite different; on the other hand, except that the segments of the perianth open campanulately in the figure, the flower in the *Refugium* is similar.

The earlier figure must be given up, we think; and the description, which was made solely from the figure, goes with it.

Aiton's description might apply to several **Euagaves,** but he doubtless meant to indicate the **Agave Vera-Cruz** of *Miller,* and the only ground on which *Miller's* name could be set aside would be that it is not classical; but at all events it does not pretend to correct latinity as does "*Vera Cucis,*" which is manifestly wrong, or "*Verae Crucis,*" which is questionable. No caveat can apparently be lodged on the score of priority. We therefore venture to restore for this **Agave** *Miller's* name of **Agave Vera-Cruz,** without attempting to pronounce whether **A. atrovirens** of *Karwinski,* and certain other forms that seem very much akin to it are specifically distinct or otherwise. This is **D.** of our Descriptive List = **A. Vera-Cruz** *Miller.*

Closely allied, it would seem, to the preceding is a plant which we have not seen except from the Saharanpur Botanic Garden, where it was received from the continent of Europe

under the name of *A. Jacquiniana* (reduced in the Index Kewensis to *A. lurida* of *Aiton.*)*

We shall have to refer to this shortly, but the present point is that the Saharanpur plant under discussion most assuredly is not *A. Jacquiniana, Hooker.* It is nearest so far as we can judge to the **A. atrovirens** of *Karwinski* (see *Rose* in *Contrib. U. S. National Herb. v. 223--225*) *?* = *A. Salmiana Otto,* which is one of the chief *Pulque* plants of Mexico: *Humboldt* (quoted by *Sir W. Hooker* in his note on *A. americana* just mentioned) writes "This sturdy, harsh and fleshy-leaved plant is uninjured by the "occasional drought, frosts and excessive cold which prevail on "the lofty cordilleras of Mexico"; and it is possible that the home of the *pseudo-Jacquiniana* is in that climate, and that it is therefore able to survive the winters of N. W. India, to which **A. Vera-Cruz** appears not to be equal, in the same degree at all events.

We cannot follow the reduction of *A. Jacquiniana, Hooker* to *A lurida*, if by "*A. lurida*" **A. Vera-Cruz** *Miller* be intended, and it is hopeless to compare *A. lurida* of *Aiton,* as the type† has long ago been lost, while the descriptions in the systematic books are mostly fitted to **A. Vera-Cruz,** with the misleading addition of a long caudex (as a compromise perhaps with *A. Jacquiniana, Hooker*).

We have referred to this Saharanpur "*Jacquiniana,*" because if aloe fibre cultivation should extend it seems not at all an unlikely sort to be tried in the colder parts of India, though it might turn out to be of more interest to the Excise than to the Agricultural Department. At present there is not material enough even for experiment (in Descriptive List **C**).

Agave A. of the Descriptive List is in cultivation at Saharanpur, though not as a "fibre aloe." In this the marginal spines are small, fine, ruby-coloured and close-set on a hardly perceptible border of the same tint running all along the leaf

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* A. *Jacquiniana* was originally proposed by *Schultes* (*Syst. VII. P. I. p.* 727) for the plant of the *Collectanea* (with regard to *Gawler's* strictures in *Bot. Mag.* 1522) in case *Jacquin's* species should turn out to be distinct from all previously described species. In 1859 an **Agave** that had come from Honduras flowered at Kew,—was identified with *Jacquin's lurida*—and published in the *Bot. Mag.* (5097) as *A. Jacquiniana;* the correct citation therefore is *A. Jacquiniana, Hooker.* This was not impossibly = A vivipara of Wight—**A. Wightii nobis.**

† *Mr. Baker* may be right in identifying the plant he described in the *Refugium* with *Aiton's lurida,* but the segments of the perianth in *Saunders'* figure, and the leaves will not do for **A. Vera Cruz** of *Miller.*

margin. A plant reported to be naturalized in Burma seems to be this, or at least very near to it. Nothing is known of the qualities of either form (if they are distinct), nor can they be properly identified, but they are allied possibly to **Agave Keratto** of *Miller*.

The Saharanpur specimens are named "*Agave Ixtli*," which is certainly inapplicable. The original **A. Ixtli** of *Karwinski* came from Yucatan, and his description (which is quoted in Kunth's Enum., V. p. 835) leads us to think that his plant must be near the very marked species which has been described by *Mr. Baker* in the *Kew Bulletin* (*Nos. 67, 68, July-August 1892, CCLVII*, **False Sisal of Florida**). There has been great confusion as to *A. Ixtli*, as will be perceived on reference to *Bot. Mag. 5893*, where an *Agave ixtly* of *Haworth* is mentioned as distinct from that of *Koch*,* besides *Jacobi's*, which was possibly intended to be the **A. Ixtli** of *Karwinski*.

In the notice just quoted it is suggested that *A. ixtly Jacobi* may belong to the same species with that writer's *A. fourcroydes* and *A. ixtlioides*, of which *5893 Bot. Mag.* is a representation.

In the *Index Kewensis* the "*ixtly*" (*i*) of *Koch* (*ii*) of *Haworth*, and (*iii*) of *Jacobi* are not separately mentioned, while **A. ixtli** of *Karwinski* is reduced, with "*fourcroydes*," "*ixtlioides*," and **A. sisalana**, *Perrine* to the *A. rigida* of *Miller*.

These identifications rest on the conclusions of *Engelmann* (*Notes on Agave reprinted in Bot. Works, Cambridge, Mass. p. 312, 1887*). His account is too long for quotation as a whole, but an extract will be given under the next species. He identifies an **Agave** that flowered at Antibes in 1872 with **A. Ixtli** (presumably of *Karwinski*), and this again with a wild **Agave** of Yucatan, called by the Indians *Chelem*. Of the '*Chelem*' he says '*which I refer with little doubt to Miller's old A. rigida*.'

He gives no grounds for this last identification, while his description has not much in common with *Karwinski's* of **A. Ixtli**, and differs in material respects from that of *Miller's A. rigida*: other difficulties apart, an insuperable bar presents

* From the notice of *Koch's* Monograph in *Bull. Soc. Bot. de France vii Rev. Bibl. 189 Karwinski's A. Ixtli* only would appear to have been included and is doubtless that intended.

itself in the fact that **A. sisalana** *Perrine* sends up suckers freely and continuously, whereas *Miller* says of his *A. rigida*,—"*This sort never puts out suckers from the root, nor have I seen any plants of this kind in flower, although there are many of them in the English Gardens some of which are of considerable age.*"

As to **A. Ixtli** *Karwinski*, and **A. decipiens** *Baker*, the peculiar apple-green of the rather narrow channelled leaves is a striking mark, as remarked by both authors, whereas *Miller's* plant was glaucous. Moreover *A. rigida* came from the *Vera Cruz* country, while **A. Ixtli** is, like **sisalana**, from the *Yucatan* peninsula, which has a Flora, as *Grisebach* has pointed out, more akin to that of the Caribean region than to that of Central Mexico. *Miller's A. rigida* resembles **sisalana** in one point it is true,—that it was spineless (though this is by no means always so with **sisalana**) but this very character divides it from **A. Ixtli**, which is well armed.

Specimens of what we believe to be *Baker's* **A. decipiens** are growing at Sibpur and Saharanpur,—also with the Agri-Hort. Society at Lahore, from which garden the Calcutta specimen is derived, the Lahore name being "*A. rigida*," and the stock received from Kew originally. The Saharanpur supply came from a Nursery in Florida labelled "*A. rigida, type*," referring doubtless to the work of *Engelmann.* These plants exactly match *Miss Mulford's* illustration (from a photograph) of *A. decipiens* (*Missouri Bot. Garden Report, Vol. 7, 1896, p. 67*), and *Miss G. E. Johnson's* outline drawings (pl. 68-69), also the sketch in *U. S. A. Department of Agriculture Report No. 9 Washington 1897, p. 45, figure 9*, except that the trunk in *Mr. Dodge's* sketch is more conspicuous,—the subject having manifestly been an old and large specimen from which the outer leaves have been cut or dropped away extensively.

"*A. Ixtli*" of *Gartenflora* 1883 (p. 149) may be=*A. ixtlioides* of Bot. Mag. 5893. We cannot think that it is=**A. decipiens** *Baker*, and it is widely removed from **A. sisalana**, *Perrine.* The synonymy is very intricate.

We have discussed this **Agave** (*A. decipiens Baker*) at some length,—partly because of its supposed resemblance to **A. sisalana**,—a resemblance which we are bound at the same time to say we are unable to discover,—and partly in the hope of

clearing up some of the mist that has fallen upon **A. Ixtli** and on *A. rigida* of *Miller.*

There is little to guide us as to the identity of *Miller's* plant, but there is nothing to shew that it was a **Euagave,**—and it should be looked for perhaps in another section of the Genus. The description (quoted we presume) in Kunth's Enum., V. 830 of *A.* (*Littaea*) *revoluta*, Klotzsch seems not far off it: *Hernandez "Metl V angustifolia"=Nequametl* (which is *not* the *Nequametl* of *Markgraf* apparently) should probably find a place in the same neighbourhood.

The last species that demands attention is the **Sisal Agave,** of which, as we have already seen, there is one species and one only in India.

Dr. Engelmann,—after giving a formal description of the plant which he assumed to be the wild type of the "**Sisal**" that is naturalized in Florida,—proceeded to take up certain cultivated forms as follows:—

* * * * *

"**Var. longifolia**: *foliis multo longioribus glaucis, aculeato-dentatis, spina terminali non decurrenti.*

"**Var.? Sisalana**: *foliis multo longioribus viridioribus margine integris seu pauci-dentatis, spina terminali non decurrenti.* **Agave Sisalana,** *Perrine*, vide infra.

"The original* plant was, according to Miller, brought from Vera-Cruz; my specimens, on which the above diagnosis is based, were collected in Yucatan by Dr. Schott. Dr. Perrine forty, and Dr. Schott ten, years ago studied in Yucatan this interesting plant,—its different forms and economical uses, and left us accounts of it, the former in Senate Doc. 300, Washington, Mar. 12. 1838; the latter in the Report of the Agricultural Department at Washington for 1869. Both agree that there is a common native species in Yucatan, called Chelem by the aboriginal inhabitants; but from time immemorial a number of varieties, all characterized by much longer leaves, and one also by the absence of marginal spines, and differing among themselves in the quantity and quality of their

* *i.e., A. rigida* Miller, on Engelmann's theory.

fibre, have been cultivated by the natives of Yucatan, and are a staple product of that country to this day, furnishing the well known Sisal hemp. The people know them as Jenequen (Schott) or Henequen (Perrine) and distinguish, as [317 (29)] Dr. Schott reports, the Yaxci (Yashki) as furnishing the best quality and the Sacci (Sacqui) with the largest quantity of fibre; Chucumci, larger than the last, produces coarser fibre; Babci has fine fibre, but in smaller quantity; Citamci, with small narrow leaves and poor fibre, stands probably nearest to the wild plant. Dr. Perrine mentions another variety, Istle, evidently the Ixtli of Karwinski, as furnishing a fine fibre called Pita. These plants yield a return of leaves when four or five years old, and may last 50 or 60 years under proper management; the flowering scape is cut off as soon as four feet high, when, evidently, axillary branches continue the growth of the plant; which is thus kept so long alive by being prevented from flowering.

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"With the name of longifolia I designate the variety known as Sacci and extensively cultivated in [318 (30)] Yucatan. It is principally distinguished by its much longer spiny leaves 4—5½ feet long 3½—4 inches wide, flowers very similar to those of the wild plant, but the filaments greenish. A. fourcroides, Jacobi Ag. 107, probably belongs here, and A. elongata, Jacobi, 108, I would refer to this form if the description did not expressly mention a channelled terminal spine.

"Agave Sisalana is the name that Dr. Perrine gave to the plant known to the natives of Yucatan as Yaxci, the most valuable of the fibre producing Agaves, and which was introduced by him into South Florida some thirty-five or forty years ago, during his efforts to acclimatize commercially valuable tropical plants in that almost tropical portion of our territory, efforts which were aided by Congress by a large

grant of land, but which were destroyed, together with his own life, during the subsequent Indian wars. With this Agave, however, he has been successful, as it is now fully naturalized, and is quite abundant at Key West and the adjacent coast."

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The assumption underlying certain of the conclusions just quoted, that the **Agaveæ** are prone to vary within rather wide limits has influenced systematists undoubtedly, but no evidence has ever been recorded to confirm it, and so far as species naturalized or cultivated in India are concerned, we should be led to just the opposite conclusion.

All that we can draw from the facts given by *Engelmann* and others is that there are certain **Agaves** in *Yucatan* to which local native names have been attached viz., (i) *Yaxci*, (ii) *Sacci*, (iii) *Babci*, (iv) *Citamci*, (v) *Chelem*.

Henequen, as *Engelmann* points out, is a general term, and so probably are "*Pita*" and "*Istle*"; "*Chucumci*" seems to be the same word as the "*chichimecae*" of *Hernandez* (l. c. p. 271) which he states expressed the Indian mode of cooking portions of the leaves for food (*cf. Martius l. c. p. 192*). Probably this also is a comprehensive term rather than the name of a particular plant.

Martius, who appears to have consulted several works that are not mentioned by *Engelmann*, states that in the language of the Maya tribes of Yucatan "*Qui*" or "*Quil*" signifies the plant from which fibre is got as well as the fibre, and enumerates as different sorts (i) *Sac-qui* (*Sosquil*), (ii) *Yas-qui*, (iii) *Chulul-qui*, (iv) *Chelem*.

Of these the **Yas-qui** or **Yash-qui** is from the description manifestly *Engelmann's* No. (i), and is **A. sisalana.**

It would seem that the **Sacqui** ranks highest in the estimation of the natives, and this evidently is the plant that is cultivated on a large scale in the district of which Merida (Sisal* is a port of Merida) is the centre, and figured at p. 24 of *Kew Bulletin No. 62 Feby. 1892* (*CCXXVII*, **Sisal Hemp**). In the same Bulletin, (p. 31) it is clearly shewn that the Yucatan field **Agave** is quite distinct from that which *Dr. Perrine*, who

* The busiest fibre port now is said to be Progreso.

was many years at Campechy, selected as the best for the Florida plantation, and that he selected wisely.

Martius supposed the **Sacqui** might be a **Furcræa,** but the sketch already mentioned and the descriptions suggest an **Agave** of the **Sisalana** type, with a stout trunk, however, and generally more the habit of a **Yucca.** The flowers have been seen at Kew, and the plant pronounced to be probably 'var. *elongata*' of (Engelmann's) *A. rigida.* We do not know on what material *Engelmann's* description of the type of "*rigida*" was founded, but he evidently meant to indicate the "wild" original of the field **Sacqui.** Pending further exploration it can hardly be regarded as established that the wild originals of either **Sacqui** or **Yash-qui** have been found or exist anywhere.

Both have evidently been in cultivation by the *Mayas* from a great antiquity, and we propose until more is known of the **Agaveæ** of Yucatan to refer to them as,—

Sacqui=A. longifolia, *Engelmann*

Yash-qui=* A. sisalana, *Perrine*

From *Martius'* history it seems possible that a third species has been cultivated in *Yucatan* and that this was **A. Ixtli** of *Karwinski. Mr. Dodge's* account of the **False Sisal** found on and near the coast of Florida makes it not unlikely that this was unintentionally introduced along with "**Sisalana**" and has meantime been described again (from Florida) as **A. decipiens** of *Baker.*

It is condemned by the North American experts, but the qualities assigned to it would not necessarily prevent its being used in its native country; more particularly if it be the fact, that a good deal of local fibre has for many years been shipped from the Gulf of Mexico to be mixed with other staples. Although existing solely in Botanic Gardens in India we include **A. decipiens** *Baker,* in our descriptive list of Indian **Agaveæ,** as it should be known, if only to be avoided for the reasons given by the authorities at Kew and Washington.

The result of the above examination of the authorities and material available in India may be summed up as follows so far as identity of species is concerned.

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* Strictly, this should be **A. sisalana,** *Perrine* (Engelmann), but the above is less cumbrous.

* The following **Euagaves** are more or less complete naturalized in different parts of India, viz.,

A. unidentified; perhaps allied to **A. Keratto** *Miller*—seen from Burma only,—fibre not known;

D. **A. Vera-Cruz** *Miller.* = *A. lurida H. B. C.* (not of *Jacquin*, doubtfully of *Aiton*),—fibre not fully known;

E. **A. Cantala** *Roxb.*—fibre exported from Bombay with that of other species; often, but wrongly called '*Agave vivipara*';

F. unidentified; approaches **A. sisalana,** *Perrine* and may possibly be *Engelmann's* "*A. rigida, Miller*" or a closely allied form; there is some ground for supposing that this plant is grown as '*A. elongata*' in the West Indies;—received in H. B. C. under the name of "*A. mexicana*" which, as shewn above, is unmaintainable;—fibre wants to be reported on;

H. unidentified,—planted in Bengal and in the Ganges "Doabs"; naturalized at Saharanpur, and there (wrongly) named "*A. lurida*"; probably allied to **A. sisalana,**—fibre wants to be reported on;

J. **A. Wightii** (nobis) = A. *vivipara*, Wight (not of *Linnaeus* or of *Lamarck*),—fibre reported on as good, but shorter than **A. sisalana.**

Of the remaining species of **Agave** in the Descriptive List (Part I) **B** (**A. americana,** Linn.) and **C** are not naturalized or grown except as ornamental garden plants in India, while **G.** = **A. sisalana** is a comparatively recent introduction. It is believed, however, to be spreading in some places spontaneously.

Only one **Furcræa** has so far shown any tendency to become naturalized in India, which is usually identified with **F. gigantea,** *Vent.* We think this may be rather **F. Commelynii,** Salm-Dyck, but information as to it is very scanty.

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* While this was in the press specimens have been received from the Tanjore and Tinnevelly Districts of Madras through Mr. C. A. Barber, F. L. S., Government Botanist in that Presidency, to whom we are greatly indebetd for specimens, of a small-leaved **Agave** with a granulated cinnabar-coloured terminal spine; this species is said to be planted on mud walls, as a sort of coping apparently. Its characters and uses are still under enquiry.

BIBLIOGRAPHY.

It is hoped that the references in the text will be found sufficient as regards the authorities mainly consulted; but the subjoined list of the more interesting or important publications bearing on the subject may be found useful, though it is far from exhaustive, and cannot profess, even from the writers' standpoint, to be complete. This does not include standard works of reference on Vegetable Physiology and Systematic Botany (from *Linnaeus* onwards) unless for some special reason, and the same applies to local floras also.

There are certain works which we have been unable to study, that should have a place in a complete Bibliography of the **Agaveæ**, such as—

Peter Martyr, *de rebus Oceanis et de Orbe Novo*, etc.—Basle 1533.

Aldinus, *Horto Farnesiano—Rome* 1625.

Rodati, *Index, etc., Bologna 1802.*

Boissier, *Voyage dans le Midi de l'Espagne—Paris 1839—1845.*

Boreau, *L'Agave americana et descr. de quelques plantes nouv. ou peu comnus.—Angers 1850.*

Payno, *Memorie sobre el Maguey mexicano y sus diversos productos.—Mexico 1864.*

Of other works, the following are the more important or interesting:—

Clusius, *Rariorum aliquot stirpium per Hispaniam observatarum historia, Antwerp, 1576.*

Clusius, *Exoticorum Libri Decem, Antwerp 1605.*

Cæsalpinius, *De Plantis, Florence 1583.*

Dalechamp, *Historia generalis plantarum, Lyons 1586.*

Matthiolus, *De Plantis Epitome, ed. Camerarius, Frankfurt am Main 1586.*

Matthiolus, *Kreuterbuch, ed. Camerarius, Frankfurt am Main 1590.*

Galuano, *Discoveries of the World published in English by Richard Hakluyt,* London 1601.*

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* For other Travels and Accounts of this period see Sir H. Sloane's Catalogue under Aloe.

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* In 1864 and 1870 at Hamburgh a separate work appeared as "*Versuch zu einer systematischen Ordnung der Agaveæ*," but the above paper and certain others not seen by us constitute the authority for his species.

† These authors are sometimes said to have proposed to alter the name *A. americana* to "*A. Maximiliana*," but their actual contention seems to have been that the term *Maguey* covers several species, one of which they held to be undescribed, and for this they proposed the name *A. Maximilianea*.

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KEW BULLETIN

Article	V	*Sisal Hemp*	*1887*
„	VI	*Mauritius Hemp* ...	*1887*
„	XXIII	*Mexican Fibre or Istle* ...	*1887*
„	CXVII	*Fibre Industry at the Bahamas*	*1889*
„	CXXVI	*Cool cultivation of Tropical and Subtropical Plants* ...	*1882*
„	CXXXV	*Bombay Aloe Fibre* ...	*1890*

KEW BULLETIN—*contd.*

Article	CLIII	*Fibre Industry at the Bahamas*	*1890*
,,	CLXX	*Mexican Fibre or Istle* ...	*1890*
,,	CCI	*Bahamas Industries* ...	*1891*
,,	CCXXIII	*Agaveae and Arborescent Liliaceae on the Riviera* ...	*1892*
,,	CCXXVII	*Sisal Hemp*	*1892*
,,	CCXLIX	*Sisal Hemp in the Bahamas*	*1892*
,,	CCLVII	*False Sisal of Florida* ...	*1892*
,,	CCLX	*Caraguata Fibre* ...	*1892*
,,	CCLXXVIII	*Sisal Hemp Industry in Yucatan*	*1892*
,,	CCLXXX	*Bombay Aloe Fibre* ...	*1892*
,,	CCC	*Manila Aloe Fibre* ...	*1893*
,,	CCCXXIX	*Fibre Investigations in the United States* ...	*1893*
,,	CCCXXXI	*Henequen Hemp in Yucatan*	*1893*
,,	CCCXXXVII	*Poling in Agave Plants* ...	*1893*
,,	CCCXXXIX	*Resources of British Honduras*	*1893*
,,	CCCXC	*Sisal Hemp at the Bahamas*	*1894*
,,	CCCCXXVII	*Sisal Hemp in the Bahamas*	*1894*
,,	DXVIII	*Sisal Cultivation in the Turks and Caicos Islands* ...	*1896*

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PART III.—GLOSSARY.

THIS takes in a somewhat wider field than the preceding parts, because current and vernacular names of plants and their products are not regulated or defined on any system. We have aimed at including all names of this class (so far as known to us) that appear to relate directly to the species treated in Parts I and II; but besides these there are sundry names or terms which are apt to be confused with those more properly applied to **Agaveæ,** or to products derived from them.

In India there is much confusion with regard to *Aloes* for example; while in America different products from the

Agaveæ and **Bromeliaceæ**—to say nought of **Palms** and **Grasses**—have been almost hopelessly mixed up together.

In such cases other names have been included, with due explanations.

Marks used in dictionaries to denote modes of orthography which do not prevail in English are not followed in the Glossary, because, for one thing, a majority of the names dealt with were spelled,—with diversified success,—by those who used or published them, phonetically.

Different renderings of Indian local names have been in most cases entered separately, on grounds of convenience; and, for somewhat similar reasons, certain names attributed to the classical languages of India and West Asia, though perhaps no longer current, have been given a place in the Glossary.

"*French*," "*English*," or "*Spanish*" names that are chiefly current abroad are referred in doubtful cases to the language understood to be actually predominant in the country concerned.

As regards "Botanical references" the authority for scientific names printed in Italics should be sought in the second column; for others the writers of these notes are primarily responsible.

The original authority for vernacular names has been cited so far as was possible, but where specimens have been inspected we have quoted the source from which the specimen was directly communicated as our authority for the local designation:—thus for certain Indian names we quote the Reporter on Economic Products to the Government of India or the Government Botanist, Madras, because, though the name may have been previously recorded, it is from specimens collected by Sir George Watt, by Mr. Barber, or by Mr. Burkill that we have been able to identify the plant said to bear a particular name in a particular locality with some approach to certainty.

For the sets of specimens received from Madras we are greatly indebted to the co-operation of the Government Botanist and the Revenue authorities.

It is hoped that the Glossary may help to clear the way both for those who may be called on to pronounce on the identity and character of Indian 'Aloe' fibres and for all who are interested in them agriculturally or commercially. Those who have made a study of any like subject will be able to

appreciate the intricacy of confusion that besets the local and vernacular terminology, as well as the loss and inconvenience due to it.

The chief difficulty is to keep the list within manageable bounds. In his catalogue of Fibre Plants of the World, from which we have derived much help, Mr. Dodge has observed (under "*Grass fibres*")—

> "while fibrous substance is extracted from many species of *Gramineae* the family of true grasses, the term is frequently applied to fibres derived from plants that are grasses in no sense of the word, and it is therefore misleading. Examples: '*China grass*' the fibre from a tall shrub (Boehmeria); '*Sisal grass*' the fibre from a fleshy leaved Agave; and '*Silk grass*' which may mean *Bromelia* fibre, or almost anything."

We must plead guilty to having omitted "Sisal grass" and would gladly have passed over a good many more that figure in our list, as it is; but it seemed better for the present to err rather on the side of inclusion.

We have not attempted to expound any purely botanical terms. Those employed in the text of Part I should not be found very difficult, and in any case, where a reader not versed in the botany of the *Agaveae* may want a decision, his best course would be to send an inner and an outer leaf, with some flowers in spirit (if the plant is poling), also a few pods if available, to a competent botanist for identification.

The column in the Glossary of references to Parts I and II of the Bulletin is meant to assist in finding matter bearing on the botanical history of the plant or plants to which the commercial or vernacular name is believed to refer. For economic or industrial details the Dictionary of Economic Products for India, or in case of other countries works such as Spon's Encyclopædia, should be consulted. Where only the author's name appears in the second column fuller references will be found under Bibliography (Part II, p. 72 and foll.) or on the pages quoted in the sixth column.

Glossary of local and commercial terms referring to the Agaveae (also certain other fibre plants) or to their products.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Abaca	Spon; also Kew Bull. XXXI	Filipino	Philippine Islands	**Musa textilis,** Née
Abecedaire	Danielli	French	France	*Agave americana*
Abacaxi	Martius	Tupi Indian	Brazil	*Ananassa sativa* Linn.
Acebar	Rumpf	Spanish	Spanish Colonies	**Aloe vera,** Linn.
Aceure	De Lecluse	Portuguese	Portugal	Ditto
Acibar	Ditto	Spanish	Spain	Ditto
Adam's Needle (1).	Spon; also Watt E.D.	English	Cosmopolitan	**Yucca gloriosa,** Linn.
Adam's Needle (2).	...	Ditto	Ditto	**Agave** sp.
Adam's Needle (3).	Guilfoyle	Ditto	Australia	*Yucca filamentosa*
African Hemp	...	Ditto	...	**Sansevieria** sp.
Agave Palo	H. B. K.*	Spanish	Central and South America (Mexico and Venezuela)	*Tillandsia recurvata* Willd.?

* Humboldt, Bonpland and Kunth

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
...	The *Manilla* hemp; to be distinguished from *Manilla Aloe fibre.*
9	Probably (D)=*A. Vera Cruz*, Mill. Applied to other plants besides.
...	The cultivated Pine apple, which has yielded fibre in America, Malaya, India, &c.
3	Introduced with the plant by the Spaniards and the Hollanders to their East Indian possessions. See *Acibar.*
3	De Lecluse says that this is a corruption of the next following. Cf. *Azul Champahra.*
3	From the Arabic *Sabr* or *Sabir*, pronounced, when the definite article is prefixed, as *'As-sibar.'* Though forms of the true *Aloe*, as distinguished from the 'American aloes' (*Agaveae*), are supposed to be native in S. Europe and India, the names given to the drug (to which by some writers *'Acebar,'* &c., are restricted), and often to the plants, are from the language of the Arabs, to whom the best sort of medicinal *Aloe*, derived from *Aloe Perryi*, Baker (confined to the island of Socotra), was known from antiquity.
2	The genus *Yucca*, which is at present placed with the *Liliaceae*, should probably be united with *Agave* and certain other genera in a distinct order (Agaveæ). All the species of *Yucca* are natives of Central America, where several are known as fibre- and also soap-producers. Fibre has been got from *Yucca gloriosa*, Linn. in India, where it thrives, and is said to be naturalised in Madras and in the outer Himalaya. Spon's information that a *Yucca* is naturalised in Bengal requires confirmation.
11, 29	Said to be applied in Kangra (Panjab) to an *Agavea* (A. Cantala, Roxb. ?).
2	Introduced into Australia and reported suitable for fibre extraction.
1	Abbreviated from *'African Bowstring hemp,'* produced by different African species of *Sansevieria.*
21, 22	Different species of *Tillandsia* (belonging to the order *Bromeliaceae*) known as 'Spanish moss,' &c., yield a kind of 'tow' principally used for stuffing mattresses, &c., classed in France as 'Crin Vegetal,' (Vegetable Hair). It is not known how this particular *Tillandsia* came to bear a name simila to the scientific designation of certain 'American aloes.'

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
AGAVE THREAD	...	English	Europe and America	**Agave** and **Furcraea** sp.
AGUA DE MIEL	Miss. Gdn. Rept. 1896	Spanish	Central America (Mexico)	**Agave atrovirens**, Karwinski (and other species ?)
AGUA MIEL	Martius	Do.	Ditto	*Agave americana*
AGUARDIENTE	...	Do.	Spain and Spanish Colonies	...
Ditto	Rose	Do.	Central America (Mexico)	**Saccharum officinarum**, Linn.
AGUARDIENTE DE MAGUAY	Miss. Gdn. Rept. 1896	Do.	Ditto	*Agave americana*
ALLAGUEY	Fragoso (in C. Bauhin, also Sloane)	(Not known)	C. America (? Grenada)	*Agaveae* sp.
ALOE (1)	...	English, French, German	Cosmopolitan	**Aloe** sp.
ALOE (2)	C. Masson (Journeys I, 104)	English	India	**Nannorhops Ritchieana**, H. Wendl.

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
...	Applied to fibre or prepared yarn obtained from different species of *Agaveae*.
21, 22, 24, 63, 64	The sap that exudes into the basin (*cajète*) formed by cutting out the vegetative cone or 'bud' of certain *Agaves* when about to 'pole', to obtain the '*Pulque*' or native cider of Mexico. Literally 'mead', 'honey water', or 'hydromel.' Some authorities state that a spirit (*Aguardiente*, see below) is got from this liquor by a further process; also vinegar.
Do.	The true *Agave americana* of Linnæus, our (B), does not seem to be one of the '*Pulque*' kinds, but in any case what Martius had in view was a different species.
22	'Fire-water,' or Brandy.
Do.	Rose states that the spirit sold at the present day in Mexico as '*Aguardiente*' is distilled from 'Cane,' presumably from molasses (but see the next, also '*Chinguirito*').
12, 22	See '*Agua de Miel*,' '*Chinguirito*,' and the preceding.
21	(By a misprint in Danielli *Allaguey*). Fragoso identifies his *Allaguey* with the *Fil y Agulla* of S. Spain which is our (D) = *A. Vera Cruz*. Mill. Probably corrupted from the Spanish '*El Maguey*,' Cf. '*Amaguey*.'
37	The species known under this name prior to the discovery of America belong to the genus *Aloe*, Nat. Ord. *Liliaceae*. The word is probably derived in Europe through the West Asian languages from an African original. Most of the true aloes are natives of West or South Africa and the adjacent islands; but at least one species is found in S. Europe and an allied form on the coasts of India; while another form (*Aloe indica* of Royle) occurs at the base of the N.-W. Himalaya. The leaves of certain species of *Agave* resemble those of the true *Aloe*, so that when the *Agaveae* of the new World came under notice they were classed with the *Aloes*, and this reference, though recognised scientifically as an error since the time of Linnaeus, has persisted in the popular vocabulary of different countries to the present. Economically the true *Aloes* are chiefly important as the source of a drug, while the *Agaveae* ('American Aloe,' etc.) are best known as yielding fibre.
...	A dwarf palm (Palmetto) found in the Indus Valley from the Salt Range southwards, and more abundantly in parts of Afghanistan and Beluchistan, called in Pashtu '*Mazrai*',—W. Panjab '*Pattha*,' and by the Biluch '*Pesh*' *etc.* Better known under Griffith's name of '*Chamaerops Ritchieana*,' having been referred by him to the same genus as the Mediterranean *Chamaerops humilis*, Linn. Like the *Palmettos* of Florida, now placed under *Sabal* and *Serenoa*, the Oriental Palmetto yields a fibre, but its local use is chiefly for 'grass-shoes' or sandals, binding strips, and matmaking (see *Pesh* and *Wild Aloe*). The 'fish' plant elsewhere mentioned by Masson is no doubt the same.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Aloe Americana	Danielli	Italian	Italy	*Agave americana*
Aloe Boemica	Ditto	Ditto	Do.	Ditto
Aloe Fibre (1)	Dodge	English	India	*Aloe indica*
Aloe Fibre (2)	Balfour (Cyclopædia)	Ditto	S. India	*Agave americana, A. vivipara, Furcraea gigantea, Yucca gloriosa*
Aloe Fibre (3)	Imp. Inst. Hand book (Ind. Sect.), No. 12	Ditto	Do.	*Agave americana*
Aloe Fiorentina	Bertoloni	Italian	Italy	Ditto
Aloes (1)	...	English, French, German	Cosmopolitan	**Aloe**, species
Aloes (2)	Bojer Hort. Maur. p. 353	French	Mauritius	*Agave americana* Linn. (Sprengel)
Aloes a petites feuilles	Ditto	Do.	Ditto	*Agave angustifolia, Haw.*
Aloes d' Amerique	Danielli	Do.	France	*Agave americana*

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
9, 10, 42-44.	In a recent article in the '*Gartenwelt*' M. Al. Berger (La Mortola) has observed that two variegated kinds occur on the Riviera, one of which is *Agave picta* of Salm Dyck, and quite distinct from *A. americana*, Linn. which would seem to be naturalized to some extent in that country. It is clear, however, that the *Agave* which is most commonly spontaneous on the Mediterranean coasts is our (D) *A. Vera Cruz*, Mill., and in S. Europe this is often called '*A. mexicana*' or '*A. americana.*' In Britain it has usually been called since Aiton's time '*A. lurida*,' but is sometimes ticketed '*A americana.*'
Do.	Possibly the true *Agave americana* of Linnaeus, as distinguished from the '*A. americana*' of S. Europe, which is commonly = D (*A. Vera Cruz*, Mill.).
...	Fibre from India was shown at the Chicago Exhibition of 1893 under this name as produced from '*Aloe indica.*' Along the coasts of W. and S. India another form of *Aloe* is found (*Aloe littoralis*, Koenig) which European botanists have usually regarded as a variety of *Aloe vera*, Linn., and fibre from this plant has been at different times prepared in India.
20	By *A. americana* is intended probably *A. Cantala*, Roxb. (E), and *A. Vera Cruz*, Mill. (D); by *A. vivipara* (J) of these notes, *i.e.*, *A. Wightii*, or perhaps (E) also. *Yucca* fibre has undoubtedly been handled in Madras, but the species is not, so far, ascertained properly.
20	In 1893 Mr. Thompson reported that 'Aloe fibre' was used in his brush factory in the Nilgiris; Genl. M'Leod also reported that the fibre of the 'American aloe' had been used for brushmaking, and apparently brush fibre from *Agaveae* was readily obtainable in certain bazars. The plant intended by Genl. M'Leod seems to have been the '*Railway Aloe*' which is usually our (D), *i.e.*, *A. Vera Cruz*, Mill. (see also *Mexican fibre*).
35, 50	Probably = (D) which is *Agave Vera Cruz*, Mill.
31	The drug produced from *Aloe vera*, Linn, *Aloe Perryi*, Baker, and other species of true *Aloe.*
20	Bojer cites Andrews' Repository, but the plant which he saw naturalized was probably distinct from that which he says was grown in gardens.
12	Cf. *Anana de pite.*
42-44	'*American Aloe.*' See *Aloe americana* above.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Aloes Pite	Aublet	French	S. America (French Guiana)	*Agave americana*
Aloes Pitta	Danielli	Ditto	S. France (Provence and Roussillon)	Agave Vera Cruz, Mill. (probably)
Aloes Pitte	Loiseleur-Deslongchamps (Flor. Gall. Ed. L. P. I. p. 239)	Ditto	France	*Agave americana*
Aloes Vert	...	Ditto	Mauritius	*Furcraea* sp.
Alor	Visiani	Sclavonic	S. Europe (E. Adriatic littoral)	*Agave americana*
Amaguey	Edwards	Filipino	Philippines (Pangamian and Zambales)	Agave sp.
American Aloe (1)	Smith (Dict. Ec. Plants)	English	Cosmopolitan	*Agave americana*

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
22	Probably a *Furcraea.*
10, 36, 50	Cf. *Pita.*
10, 36, 50	Agave (D) = *A. Vera Cruz*, Mill.
18, 19, 29	'*Mauritius Hemp.*' In Madras fibres have been shown which were ascribed to '*Agave viridis,*' meaning probably a species of *Furcraea* introduced from the Mauritius (see *Mauritius Hemp* and *Piet*, also *Green Aloe*).
10, 44, 50	= (D), *i.e.*, *A. Vera Cruz*, Mill.
...	Mr. Edwards states that two *Agaves* are grown in the Philippines for fibre, viz. *A. sisalana*, Perrine (our G), which he calls Henequin, and '*A. americana*'*. The second is probably not = (B), *i.e.*, the true *A. americana* of Linnæus, and may cover more than one species, derived perhaps originally from the Pacific coast of Central America. The Agaves were first used commercially in the Philippines to supplement the stock of the true *Manilla Hemp*, which has long ceased to equal the demand; but their fibre now supports an independent industry. The word is probably corrupted from the Spanish '*El Maguey*' (see also *Manilla Aloe fibre*).
22, 23, 87	A comprehensive term for different species of *Agave*, which has spread everywhere since the introduction of *Agaves* into S. Europe where they were popularly compared with local species of *Aloe.* The *Agave americana* of Linn. is of comparatively minor economic importance, and the many references made to '*Agave americana*' as a source of fibre, beverage, &c., usually relate to some other plant, not always an *Agave* (see also *Amerikanische Aloe, Aloe Americana, etc.*).

* While this was in the press a specimen of the common naturalized Agave of the Philippines was received at Kew from Mr. Edwards and proved to be the Amboyna 'Aloe' of Rumpf, that is our (E) = Agave Cantala Roxb.

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
AMERICAN ALOE (2)	Balfour (Cyclopædia)	English	India	*Agave americana*
AMERIKANISCHE ALOE	...	German	Germany	*Agave americana*
AMERICAN ALOE FIBRE	...	English	India	.....
AMOLE	Dodge (also Miss Mulford, Coulter, Rose &c.)	Spanish	C. America	**Agaveæ,** Spp
ANAI KATHALAI	Government Botanist Madras	Tamil	S. India (Tinnevelly)	**Agave Vera Cruz,** Mill.
ANAIK KATRAGHAI	Mukerji Descr. Cat. Ind. Prod. Amsterdam, etc, 1883	Do.	Ditto	**Ditto**
ANAIK KATRAZHAI	Watt E D.	Do.	Ditto	**Ditto**
ANAI KATTALAI	Government Botanist Madras	Do.	S. India (S. Arcot)	**Ditto**

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
23	The true *Agave americana* is not common in India, except as an ornamental plant in gardens, &c., while the term is popularly applied to more than one species of *Agave* (as well as *Furcraea*).
8, 10	In Northern Europe this title is usually applied to the true *Agave americana* of Linne, while the *Agave americana* (or American aloe) of S. Europe is, for the most part, *A. Vera Cruz*, Mill. (our D), which does not thrive as a rule out of doors in N. Europe.
29	Used to indicate the fibres locally obtained by different processes for cordage from different species of *Agave*, *Furcraea*, and *Yucca*. We have referred the *Agaveae* known to us as yielding American aloe fibre in India commercially to— (E) = *Agave Cantala*, Roxb. (G) = *Agave sisalana*, Perrine (J) = *Agave Wightii*; also (F) (unidentified). Besides these species (H) is mentioned as suitable for experiment; (D) is doubtful.
21	Several *Agaveae* possess detergent qualities. In the West Indies certain kinds of *Euagave* (*A. Morrisii*, Baker and *A. Keratto*, Mill. possibly also *Furcraea*) are or were generally used for scouring floors, &c., and from one or more of these a soap has been manufactured which can be used with salt water. The fine toilet soap made in Illinois is from a *Yucca*; but several *Agaves* of the *Manfreda* and *Littaea* groups yield scouring material in the United States and N. W. Mexico. These are known locally as "*amole*." The rootstock of the *amole* plants is said to be the part used: it is the leaf of the Euagaves in the West Indies. 'Amolilla' (Dodge) is a *Prochnyanthes* and not known in India.
7, 9, 10, 23, 30, 50, 55, 63, 71	(D) of this bulletin. See *Anai Kattaley*, etc.
...	Variously spelled 'Anak' or 'Anaik,' and the second part with a 'g' or a 'z.' Meaning not known to us. Cf. *Anai Kattalai* and *Kadanaku*.
Do.	See the preceding.
Do.	(D) of this bulletin. See *Anai Kathalai*, etc.

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
ANAI KATTALEY	Balfour (Cyclo. plædia)	Tamil	S. India	*Agave americana*
ANAI KUTTALEI	Brown and Wood	Do.	S. India (Madras)	*Agave americana* Linn.
ANAK KATTALAI	Government Botanist Madras	Do.	S. India (S. Arcot)	**Agave Vera Cruz** Mill.
ANAK KATTALI	Ditto	Do.	Ditto (Coimbatore)	**Ditto**
ANAKYITHA	Ditto	Malayalam	S. India (Malabar)	**Ditto**
ANANA DE PITE	Bouton (in Sloane)	French	Mascarene Islands	*Aloe Yuccae foliis.*
ANANAS	Watt E. D.	American native language not specified	Cosmepolitan	*Ananas sativa,* Linn.
ANANAS BOAYA	Rumpf	Malay	Amboyna, &c.	**Agave Cantala.** Roxb.
ANANAS BRAVO	Acosta	Portuguese.	S. W. India	**Pandanus sp.**
ANANAS COSTA	Martius	Ditto	Java	*Agave Rumphii*
ANANAS MANSO	Do.	Ditto	Portugal, Brazil &c.	*Ananas sativa,* Linn.
ANANAS UTAN	Rumpf	Malay	Amboyna, &c.	*Agave Cantala* Roxb.
ARBOL DE LAS MARAVILLAS	Acosta	Spanish	Spain, &c.	*Agave sp.*
ARBOL DE MAGUEY	Do.	Ditto	Ditto	*Ditto*

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
7, 8, 10, 19, 23, 48, 55, 71	The proper spelling, we believe, is 'Ane kattale;' *Kattale* is presumably = Rheede's '*Catevala*' ('Kanta wala' = prickly ?); and 'Kantala' (which see):— 'Ane' or 'Anai' we understand to signify the elephant in Tamil, &c., so that the prevailing name of (D) in Madras may be taken to mean "Elephant Aloe."
19	Evidently the same as the *Anai Kattaley* of Balfour.
7, 9, 10, 23, 30, 50, 55, 63, 71	Variants, no doubt of '*Ane*' (or 'Anai') *Kattale*, which appears to be applied very uniformly in the Madras Presidency to Agave (D).
10, 71	Agave (D). The first element may be = 'Ane,' and the second = Kia (Pandanus).
41	Perhaps a *Furcraea;* but the 'Anana' suggests rather a Bromeliad. See also *Pitte Ahetz*, and *Laffa*. The *Bouton* quoted by Sloane was, of an older generation, obviously, than the Editor of the Reports of the Natural History Soc. of the Mauritius.
...	Originally the pine-apple (Nat. Ord. *Bromeliaceae*); but in various parts of the world applied to sundry other plants; cf. *Nanas sabrang*, &c.; it seems to be given in Malaya to all plants whose leaves in shape and texture look like those of the pine-apple, fibre plants particularly.
12, 57, &c.	See *Nanas Boaya*.
...	See *Kyre & Mellis Cour*.
12, 57, 34	Martius thinks that this Agave, which has been identified with our (E) = *A Cantala, Roxb.* was so named because brought to Java from the Indian Coast.
...	= Cultivated pine-apple.
12, 57, &c.	See *Nanas utan* and the preceding. The Portuguese in India likened the screwpine (*Pandanus*) to the American pine-apple, which they introduced to India and Malaya and the Malays have transferred the name either from the pine-apple or the screwpine to certain *Agaveae* (see *Nanas utan*, &c.).
34	See *Maguey*.
34	Ditto.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Area	Linschotten (in Bauhin)	Guzerati ?	Western India (Guzerat)	**Aloe sp.?**
Area	Garcia del Huerto, Aromatum etc. ed Clusius, Antwerp 1567.	Ditto	W. and Central India (Guzerat and Deccan)	*Aloe, Agave* or *Pandanus sp.*
Azul	...	Portuguese	Portugal &c.	**Aloe sp.**
Azul Champahra	Ruiz and Pavon	Spanish	Peru &c.	*Agave americana*
Bahamas Hemp	Kew Sel. Papers (Addl. Ser. II) LII	English	England and America	*Agave rigida* var.
Bakkul	Balfour (Cyclopædia)	Bengali	India (Bengal)	*Agave americana*
Balu bakkisa	Ditto	Telegu	S. India	*Agave americana*
Banada Kattala	Liotard	Telegu	S. India (Mysore)	*Agave variegata*
Banskeora (1)	O'Shaughnessy (Bengal Dispensatory, Calcutta, 1819)	Hindustani	N. India	*Agave vivipara*
Banskeora (2)	Watt E.D.	Hindustani	N. India	*Agave americana*

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
37 .....]	This may have been a Persian name, but seems to be used in the Malay Archipelago for a species of Pandanus. It is given here as it may still be in use locally. Unidentified fibres with a similar name have been exhibited in S. India.
37	The Arabic word for 'the sky' and so 'blue' &c. Applied apparently to some bulbous plant, possibly of the Squill family, and transferred by the Moors or the Crusaders to the aloe of S. Europe; later to the *Agave*. In Spanish "Azul" means blue, and is applied apparently to vegetable surfaces with a 'blue' or 'grey' (glaucous) tint such as the leaves of *Agave Vera Cruz*, Mill.
9	*Azul* is *Agave* as noted above, and '*Chaparra*' is 'a kind of oak'; perhaps the name (if not the *Agave* itself) came from some tract to which oaks extend on the Andes. Ruiz and Pavon say that their plant is common on cliffs in Peru, and is also found in warm valleys. The existence of any wild *Euagave* to the south of Columbia requires confirmation.
68, 70	See *Sisal Hemp*, &c.
20	Balfour meant perhaps the Bengal Presidency. No such name seems to be known for *Agave* in Lower Bengal; but it is a local term in parts of Central India for 'the fibrous bark of the roots of certain trees used' [in Malwa] * * * 'as a cheap substitute for string and cord,' (Dr. Tranter in Liotard, p. 65), and about 1852 '*Agave Cantala*' which is said to be common in Malwa was used as a substitute for the true '*Bakkul.*' The traditional '*Bakal*' is birch-bark from the Himalaya, while *Bacula* of the 'Asiatic Researches' was an epithet of several trees or herbs with fragrant flowers, *e.g.*, *Mimusops Elengi*, (Bengali 'Bokul').
29	Cf. *Rakus*, &c.
...	Probably *Agave americana*, Linn. var. *variegata*, from which fibre has been obtained experimentally. The compilers say the staple was shorter than that of 'Agave americana' fibre by which they doubtless meant (D).
15, 26, 29, 45, 47, 51, 55, 57, 61, 71	from '*Bans*'=bamboo, and '*Keora*'=screwpine: commonly applied from Behar to the E. Panjab to Agave (J)=*A. Wightii* of this Bulletin. At Saharanpur (E) and (H) are distinguished as *Rambanskeora*.
20	*Banskeora* seems pretty well restricted to (J)=*Agave Wightii*.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Bara Kanur	Watt E. D.	Bengali	India (Bengal)	*Crinum asiaticum*, Linn. var. *toxicaria* Herb.
Bara Kanwar	Ditto	Hindustani	S. W. India	*Agave americana*
Barba De Palo	Dodge	Spanish	Central America (Venezuela) &c.	*Tillandsia usneoides*, Linn.
Barbadoes Aloes	Voigt (Hort. Sub. Calc.) etc	English	Cosmopolitan	Aloe sp.
Bas Kitri	Liotard	Hindustani	N. W India (Rohilkand)	Agave sp. ?
Bastard Aloe	Brown and Wood (also Balfour)	English	S. India	Agave Wightii (of this Bulletin)
Bastard Tequila	Rose	...	Central America (Mexico)	*Agave Sp.*
Bear grass	Dodge (and others)	English	Northern and Central America; also in Australia	Yucca Sp.

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
...	Cf. *Baskitri* and *Sodursun*, also the following.
20	'*Kanwar*' (Cf. *Kantala, Kenda, Catevala* and so forth) probably refers to the prickly leaves of the *Aloe* and *Agave*, but the 'Kanwar' of Central and W. India is confused with Kanwar (*Crinum*) on the one hand, and with species of *Pandanus* (*Keora, Kiakanta,* &c.) on the other. Cf. the preceding, *Baskitri* and *Sodursun* also *Kunwar*.
..	Lit. Wood- or Tree-beard. Nat. Ord. *Bromeliaceae*. Cf. *Agave Palo* above.
...	A pharmaceutical term for the drug prepared from a true *Aloe*.
...	Liotard, quoting an epitome of local reports on paper fibres in the North-Western Provinces, says that in the Lalitpur District (towards Central India) a wild fibre plant occurred called *Soodursun* which was identified with a Rohilkand plant called *Baskitri*, from which paper was made at *Moradabad* (Rohilkand). As to the 'Soodursun' see *Sodursun* below: the *Baskitri* was perhaps Agave (J), Bas (scent) having been substituted for Bans (bamboo).
15, 71	The first *Agaves* to be imported into India were, as we believe, E = *A. Cantala*, Roxb.,—and J = *A. Wightii*, ('A. vivipara' of Wight). Both probably reached India by the Pacific from the Jalisco Province (now a State) of Mexico, where a somewhat similar distinction is kept up between the '*Tequila*' and '*Bastard Tequila*'. 'Bastard Aloe' seems to be in use in S. India only, and is probably a translation from some forgotten Portuguese appellation.
	Mr. Rose identifies the '*Bastard Tequila*' (which is presumably a translation of the local Spanish) of Western Mexico with the '*Huila*' of Bolanos in the State of Jalisco, and refers the *Huila* to an *Agave*, which differs from the true 'Tequila' by being smaller. *Tequila* is the capital of the State (formerly province) of *Jalisco*, on the Pacific, where ports were maintained for trade with the Indian Seas by the Spaniards. It seems not impossible that Mr. Rose's '*A. vivipara*' may be our Agave (E) (*A. Cantala*, Roxb.) or a nearly allied species, and that the *Bastard Tequila* may be Agave (J). Cf. *Bastard Aloe*.
2	pecies of *Yucca* and *Dasylirion* which yield a fibre in the Southern States of the Union and in N. Mexico are called '*Bear grass*.' None of these have been introduced so far in India, unless horticulturally.

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
BHOORTHA PHARANGI	Govt. Botanist Madras	Canarese	S. India (S. Canara)	**Agave Cantala**, Roxb.
BHUTIALA	Watt E.D.	Canarese	S. India	*Agave americana*
BILATEE ANANAS	Roxburgh	Hindustani	India	*Agave Cantula*, Roxb. (Fl. Ind.) [**A Cantala**, Hort. Beng.]
BILATTE NANAS	Martius	Hindustani	India	*Agave Cantula*, Roxb.
BILATI ANANNAS	Voigt	Bengali	India (Calcutta)	*Fourcroya Cantula*, Haw. [**Agave Cantala**, Roxb.]
BILATI PAT	Watt E.D.	Do.	Ditto	*Agave americana*
BINDER TWINE	...	English	N. America, etc.	**Agave** spp.
BITTER ALOES	...	Do.	England, &c.	**Aloe** spp.
BOIS CHANDELLE	Aublet	French	Mauritius	*Agave fœtida*, Linn.
BOIS DE MECHE	Martius	Do.	Antilles	*Fourcroya cubensis*
BOIS MECHE	Aublet	Do.	Mauritius	*Agave fœtida*, Linn

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
12, 57, &c.	'Bhurt' in different Indian dialects signifies a 'thorn' or 'burr' and 'faringi' is of course='frankish' or 'foreign.'
29 &c.	Perhaps this is (J), = our *Agave Wightii*.
11, 24, 29, 53, 57, 59 to 63, 71.	'Foreign pine apple' = (E) of this Bulletin. See also *Adam's Needle* (2), *Aloe fibre* (2), *Ananas boaya, Ananas costa. Bombay aloe fibre*, &c. Roxburgh says that *Bilatee ananas* is the 'Hindoo' name, (*i.e.* in the lingua franca of 'Hindustan'); see *Bilati Anannas* (Voigt) also.
Do.	Martius appears to be quoting a paper, which we have not seen, by Blume.
Do.	A Serampore Garden name perhaps, and Roxburgh may have got it from Carey.
20	Meaning 'foreign fibre;'—Cf. *San ka Nar*.
20	Twine made from vegetable fibre used for tying sheaves at harvesting. One of the chief uses of the *Agave* fibre commercially is, or was recently, to supply the demand for Binder twine, in the U. S. A. especially. Binder *strips*, cut or torn from the raw leaf of certain species [in India (D) and (E)] are used in the N. of Madras (Burkill) and in the Philippines (Edwards) for tying bundles of tobacco (for drying?).
51	The pharmaceutical substance obtained from different species of true *Aloe*.
18-19,21	From the 'chandelier' inflorescence : a *Furcraea*. See the next.
18-19,21	Martius, referring to *Labat's* 'Voyage aux Isles,' notes that the *Bois de Méche* (*i.e.*, 'Tinder-or Match- tree') yielded fibre, and that the pith of the stem (flowering scape) was used for tinder and for corking phials, etc. *Agave* and *Furcraea* were perhaps best known to the early voyagers owing to the dry 'poles' furnishing a handy substitute for tinder to mariners. The name crossed from the Islands to Guiana, and travelled thence to the Mauritius. See *Bois Meche*, and *Tol*, *Mauritius Hemp*, *Piet* and *Pite* also.
18,19,21	*Agave fœtida* of Linnaeus is *Furcræa gigantea* Vent.; but Aublet goes on to quote a synonym from Plukenet which is *F. tuberosa*, Ait. Both were probably known in Guiana (whence the *Pite* came to the Isle de France), but the species now grown in the Mauritius is perhaps still a third; see *Mauritius Hemp*, etc.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Bombay Aloe	Dodge	English	England &c.	*Agave vivipara*
Bombay Aloe fibre	Kew Sel. Papers (Addl. Ser. II) LX & LXI	Do.	England	*Agave vivipara*, Linn.
Bombay Hemp	Do.	Do.	Do.	*Ditto*
Bontha Kithanara	Govt. Botanist Madras	Telugu	S. India (Godaveri)	Agave Vera Cruz. Mill.
Bowstring Creeper	Dodge	English	India	*Marsdenia tenacissima*, W. and A.
Bowstring Hemp (1)	Roxburgh	Do.	Do.	*Sanseviera Zeylanica*, Willd.
Bowstring Hemp (2)	Madras Exhibition Cat. 1855	Do.	S. India (Masulipatam)	Agave sp. ?
Bowstring Hemp (3)	Martius	Do.	India	*Sanseviera lanuginosa*, Willd.

Agaveae (also certain other fibre plants) or to their products.

Bulletin page	Remarks
62	The reference is to '*Bombay Aloe Fibre*' (which see), but the name has been given in India to several distinct species, including our (E). *A. vivipara* of Wight,=our (J) or *Agave Wightii*, is sometimes called 'the Bombay Aloe,' but yields comparatively little perhaps of the '*Bombay Aloe fibre.*'
62	When the export of '*Aloe fibre*' from India recent'y attracted notice in England, the chief port of export was Bombay, and the staple seems to have been known commercially as 'Bombay Aloe fibre.' Specimens of a plant supposed to yield the commercial product sent for determination were referred to *A vivipara*, Linn., a name which, for reasons given under Part II, we recommend should be dropped altogether. 'Aloe fibre' was originally shipped (from Madras ports—chiefly) about 1854—60, when the flax and hemp trades were depressed it is believed in Europe, but the export died away again. Some fifteen years ago the Indian trade revived,—through Bombay this time,—but the fibre was got mainly from Madras and Central India, and derived from various species. That now exported and largely grown near Bombay city is mainly from our *Agave* (E.), *i.e.*, *A. Cantala*, Roxb. (naturalized) and *A. sisalana*, Perrine (planted).
	See the preceding. Usually applied, however, to *Crotalaria* and *Hibiscus* fibre.
10, 71	(D) of this Bulletin. Cf. *Kithanara*, etc., also *Kalabuntha*.
...	See *Bowstring Hemp* (1) and (2).
1	Roxburgh's experiments on Indian fibres led him to give the "*Moorva*" or "*Moorgalie*" plant a high place economically; but he considered that the strongest of all was that yielded by a twiner of the same order as the *Yercum* (*Calotropis*), his '*Asclepias tenacissima*' (now referred to *Marsdenia*), called in the Rajmehal hills of Bengal '*Jetee*' or '*Jiti.*' *Sansevieria* fibre he called '*Bowstring Hemp,*' and the name has been extended to other species used in Africa, America, etc. In India *Sansevieria* is understood to be mixed with *Agave* fibre occasionally; its local names are apt to be confounded with those of *Agaveae;* see next item, also *Mgrva, Murga, Maurvi, Muruvu-dul, Sagenara;* etc. Cf. also *Anana de pite, Pitta Ahetz* and *Laffa.* 'African Hemp' is properly 'African Bowstring Hemp' and from an East African *Sansevieria.*
1	The vernacular equivalent '*Saganara*' (which see, also *Saganara Matha*) is applied in the South to an *Agave* fibre; on the other hand *Saganara, Saugu*, etc., *may* be given to the *Marsdenia* as well, if it occurs in Coromandel, or the fibre may have been from *Sansevieria.*
1	The scientific name is Sprengel's (Syst. Ed. XVI, Vol 2, p. 93) His plant seems to have been a *Cordyline*, or at all events not a *Sansevieria* and was from Madagascar; Martius, however, evidently meant to refer to Roxburgh's *Sanseviera.* Cf. *Pitta Ahetz*, etc.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Bramarakashie	Madras Exh. Cat. 1857	Tamil	S. India	*Agave sp.*
Bramha rakasi	Balfour (Cyclopædia)	Do.	Ditto	*Agave americana*
Bromelia pita	Squier (also Dodge)	Spanish	Mexico	*Bromelia sylvestris*
Broomroot	Kew Sel. Papers Add. Ser. II. Arts. LXXIX, LXXX (also Dodge)	English	Cosmopolitan	**Epicampes macroura** *Bth.*
Brush fibre (1)	Madras Exh. Cat., 1855	English	S. India	*Agave Cantula*
Brush fibre (2)	...	Do.	England and America	.....

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
20	See the next, and *Rakas.*
20	Cf. *Rakas,* etc. 'Brahm' or 'Birm' is prefixed to the names of various prickly plants throughout India.
17	The history of this '*pita*' is much tangled, but it is quite clear that the true '*Pita bromelia*' (? a local Spanish name) is furnished by one or other of the *Bromeliaceæ* and not by any *Agave.* Confusion has arisen because the term '*Ixtle*' or '*Istle*' (which see) is applied in some parts of Central America to one or more *Bromeliaceæ,* in others to one or more of the fibre *Agaveae,* while in N.-W. Mexico it applies to the '*Lecheguilla*' or '*Cabbage*' Agaves, which are the main source of '*Tampico fibre.*' Chief Justice Temple of the High Court at Belize (Brit. Honduras), in a paper read before the Society of Arts in 1857 (Vol. V., p. 12?) explained the distinction between the *Euagave* fibre and the '*Silk grass*' of Honduras, which is the *Bromelia Pita,* or closely akin to it, and contrasted samples of the *Honduras Silk grass* or *Pita Bromelia* with samples of *Henequen* (*Agave sisalana,* Perrine or a near ally). See also *Istle, Silk grass, Brush fibre,* and *Pita Bromelia.*
..	In the Indian Agriculturist of December 12th, 1891, in an article on Brush-making and Brush staples in India, it is stated,—"*Mexican is produced in South America from the American Aloe* (*Agave Americana*) *and is very largely used in brush-making, &c.*" Under *Aloe fibre* (3) the use of Agave fibre for brush-making *in India* has been treated.* The fibre known to the trade in England, however, is not got from any of the *Agaveæ* at all, but from a true grass (Nat. Order *Gramineæ* genus *Epicampes*). This is called '*Mexican,*' or '*French*' Whisk as distinguished from the original '*Venetian Whisk,*' which is a *Chorysopogon* (also a true grass) common in S. Europe, also in the Himalayas; see *Brush Fibre.*
	'Broom *root,*' it may be noted, is again quite a different thing from 'Broom *corn,*' a *Sorghum* (Nat. Ord Gramineæ) which abounds in parts of India, and has been carried to the U. S. A., where it is locally grown and used for brush-making. Brushes are made throughout India, usually by gypsies, from the roots or stems of different grasses, in Madras called 'Broom sticks.'
	See *Aloe Fibre* (3), *Bromelia Pita, Brush Fibre, Mexican Fibre* (1) *Mexican Whisk, Istle* (1), &c.
20	Dr. Riddle of Hyderabad exhibited samples of cloth made wholly or in part with the fibre of a plant described as '*Agave Cantula,*' also furniture brushes made from the remnants of the Aloe fibre.
	In N.-W. India it is said of Agaves (E) and (J) that the 'butt' of the leaf yields a coarser fibre suitable for brush-making. Rude brushes are made from the leaf of certain species in S. India, as from different Agaves in W. Mexico, by simply cutting off the base of the leaf from the blade, and using the 'neck' as a handle. See also *Aloe fibre* (3), *Broom root,* and *Reju.*
17	Largely obtained from *Agaves* of the *Littaea* section, not so far naturalized in India. See *Mexican fibre, Ixtle* (3), *Tampico fibre*; and Cf. *Aloe fibre* (3), *Broom root* (1), *Mexican fibre* (1) also the preceding.

* *i.e.,* as '*Mexican*' fibre.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Buddu Kattale Nabu	Watt E. D.	Canarese	S. India	*Agave americana*
Bulbil	Baker and others	English	...	...
Butt	...	Do.	...	Agaveæ spp.
Cabuja	Martius, also Dodge	Spanish	Antilles	*Furcraea gigantea*
Cabulla (1)	Dodge	Do.	Central America (Costa Rica)	*Furcraea tuberosa*
Cabulla (2)	Squier	Do.	Central America (Yucatan)	*Agave sisaiana*
Cabuya	Seemann (Voyage of the Herald, Botany, p. 216.)	Do.	Central America (Panama)	*Fourcroya tuberosa* Ait.
Cajete	Martius	Do.	Central America (Mexico)	*Agave americana*
Cajun	Dodge	Do.	Central America	*Furcraea cubensis*

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
20, 29, &c.	Kattale = *Aloe*, &c. Nar = *Fibre*.
5	A young plant sprouting from a flower shoot in the place of a seed vessel on the flowering stem or 'scape' of certain *Agaveae*. All the species dealt with in this Bulletin are believed to produce bulbils, notably (D), (E), (G), (H), (J). As to (K) we have no certain information. The (usually thickened) base or stalk of the leaf in *Euagave* and *Furcraea*.
18, 19	Variously spelled as *Cabouya*, and *Cabuya*—(origin unknown, but perhaps provincial Spanish); often regarded by Spanish writers as = *Agave americana*. Apparently first mentioned by *Oviedo* ('Cabuya') as an inhabitant of the West Indian Islands. Martius, (in the '*Beitrag*') hesitated between '*F. gigantea*' and *F. cubensis*; in the Flora Brasiliensis he gives *F. tuberosa* for the *Cabuya* of the islands and the mainland equally. Dodge says the *Cabuya* is *F. gigantea*, and that *F. tuberosa* is '*Cabulla*': for *F. cubensis* he gives other names. See *Cabuya, Hayti Hemp, Mauritius Hemp*, &c., and the next also.
29, 53	Dodge notes that samples from Costa Rica resembled Sisal fibre (*i.e.*, our G). The origin of the name is not known, but Piso remarks of his *Caragata guacu* usually identified with *Furcraea tuberosa* Ait. that its 'root' is like an onion. This *Furcraea* is apparently unknown, so far, in India. See the next item, also *Caraguata-guacu*.
7, 13, 23, 29, 33, 41, 52, 59, 63, 66, 71	Squier says expressly that this name is applied to the fibre of *Yashqui* and of *Saequi* which he speaks of as 'varieties' of '*A. sisalana*.' (= G of this Bulletin). Perhaps the Costa Rica fibre mentioned by Dodge was really fine 'Sisal,' but Squier may have been misinformed; Piso notes that from his *Caraguata guacu* a very fine fibre suitable for 'hammock-cloth' was made: we suspect that statements which ascribe the finer kinds of '*pita*' to the *Agaveae* are often erroneous, and that the fine sorts of thread are more commonly derived from different little known *Bromeliaceæ*.
53	*Furcraea tuberosa* Ait. Found on the volcano of Chiriqui. Seemann says the fibre of the leaves is very strong and used for making ropes and hammocks.
29, &c.	The basin which is scooped in the centre of the leaves of certain *Agaves* (*A. atrovirens*, Karw. also *A. cochlearis* Baker, &c., according to Rose) to collect the sap for fermenting 'Pulque.' The liquor is drawn off daily with a long gourd (acojote) and the face of the basin (cara) scraped to promote a fresh flow of the liquor.
18, 19	Wight figures as *F. gigantea*, Vent. a *Furcraea* (Ic. 2025) which may be *F. cubensis*, Vent. (See *Mauritius Hemp*, &c.).

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Cantala (1)	Asiatic Researches VI, 230	Sanscrit	N. India	*Agave*?
Cantala (2)	Ainslie	Sanscrit	N. India	*Agave vivipara*
Canton Hemp	Martius	English	India, &c.	*Musa troglodytarum textoria*
Caragate	Moerman	French	Belgium.	...
Caraguata (1)	Kew Bull. Sel. Papers Addl. Ser. II. Art. XXXVIII	Spanish	S. America (Paraguay)	*Bromelia argentina*, Baker
Caraguata (2)	Martius	Do.	Antilles	*Fourcroya cubensis*

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
54	The *Botanical Observations on Select Indian Plants* were interrupted by the death of Sir William Jones, and the List gives nothing further; but the plant was very likely our *Agave* (D), which has been known in Bengal for a considerable period, though the author's query shews that he was well aware that it could hardly have been there when Sanscrit was a living language. *Roxburgh*, who was better acquainted probably with Agave (E), which is naturalized in Coromandel, fitted the name Cantala to that. See the next, *Kantala* and *Kuntala*, also *Kantal*, &c.
54	When Buchanan brought Agave (J) to notice it appears to have been regarded in Bengal as a var. of Roxburgh's *A. Cantala*, but the name assigned by Buchanan to his plant gradually superseded Roxburgh's as regards this supposed variety. Meanwhile the Sanscrit epithet was transferred to the 'variety' (which Roxburgh probably had never seen) from the *A. Cantala* of Roxburgh, and finally, when his *Cantala* was lost from the Calcutta Garden, *Agave* (E) was confounded with the altogether different *Agave* of Wight (J), so that '*Agave vivipara*' of Wight (which is doubtless that of Buchanan and Ainslie) has been very commonly supposed to be the Indian *Cantala*. Whether Cantala had ultimately anything to do with *Agave* is a different matter, as to which see *Kantal* and *Kathal*.
...	From the botanical identification this should be = *Musa textilis*, but *Agaves* also are reported to have been cultivated on the Chinese Coast, as a supplement, most probably, to the true Manila fibre.
21	'Or Spanish Barb—another species of vegetable hair.' *Tillandsias* yielding '*Crin vegetal*' are no doubt intended. See *Agave palo*,— and *Barba de palo*. A common Spanish American name is 'Barba de Vello' where 'Barba' = 'rootlets'—'fibre.' Cf. the following.
17	'*Caraguata*,' which is variously rendered as *Caroata*, *Cravata*, *Grawatha*, also, perhaps, *Curratow*, *Coratoe* or *Keratto*, *Karata* and *Karatas*, is a comprehensive term applied from the coasts and islands of the Caribbean Sea to the Argentine to different species of *Bromeliaceæ*, belonging chiefly to the genera *Bromelia*, *Karatas*, *Tillandsia*, with perhaps *Billbergia* and *Aechmea* also. In Columbia, and adjoining States it seems to be used for one or more *Furcraeas*. The *botanical* genus *Caraguata* is not known, at present, to include any economic species. The Paraguay *Caraguata* was exhibited at Paris in 1889, and was ascertained at Kew to be derived from a then undescribed *Bromelia*. There are at least two kinds of southern *Caraguata*, viz.:—*Caraguata de agua*, and *Caragata ibera*, one of which remains to be identified. See *Ibera*, also *Istle*, *Mexican fibre*, *Silk grass*, *Curratow* and *Keratto*.
18, 19	It is not clear whether Martius regarded *Caraguata* as the Carib name of *F. cubensis* (or F. *cubensis* and F. *tuberosa*) as distinguished from F. *gigantea* ('pita'), but the home of the *Furcraeas* was more likely on the mainland, near the Isthmus, though they may have spread to Cuba first and thence back to the mainland from the eastern *Antilles*.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Caraguata (I)	Piso De Ind. Utr. Re. Nat. etc. Amst. 1658	Spanish	S. America (Brazil, etc.)	**Bromelia Pinguin**, Linn.
Ditto (II)	Do.	Do.	Ditto	**Furcraea tuberosa**, Ait.
Ditto (III)	Do.	Do.	Ditto	**Aloe**, Sp.
Ditto (IV)	Do.	Do.	Ditto	**Bromeliacea?**
Ditto (V)	Do.	Do.	Ditto	**Karatas**, Sp.
Caraguata Acanga	Do.	Do.	Ditto	**Bromelia Pinguin**, Linn.
Caraguata Guacu	Do. (Also Marcgraf acc. to Martius).	Do.	Ditto	**Furcraea tuberosa**, Ait.
Carata	Martius	Carib	West Indian Islands]	*Agaveae* and *Bromeliaceae*
Caratas	Labat (in Martius)	French	Antilles	*Furcraea cubensis*
Caraua	Dodge	Brazilian (Lingoa geral)	Brazil	*Bromelia* Sp.
Cardon	Gomara	Spanish	Central America	**Agave** Spp.

Bulletin, page	Remarks.
22, 32, 41	See *Caraguata acanga.*
22, 41	See *Caraguata guacu.*
22, 32	Usually identified with *Aloe vera* L.; however that may be, it is *not* a *Furcraea* or *Euagave.*
22, 32, 41	Perhaps a *Billbergia* or allied *Bromeliacea,* but at all events neither a *Euagave* nor a *Furcraea.*
22, 32, 41	Manifestly a '*Nidularium*' from S. America and by the description of the fruit *Karatas Plumieri,* E. Morren. This is not impossibly the *Caraguata de agua* of Kew Sel. papers XXXVIII [see *Caraguata* (1)].
22, 32, 42	Rightly identified by Sloane with the common Penguin of the West Indian Islands. There has been hopeless confusion with regard to these *Bromeliaceæ,* with the result that this *caraguata* has been credited with fibre: it produces a fruit, eaten in the Islands and in parts of S. America, but the fibre is reported to be worthless. The *Bromelia acanga* of Linnæus (according to the Index Kewensis) was partly *Bromelia Pinguin* of the Sp. Pl. and partly *Karatas Plumieri,* E. Morren. See *Caroata.*
22, 41, 42	See *Cabulla* (1). This *Furcraea* is not naturalized or used so far in India; we have not recognized it even in gardens. As a fibre producer it is believed to have some advantages over the other *Furcraeas.* (See *Mauritius Hemp*). The name is probably the *Caroata assu* of the Tupi dialects in Spanish dress.
21, 22, 32	Martius identifies the plant of Marcgraf with *F. cubensis,* but see *Caroata-assu.* He considers that this was the original Carib name for sundry *Agaveae* and *Bromeliaceae* and that Carib war-canoes took the plants and their names to the mainland of S. America. The *Furcraeas* may have come to the Orinoco delta from the Eastern Antilles, but they were probably brought to the Islands by the agency of man from the Peninsula or Isthmus previously.
21, 22, 32, 49.	Cf. *Bois de Méche.* Possibly two names are involved, one referring to a *Furcraea,* the other to a *Bromeliad.*
22, 32,	See *Caroa.*
34	Meaning 'Thistle' or 'Artichoke' and referring to the prickly nature of certain *Euagaves*; applied to plants of the *Cactus* kind also.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Caroa ...	Martius	Tupi Indian	Brazil	*Billbergia variegata*, Schult.
Caroata	Martius	Tupi Indian	Brazil	*Bromelia karatas*
Caroata Assu	Do.	Do.	Do.	*Fourcoya gigantea* and *F. cubensis*
Carow	Purchas (in Sloane)	Brazilian?	Brazil?	*Aloe Yuccae foliis*
Catecomer	Garcia	Malayalam	South and Western India	Aloe Sp.
Catevala	Rheede Hort. Malab. XI. t. 3.	Do.	S. India	Do.
Cauthaulay	Madras Exh. Cat., 1855	Canarese	S. India (Mysore)	Aloe Sp.
Cebar	Garcia	Arabic	Turkey, Persia, etc.	Aloe Spp.
Cebu Hemp	Dodge	English	Philippines	*Musa textilis*
Century Plant	Squier (and others)	Do.	North America (U. S. A.)	*Agave americana*
Chaparay	Martius	Chayma Indian	S. America (Orinoco Delta)	*Agave americana*
Chauga nara	Madras Exh. Cat., 1857	Telegu	S. India (Rajahmundry)	*Sanseviera Zeylanica*

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
22	Cf. *Caraguata* (1) also *Caraguata* IV (of Piso). The plant of the younger Schultes is identified with *B. speciosa* of Thunberg.
22, 32,	*Bromelia Karatas* (see Index Kewensis) is *Karatas Plumieri*, E. Morren, a pineapple-like plant of the Caribean region, reported to yield strong but soft fibre. See, however, the preceding, *Ibera*, *Istle Mexican fibre*, *Silk-grass*, etc., also *Caraguata* (1), and *Carow*.
18, 19, 22, 32, 41.	This appears to be the *Caraguata guacu* of Marcgraf (see above), but Piso's plant is evidently neither of the *Furcraeas* named but *F. tuberosa* Ait. Confusion may have arisen over DeLaet's *Nequametl*: Martius identifies the Tobago plant as *F. cubensis*, and no doubt correctly: but Marcgraf's *Caraguata guacu* was Brazilian.
22, 40	Sloane has included two sets of names, if not more, under his *Aloe Yuccæ foliis*; one series evidently refers to the fibre-yielding *Bromeliaceae*, another to the *Sisal* group of *Euagave*, or to *Furcraea*. The "*Carow*" of Purchas' traveller was perhaps the same as *Caroa* and referable to *Billbergia* or *Karatas*.
37	Spelled *Catecomor* by Linschotten and Bauhin. The first part is perhaps the same as that of the *Kadanaku* or *Catevala* of Rheede and may represent a 'Persian' form (Kadi or Kazi) given to local names derived from Kanta (thorn):—for the second part cf. *Kunwar* etc.
37	From 'Kantewala' (*i.e.*, thorny) ? See also *Kadanaku*.
37	Doubtless a rendering of *Kattale*. See *Country aloes*.
37	Cf. *Acebar*, and *Azul*, also *Sabar*, etc.
...	From *Cebu*, one of the Philippine group of Islands.
23, 35	Given to the garden kinds of *Agave* from a tradition started by Borel that the species first introduced into Europe flowered when the life of the plant attained a hundred years, and not earlier.
20	Martius compares this with *Azul Champahra* (q.v.). *Chapara* in Spanish means a kind of Oak, but the true oaks (in Panama at least) seem to be called *Cerro*.
1	Cf. *Saganara*, and *Sauga*.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Chelem	Perrine also Schott (in Engelmann)	Maya Indian	Central America (Yucatan)	**Agave** Sp.
China grass (1)	Roxburgh	English	East Indies	*Sanseviera Zeylanica*
China grass (2)	Watt E.D.	Ditto	Cosmopolitan	*Boehmeria nivea*, Hook. and Arn.
Chinguirito	Jackson	Spanish	Central America (Mexico)	*Agave americana*
Chini Kalabanda	Ainslie Mat. Med. ii. 160	Telegu	S. India	*Aloe littoralis*, Koenig
Chom	Dodge	Maya Indian	Central America (Yucatan)	*Bromelia Pinguin*
Chota Kanwar Ka Patta	Ditto	Hindustani	Central India (Deccan)	*Aloe littoralis*, Koenig
Chouca	Ditto	Spanish	Antilles	*Agave vivipara*
Chucumci	Engelmann	Maya Indian	Central America (Yucatan)	*Agave rigida* Mill.—*var.*
Chucau	DeLaet (in Sloane)	Peruvian	S. America (Peru)	*Aloe secunda*, &c.

Bulletin, page	Remarks
69	According to Engelmann, Perrine and Schott described under this name a wild *Euagave* of Yucatan which they supposed (or were informed) was the wild original of *Yashqui* and *Sacqui* (q.v.)= *Agave sisalana*, Perrine and *Agave longifolia*, Engelmann of this Bulletin. There is no sufficient evidence at present that either of these plants exists in a wild state in Yucatan or elsewhere; but it is just possible that Perrine referred to the Euagave known as *A. decipiens*, Baker (K of this Bulletin). When the text was written we were not aware that Dr. Perrine had introduced several distinct kinds of *Euagave* from Yucatan into Florida. *Agave ixtlioides* of Bot. Mag. is near Baker's *A. decipiens*, and was supposed in the same way to resemble *Agave Ixtle* of *Karwinski* from Yucatan which was credited with 'Ixtle' fibre. See also *Ixtle, Silk Hemp, Silk grass* and *Ixtli*.
1	Roxburgh conjectured that the China grass of his time, used for fishing lines, &c., was obtained from this plant. As Sir George Watt has already pointed out, we do not really know what the modern *China grass* is produced from, or whether it is always got from the same species; but the *China grass* of present commerce is ascribed to species of *Boehmeria* (of the Nettle family, Nat. Ord. *Urticaceae*) see *Canton Hemp* also *Bowstring Hemp* (1).
...	The *Rhea, Ramie, Ortie blanche*, &c.
20 &c.	Brandy made from the sugarcane (molasses presumably) as distinguished from *Agave* spirit, *Aguardiente de maguay*, which see, also *Aguardiente*.
37	In Malayalam *Chenna Nayakam*. Cf. *Kadanaku* also *Jeeni kattalai*.
69	Cf. *Chucumci*.
37	From the earlier accounts of Western India both the *Aloe* and *Agave* seem to have been called 'Kanwar,' *i.e.*, 'thorny,' the *Aloe* being the lesser, the *Agave* the greater *Kanwar* respectively.
45, 51	This looks like a French rendering of some Spanish or Carib name. Whatever the plant may be it is not so far identified with Agave (J) of this Bulletin = Wight's A. vivipara: but it is perhaps the plant mentioned by Martius (Beitrag, p. 10) as figured by Oviedo in his supplementary Ms.
7 to 70	Not identified; reported by Schott as yielding a coarse fibre. Cf. *Chom*.
9	Identified by De Laet with 'the Maguey of the Mexicans':—the *Aloe secunda* of Sloane is *A. americana* of Linnæus.

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
CHULULQUI	Martius	Maya Indian	Central America (Yucatan)	*Fourcroya cubensis*
COCUY	Squier	Spanish	Central and S. America (Venezuela and New Grenada)	**Agaveæ Sp.**
COCUYZA	Do.	Do.	Ditto	**Ditto**
COGOLLO	Martius (also Rose)	Do.	Central America (Mexico)	*Agave sp.*
COMETICO	Nelson	Do.	Ditto	*Do.*
COQUISE	Martius	Do.	S. America (Columbia)	*Agaveæ Spp.*
CORATOE	Martius (quoting Long's Jamaica)	English	Jamaica	*Foucroya cubensis*
CORATTO	Patrick Browne	Do.	Jamaica	*Agave americana*
CORAZON	Martius also Dodge Rose and others	Do.	Central America (Mexico)	**Agave** Spp.
COUNTRY ALOE FIBRE	Madr. Exh. Cat., 1857	Do.	Central India (Hyderabad)	*Agave sp*
COUNTRY ALOES (1)	Madras Exh. Cat., 1855	Do	S. India (Mysore)	**Aloe** Sp.?
COUNTRY ALOES (2)	Do., 1857	Do.	Ditto	Ditto

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
22, 41, 69, 70.	It is not clear what Martius supposed his *chululqui* to be; he refers the fibre of Yucatan to several species, such as *Furcraea cubensis*, *F. tuberosa*, *Agave Jacquiniana*, *A. lurida*, *A. Ixtle*. At present the only species known to yield *Sisal Hemp* are *A. sisalana*, Perrine and *A. longifolia*, Engelmann.
34	See *Maguay de Cocuy*.
34	Ditto, and Cf. *Coquise*.
...	The central cone of leaves in certain *Agaves*:—in the species that yield 'Tampico fibre,' the 'cogollo' is removed from the living plant to be treated for fibre.
...	A Mexican beverage made from certain species of *Agave*.
34, 41	Meaning not traced. Cf. *Cocuyza*.
41, 48	See the next, also *Great American Aloes*.
41, 48	Browne supposed his plant to be the same as the *A. americana* of writers on Mexico, but Martius referred it to *Fourcroya cubensis*, which the description will not suit, we think. He lays stress on its detergent properties. See *Keratto*, also *Caraguata* (1).
22	The 'heart' or central cone of the Pulque-yielding *Euagaves* at poling time, which is removed to make the cavity for sap collection (*Cajete*).
20	This item is one in a long list headed '*Agave* sp.,' which, however, also includes '*Aloe perfoliata* ropes,' &c. Under Part I we have not mentioned the true aloe as a source of fibre, because evidence of its present use is wanting. Cf. the next, and *Country aloes* (2).
20	As the same local list (for Mysore) contains *Long Aloe* (*A. vivipara*) and *Short Aloe* (*A. americana*), and 'cauthaulay' is given as the equivalent, the '*Country aloes*' fibre should have been from a true aloe, but *Kattali* is now the name at Bangalore of an *Agave*.
20	('Or *Cuthala nar*'.) If this was the same fibre as the *Country aloes* of 1855, it may have been from an *Aloe*; Royle supposed that it was from an *Agave* and the experiments have been quoted for *Agave americana* by subsequent writers. There seems no doubt that cordage has been made in S. India with fibre from the true *Aloe*, but not recently at least on a commercial scale.

Glossary of local and commercial terms referring to the

Name	Authority	Langnage	Where used	Scientfic determination
Coztic Metl	Hernandez	Aztec	Central America (Mexico)	**Agave Sp.** ?
Cravata	Martius	Brazilian	S. America (Brazil)	*Agaveae* and *Bromeliaceae*, Spp.
Cravata de Rede	Do.	Ditto	Ditto	*Bromeliaceae* ?
Crowia	Morris	Indian dialect	S. America (British Guiana)	*Ananas sativa*, Linn.
Cuba Hemp	Guilfoyle	English	Australia	*Furcraea gigantea*
Cumari	Rheede	Brahmin language	S. India	*Aloe* Sp.
Curaca	Patrick Browne (also Sloane)	Spanish	Jamaica	*Agave* Sp.
Curratow	Spon	Brazilian	S. America (Brazil)	*Bromelia Sagenaria*
Cuthala Nar	Mad. Exh. Cat., 1857	Canarese	S. India (Mysore)	...
Cuttalay	Royle	Tamil	S. India	**Agave** Sp.
Cutthalay Nar	Do.	Canarese	...	**Do.**
Dagger Plant	Dr. Bidie (1877)	English	S. India	*Yucca gloriosa*
Elephant Agave	Government Botanist Madras	Do.	S. India (Tinnevelly)	**Agave Vera Cruz**, Mill.

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
33	Martius suggests *Agave americana*, but the description hardly fits any *Euagave*. Perhaps a *Manfreda*. Also given as *Macoztic Metl* and *Metl Coztli*.
22	See *Caraguata* (1).
22	Meaning 'Net' or 'Hammock' *Caroata*. See also *Curratow* and Cf. *Reda aonas* of India.
22, 78	Im Thurn ascribed the *Krowa* or *Crowia* fibre to a *Bromelia*, but the plant at Kew has been identified by Sir Daniel Morris as the pine-apple. The word is presumably the same as *Caroa*. Also spelled *Krowa*. Cf. *Caroa*.
18, 19	More than one species of *Furcraea* seems to have been tried in Australia, and one kind at least is grown on a considerable scale in Queensland. From the name this should be the *Furcraea cubensis* of Ventenat, but we do not know what the species of *Furcraea* really are that are grown or used in any of the countries interested.
37	A Sanscrit epithet (referring to the goddess *Durga*) applied to the true *Aloe*. See also *Catevala*.
48	= *Coratto*. See also *Keratto*.
20	The scientific name appears to be taken from *Arruda da Camara* whose plant is said by Martius to be called *Cravata de Rede* (*Ananas bracteatus* of the younger Schultes). Also called *Grawatha* according to Spon. Cf. also *Caraguata* (1).
20	This was one of a series of ropes received at the Madras Exhibition of 1857 of which the breaking weights were carefully tested by the Arsenal Staffs at Bangalore or at Madras, and the result elaborately recorded, but without avail, as it is impossible to say what the plants were that supplied the fibre. See *Country Aloes* (1) and (2), *Pooty Mungem*, &c.
20	*i.e. Kattale*; which is properly=true *Aloe*. Cf. *Kattali*.
...	*Nar*='fibre' in several of the S. Indian languages apparently. Cf. *Cuthala Nar*, and *Kattali*.
2	Also called 'Spanish Dagger,' 'Spanish Bayonet,' etc., in different countries.
7, 10, 71	(D) of Bulletin. Probably a translation of '*Anai Kattale*.'

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Enequen	Purchas (in Sloane)	Carib	America	Agave or Furcraea Sp.
Enuga Kala-bantha	Government Botanist Madras	Telegu	S. India (Gantur)	Agave Vera Cruz, Mill.
Enuga Kala-bonda	Ditto	Do.	S. India (Kistna, Nellore)	Ditto
Enuga Kala-bunda	Ditto	Do.	S. India (Kistna, Nellore, Kurnool)	Ditto
Erikatali	Watt E. D.	Canarese?	S. India (Bellary)	*Agave vivipara*
Espadillo	Booth in Kew Sel. Papers (Add. Ser. II) LXIV	Spanish	Central America	Agave, Spp. ?
False Sisal	Kew Sel. Papers (Add. Ser. II) LIX	English	N. America (Florida and Bahamas)	Agave decipiens, Baker.
Fayal Lace	Dodge	Do.	N. America, etc.	*Agave americana*
Filo de pita	Liotard	Portuguese	Portugal	*Agave americana*
Fil y Agulha	De Leclusc	Spanish	Spain (Valencia)	*Aloe americana*

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
21, 41	See *Henequen* and *Sisal Hemp.*
7, 10, 71	(D) of Bulletin. *Cf. Yenuga Kalabanda, etc.*
7, 10, 71	Ditto Ditto Ditto.
7, 10, 71	Ditto Ditto Ditto.
55	Probably Agave (J) *i.e.*, our *A. Wightii.*
17	Mr. Booth notes that the Brush fibre exported through Matamoras may be from the *Palma loca* (See *Palma*) or from various forms of the *Espadillo.* We do not know to what plants *Espadillo* is applied, but it is perhaps a version of the Mexican '*Ixtle*' [see *Ixtle* (3) and *Mexican fibre* (1)] and applied in part to one or more *Euagaves.*
1, 6, 7, 16, 30, 65 to 67, 70	This is probably one of the Yucatan *Euagaves* of which local (Maya) names are given by *Perrine, Schott* and *Martius,* and may be their 'Chelem' or 'Wild Henequen'. It may further be the *Agave ixtlioides* of *Karwinski* and the *A. rigida* (wrongly so-named) of Engelmann (not of Miller). It has run wild in Florida, and was imported by mistake as *Sisal* to the Bahamas. Known only in Botanic Gardens in India. It is not in good repute as a fibre-yielder, but it can readily be distinguished.
20, &c.	A valuable kind of lace, formerly prepared in Fayal (Azores group) with thread prepared from the fibre of an *Agavea,* perhaps *A. americana,* Linn. or *A. Vera Cruz,* Miller. The comparative abundance of one or more Agaves in the Atlantic Islands (including St. Helena) is remarkable, but their introduction is due probably to human agency, though the bulbils are believed to survive immersion in sea-water.
20	This term is said to stand in Spanish also for the fibre of '*Agave americana.*'
35, 38, 50	See *Aloe americana.* The plant of which De Lecluse took an offset from Valencia to Antwerp was very likely our D=*Agave Vera Cruz,* Mill., but that which the Dutch introduced to N. Europe (from the West Indies, or by way of the Far East) is different, being *A. americana* of Bot. Mag. 3654 and, earlier, of Linnaeus. The Valentian name means '*thread and needle.*' Cf. 'Eve's thread'=*Yucca filamentosa; Adam's Needle* (above); and 'Anana de Agulha' applied in S. America to the fibre-yielding *Ananas bracteatus,* Schult. In the Spice Islands the Dutch settlers called an *Agave* 'Naeldendraet' which had probably a like signification.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Fique	Dodge	Spanish	S. America (Ecuador)	*Fucraea gigantea*
Ghaipat	Liotard	Hindustani (Deccani)	S. W. India (Ahmednagar)	*Yucca gloriosa*
Ghaymari	Do.	Ditto	S. W. India (Ratnagiri)	*Agave vivipara*
Ghee Koomar	Roxburgh	Bengali	N. India (Bengal)	*Aloe* Spp.
Ghi Kunvar	* Pharmacographia Ind.	Hindustani	S. W. India	*Aloe vera*, Linn.
Ghikwar	Stewart Panjab Plants, p. 232	Panjabi	India (Panjab)	*Aloe perfoliata*
Ghrita Kumari	Asiatic Researches, XI —156	Sanscrit	N. India	Aloe spp.
Giant fibre lily	Guilfoyle	English	Australia	*Furcraea gigantea*
Grass Hemp	Ditto	Ditto	Ditto	*Agave rigida*
Grass silk	Hakluyt's Voyages (in Sloane)	Ditto	America (probably New Grenada)	*Aloe Yuccae foliis*
Gratte Gratteuse	Kew Sel. papers (Add. Ser. II) LXVI	French	Mauritius	...

* Dymock, Wardar, and Hooper Bombay, 1889–1893.

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
18, 19	Dr. Ernst identified this with the *Cocuyza* of Cumana, and both with '*Furcraea gigantea.*'
2	Cf. (for the vern. name) *Bilati pat* and the following.
55	Probably Agave (J); but the local name looks like a corruption of the following.
37	See '*Ghrita Kumari.*'
37	To be distinguished from *Bara Kunvar*, etc., which are species of *Agave*. This is perhaps the original vernacular from which *Ghrita Kumari*, etc., have originated; for the second component see *Kunvar;* if the first be a gloss also then compare *Kia*, etc.
37	Also called *Kwar Gandal*, 'gandal' being 'bulb,' and 'kwar'= 'kanvar.'
37	This appears (see *Pharmacographia Indica* p. 468, for origin and other forms) to be based on an older name of some plant, indigenous or anciently established, in Western and North-Western India e.g., *Aloe indica* of Royle. If the true *Aloe* has been introduced on the coasts of India, it evidently had arrived before the *Agaveae*.
18-19	This reads like a book name, but is quoted as actually in use by more than one authority. It is not current in India. See *Mauritius Hemp* also.
70	Dr. Guilfoyle evidently meant *A. sisalana*, Perrine, = (G) of this Bulletin.
40	Under this Latin name Sloane has quoted several different plants, one of which may be *Agave sisalana*, Perrine: '*Grass silk*' or 'Silk of grass' (Hariot in Hakluyt) was perhaps a *Bromeliacea*: Sloane's own 'silk grass' is identified with *Henequen* and 'Hernandez' '*Pati.*' Among doubtful synonyms he cites Hariot with a query, also Fitch (in Hakluyt) who attributes a fine fibre to 'a grass which they call Yerva.' What 'they' in Fitch's day called 'Yerva' (*Er va babosa*) in the Brazils was *Aloe vera* Linn, but Fitch seems to have meant a product of '*Orixa,*' *i.e.* Orissa in the E. Indies (? *Sansevieria*). See *Silk Grass*, &c.
...	A machine for scutching the fibre of the Mauritius Hemp (*Furcraea* spp.).

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
GRAVATA	Martius	'Lingoa Geral' (Brazil)	S. America	*Bromelia Karatas*
GRAWATHA	Spon	Do.	Ditto	*Bromelia Sagenaria*
GREAT ALOE	Balfour (Cyclopædia)	English	S. India	*Fourcroya gigantea*, Vent.
GREAT AMERICAN ALOES (1)	Cleghorn (Forests and Gardens of S. India)	Do.	Ditto	*Agave americana*
GREAT AMERICAN ALOES (2)	Long (in Martius)	Do.	Jamaica	*Fourcroya culensis*, Haworth
GREEN ALOE	Liotard	Do.	S. India (Mysore)	*Agave vivipara*
GREY ALOE	*R.E. P.	English	India	**Agave Vera Cruz**, Mill.
GUAMARA	Dodge	Tupi Indian	S. America (Brazil)	*Karatas Plumieri*
GUAPILA	Rose	Mexican	Central America (N. Mexico)	*A. falcata*, Engelmann
GUL SHABO	R. E. P.	Persian	N. India (Patankot, Panjab)	**A. Cantala** Roxb.
HAMPE	...	French	France and French Colonies	...
HANE-A-CANE	Martius	English	America	**Agave and Furcraea** spp.

* Reporter on Economic Products to the Government of India.

Bulletin, page	Remarks
17, 22	See *Caraguata* (1), *Caroata*, &c.
22	See *Curratow*.
20	See the next.
20, 48	We have not discovered what the Lesser American Aloe may have been in Europe, but the *distinction* dates back to the earliest days of *Agave* cultivation. Ventenat was probably contrasting his plant with *Furcraea tuberosa*, and one kind of the Mauritius Hemp may have been called the Great Aloe in contrast with another; but Cleghorn's use is that of most English horticulturists.
21, 22, 32, 41, 48	For other 'English names,' see the preceding and the next; also *Country Aloes, Grey Aloe, Hedge Aloe, Hill Aloe, Long Aloe, Short Aloe, Wild Aloe, Seaside Aloe*, etc.
45	No doubt a *Furcraea* (see *Sime Kattale*). The Madras Exhibition Catalogue for 1855 includes fibre from Cuddapah ascribed to '*Agave viridis*.' There is no such species known to botanists, and the fibre probably was from one of the *Furcraeas*. The leaves of the Indian *Furcraeas* are usually of a lighter shade and brighter green than those of the *Euagaves*, and the name recalls the 'Aloes Vert' of the Mauritius—a term not in use in Europe, apparently, where '*Green Aloes*' since the days of Rauwolf's Travels (Book III, p. 315) has referred to a true *Aloe*.
7, etc.	Referring to the 'grey' or 'blue' (glaucous) tint that is usually conspicuous in (D) of this Bulletin.
17, 22	Cf. *Istle*. Dr. Ernst identifies the (Venezuelan?) product with this name as 'Bromelia Pinguin.' '*Guama*,' again, is from a totally different order of plants (*Lonchocarpus* Nat. Ord. *Leguminosae*).
...	Mr. Rose regards Engelmann's '*falcata*' as perhaps identical with *A. striata*, Baker, which is Mr. Booth's 'Palma loca.' See *Mexican fibre*, etc.
12, etc.	(E) of this Bulletin. Planted for hedging, and perhaps naturalized in the Kangra Valley and neighbourhood [See *Adam's Needle* (2) also]. Fibre is made from the leaves; and the 'poles'—like those of (D) in the Agra Province— are used for litters (note by Burkill). *Gulshabbo* (*i.e.*, 'Evening-perfumed-flower') is properly the Tuberose (*Polianthes tuberosa*, Linn.).
3	The 'pole' or scape, *i.e.*, flowering stem,—of *Agaveae*.
21	According to Martius a corruption of Henequen. We have not encountered it.

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
HATHI CHINGAR	Mukerji, also Watt E.D.	Hindustani	N. India (Oudh)	*Agave vivipara*
HATHI SENGAR	Watt E.D.	Ditto	India	*Agave americana*
HAYTI HEMP	Bernardin (in Dodge)	English	N. America ?	*Furcraea gigantea*
HEDGE ALOE (1)	Madras Exh. Cat. 1857	Do.	S. W. India (Poona)	**Agave** Sp. ?
HEDGE ALOE (2)	Cameron (Bangalore Cat.)	Do.	S. India (Mysore)	*Aloe barbadensis*, Mill.
HENECHEN	De Laet (in Sloane)	...	Antilles	*Aloe Yuccae foliis.*
HENEQUEN (1)	Oviedo (in Sloane)	...	Do.	Ditto
HENEQUEN (2)	Martius	Haitian	Antilles (San Domingo)	**Agaveae** spp.

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
55	*Hathi*=elephant; *Chingar* probably means a 'claw,' or 'thorn;'—Mukerji does not give the locality.
20	Cf. the preceding.
18, 19	From an article by Mons. M. F. Fasio at p. 342, Journ. d'Agriculture Tropicale, No. 41, 1904, it appears that in Algeria, where *Agave* is utilized on a commercial scale for fibre, the French experts are familiar with three 'Aloe-fibre' species, viz. (1) *A. americana* so called, which we believe to be our Agave (D), naturalized and planted in Algeria; (2) '*Sisal*' or '*Henequen*,' which should be our (G) or a closely allied species; (3) *Pite d' Haiti* which from Barnardin (quoted by Dodge) is '*Agave foetida*,' commonly identified with *Furcraea gigantea*, Ventenat, and the '*Mauritius Hemp*' (which see, also *Pite*, etc.). Mons. Fasio has recently exhibited in Paris (at the Musée Commercial de l' Office Colonial) a superior staple of the class of 'Hayti Hemp' (and 'Sisal') which he gets from a plant naturalized in Algeria, referred by him to *Agave* without further identification or description. This may be the second naturalized *Agave* of S. Spain and N. Africa which some authorities have referred to '*A. mexicana, Lamarck*; but that,—in so far as it is anything beyond a name,—was a *Furcraea*.
20	Possibly *Agave* (*D*).
20	C. G. Hope is quoted for the identification.
40	See the next.
Do.	Sloane cites *Oviedo* without question; also *Purchas' Voyages*. Martius will have it that Oviedo's *Henequen* was a *Furcraea*, and this may be so; but Sloane's *Aloe Yuccae foliis*, based on the Henequen of early English travellers on the mainland, was pretty certainly one of the Yucatan *Euagaves*, which, as cultivated for the fibre, have a very Yucca-like aspect. For other references by Sloane, see *Anana de Pite, Carow*, and *Grass silk*, also *Pati*.
21, 41	Martius supposes that the *Henequen* and *Pita* of the islands were derived mainly from species of *Furcræa*, and that some of these with the Haitian or the Carib names were transplanted to the mainland, where they extended to different other plants, some belonging probably to the *Bromeliaceae*. There is probably much truth in this as regards the northern shores of S. America, but in Yucatan the fibre industry came, according to tradition, from Mexico, and the native home of the Sisal group of Euagave is rather to be looked for on the Pacific slope of C. America. Mr. Dodge remarks that 'Nequen' was a native Mexican word; and the dominant races who maintained the cultivation of different *Euagaves* both for mead and cordage came from the N. West or South and not from the islands. Whatever may have been the ancient history of the word it is now applied in the chief markets to the *Yucatan* fibres, and to those of the *Sisal* group more particularly. See also *Sisal Hemp*, etc.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Henequen (3)	Perrine	Maya Indian?	Central America (Yucatan)	**Agave sisalana**, Perrine, and connected species
Henequen (4)	Barnardin (in Dodge)	Spanish	Central America	*Yucca filamentosa*
Henequen Hemp	Guilfoyle	English	Australia	**Agave sisalana**, Perrine
Hennequen	Oviedo	Haitian	Antilles	**Agave** and **Furcraea** sp.
Hennequin	Perrine	Maya Indian	Central America (Yucatan)	**Agave sisalana**, Perrine
Hennequinitos	New York Exh. Report, 1853 (quoted by Squier)	Spanish	Do.	Do.
Hill Aloe	Ainslie Mat. Med. 1813	English	India	**Agave Wightii** of this Bulletin
Huci Metl	Hernandez	Aztec	Central America (Mexico)	**Agave** sp.
Huila	Rose	Spanish	Central America (Mexico)	*Agave* sp.

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
13, 68, 69	In 1834 Dr. Perrine, U. S. Consul at Campeachy, submitted a report to his Government on the fibres of the Yucatan Peninsula, in which he described the '*Henequen*' as fibre made in Yucatan from different kinds of *Agaveae*, of which he selected the 'Yashqui hennequin' as the best for cultivation in his own country. In 1838 he introduced different species from the Peninsula of *Yucatan* to that of *Florida*, where his life was sacrificed during an incursion of the Indian tribes from the interior. Since his time '*Henequin*,' or, as it is now usually spelled, '*Henequen*' has become a fibre of first rate importance in several countries, and Perrine's selected species has been introduced successfully into Bengal and Mysore in India. It is said that other staples have been largely mixed at the ports of the Gulf of Mexico with that got from the *Euagaves*, but the term '*Henequen*' is still properly applicable to the best qualities of Yucatan *Euagave* fibre. (See also *Sisal Hemp*.) It must be remembered at the same time that the sort mostly grown in that Peninsula is not Perrine's '*Sisalana*,' though closely resembling it. For outside countries Perrine's is believed to be superior to it.
2	This is no doubt quite correct as regards some local usage. Under *Aloe Yuccae foliis* Sloane quotes Hermann and other authors who had intended either forms of Yucca, or of the small *Agaves* that have 'thready' leaf-margins, none of which have yet been tried on a market scale in India.
70	This seems to be well known and appreciated in parts of Australia.
33	Oviedo's actual spelling. See Henequen (2) for details.
70	So spelled, apparently, in Perrine's original report, which we have not seen, nor his articles in *Silliman's Journal*. We have followed Engelmann as regards the spelling in this case. Cf. *Henequen* (3), etc.
5	*Bulbils* or young plants developed on the parent branches in the place of seeds by a process of proliferous germination in *Euagave* and *Furcraea*.
15, 55	We include these and other terms, though the books are somewhat out of date, because they are not unlikely to recur locally in the course of business.
33	See *Coztic Metl*. (We have not been able to give more than a few of the names in Hernandez).
...	Cultivated near Bolanos in the state of Jalisco for fibre. Species not determined. Identified with the *Bastard Tequila* (which see, also *Tequila*).

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
IBERA	Kew Sel. Papers (Add. Ser. II), XXXVIII	Brazilian	S. America (Paraguay, etc.)	*Bromelia* sp.
IMBIRA BRANCA	Martius	Tupi and other native Indian languages	S. America (Brazil, etc.)	*Funifera* sp.
ISTALE	Squier	Spanish	Central America (Mexico)	*Bromelia sylvestris*
ISTLE (1)	Do.	Do.	...	Ditto
ISTLE (2)	Temple in Journ. Soc. of Arts, Vol. V p. 125	Mexican	Central America (British Honduras)	Ditto

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
17, 22	See *Caraguata* (1) and the following.
...	From the works of Humboldt and Martius it appears that several different kinds of fibre known in S. America under variations of the word *Embira*, e.g., *Imbira, Ibera*, and their compounds (e.g., *Macembira*) are obtained from species of *Ananas, Bromelia, Funifera* (Nat. Ord *Thymelaceæ*), *Lecythis* (N. O. *Myrtaceæ*), *Apaiba* (N. O. *Tiliaceæ*), and *Bombax* (N. O. *Malvaceæ*). These 'Embira' fibres are apt to be confused with each other and with those of the *Agaveae*. See also *Macembira*, and *Caraguata* (1).
17, 22	A patch of *Istle* cultivation, or *Pinuella* farm, so called in the country bordering on the Gulf of Campeachy (see the next and *Ixtle*).
17	Spon, under *Nidularium Karatas* (see *Ixtle*), following partly Squier, partly independent authorities, notes that a Bromeliad yields a good and cheap fibre called 'Ixtle' in Mexico. This has been called in question, but is certainly correct (see the next and *Ixtle*), 'Istle' is a simpler way of spelling '*Ixtle*,' where the 'x' is the Spanish equivalent for certain sounds of 's.' *Istle, Itzle, Ixtli, Ixtly, Ixtilli, Ixtl, Ystle, Yztli* are apparently one word in various disguises, but unfortunately the same shape has come in cases to mean very different things, if not on the spot, at all events in markets and offices.
17	The plant which the Chief Justice of Honduras brought to notice so far back as 1857 was undoubtedly one of the *Bromeliaceæ*, and there is little doubt that it yields a long fine fibre of superior quality. Later evidence shows that this plant or another closely resembling it is found in abundance all along the sub-tropical coast belt from the Gulf of Campeachy to the Vera Cruz neighbourhood. What '*Bromelia sylvestris*' may be and what the *Istle* plant is (if there be only one species in the tract mentioned), we have no immediate knowledge; but Sir D. Morris' matured opinion points to the *Karatas Plumieri* of Morren—*Nidularium Karatas* of Lemaire (see the preceding, *Caraguata* (1) and connected references). This plant is identical, as we suppose, with a Bromeliad which is established in the Sibpur Garden and seems very much at home in its surroundings, but this is not known to have been raised on a commercial scale as yet in India. This staple would probably have taken better hold in the U. S. A. and in the English colonies but for a series of mistakes as to local names and geography. It has been confounded with the small *Agaves* of the '*Tampico fibre*' series [see *Ixtle* (3), *Tampico fibre*, etc.], though these are produced in a totally different part of Central America; also with the fibre *Evagaves* of the Yucatan Peninsula [see *Bromelia Pita, Silk Grass, Sisal Hemp*, etc.]; and, further, with the *Bromelia Pinguin* of Linne, ('Penguin' of the West Indies), which produces a fruit, but a very sorry fibre apparently [See *Caraguata* (1) of Piso]. The '*Pita Bromelia*' (*i.e.*, Honduras *Istle*) seems to be known in the local Spanish very generally as *Pinuella* (pronounced 'Pinyuella'). *Pina* (pinya) is the pine-apple; *Pinuella* represents one or more 'wild pineapples' or fibre-yielding Bromeliads.

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
ITZLE	Dodge	Mexican	Central or S. America	...
IXTILLI	...	...	Ditto	*Agave* sp.
IXTLE (1)	Squier	Mexican	C. America (Isthmus of Nicaragua, etc.)	*Bromelia sylvestris.*
IXTLE (2)	Spon	Ditto	C. America (Mexico)	*Nidularium Karatas*
IXTLE (3)	Rose	Ditto	Ditto	Agave sp.
IXTLE MESOAL	Dodge	Ditto	Ditto	*Agave Wislizeni*
IXTLI (1)	...	Ditto	Central America (State of Vera Cruz)	Karatas Plumieri, Morr. ?
IXTLI (2)	Martius	Maya Indian ?	Central America (Yucatan).	*Agave Ixtle,* Karwinski

Bulletin, page	Remarks
	= *Ixtle*?
7, 8, 25, 64, 65, 71	Evidently *Ixtle:* applied to an *Agave* said to be naturalized in Burma, if that be the same with one cultivated at Saharanpur in N.-W. India—Agave (A) of our list, which again is very like a form cultivated at Kew from the Turks or Caicos group of islands (in the Bahamas). When Parts I and II were written we were not aware that Perrine had introduced more than the one species of *Agave* into Florida, but it seems that he planted out several Euagaves,—all from Yucatan apparently (some were for experimental purposes most likely). This gives special interest to the plant illustrated in Miss Mulford's Plates 60 and 61 and an undetermined Agave from the Perrine grant (S. Florida), which is in all probability one of Perrine's imported Euagaves (see Dodge's Plate III). We have followed the American authorities in leaving this plant without name pending further information, but in the light of the above it evidently merits examination as a source of fibre. It is not unlikely that the *Agave Ixtli* of Karwinski from Yucatan received its specific name on the supposition that it was the fibre 'Istle' of the country; this, if not actually the same as Baker's *Agave decipiens* (the false Sisal), is very near to it, and may be the 'wild' kind of Engelmann. Perrine may, we think, have imported (among others possibly)—(i) *A sisalana*=(G) (ii), *Agave* (A), and (iii) *A. decipiens*, Baker=(K); and if there is or was an Euagave known as *Ixtle* in the Maya country, our A and not Karwinski's plant perhaps represents it. How it has become naturalized in Burma remains to be discovered.
17, 22	Possibly in part the same as Temple's *Istle*, i.e., *Istle* (2). Major Barnard (U. S. A.) reported on it from the Isthmus of Tehuantepec (Gulf of Campeachy), but diverse products were perhaps included under the one name, at least one being probably an *Agave*.
17	See *Istle* (1), *Mexican fibre, Pita pinuella*, and *Silk grass*. Spon's contributor has unfortunately confused the *Istle* of S. E. Mexico and Nicaragua with that of the dry north (Zacatecas, Tula, Sinaloa, Coahuila, etc.), for which see the next and '*Tampico fibre*.'
17	The species of *Agave* which yield '*Tampico fibre*' (chiefly used in brush-making) belong for the most part to a different section of the genus from the *Euagaves*. None have been so far planted in any part of India except here and there in gardens. See also *Broom root, Brush fibre* (1) and (2), *Mexican fibre, Tampico fibre* and *Reju*.
22	This belongs to the *Euagave* section, but has nothing to do with the *Mescal* of the southern parts of Mexico. It is practically unknown in India.
17	A spelling (more correct perhaps) of *Ixtle*, which see, also *Istle* (1) and (2).
70	See *Ixtilli and Yxtli*.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Ixtly	...	Aztec ?	Central America (Mexico)	...
Jafirabad Aloes	Pharmacog. Ind.	English	India	**Aloe**, sp.
Jamaica Keratto	J. G. Baker	Do.	England	*Agave Morrisii*, Baker
Jangli ananas	Balfour (Cyclopædia)	Hindustani	India (Bengal, &c.)	*Agave americana*
Jangli anás	Pharmacog. Ind.	Ditto	S.-W. India	Ditto
Jangli Kunvara	Watt E. D.	Ditto	India (Guzerat)	*Agave americana*, Linn.
Jeeni Kathalai	Govt. Botanist, Madras	Tamil	S. India (Salem)	**Agave Vera Cruz**, Mill.
Jenequen	Schott (in Engelmann)	Maya Indian (in Spanish form)	Central America (Yucatan)	*Agave* sp.
Jungli	Dodge	Bengali	India (Bengal)	*Agave americana*
Kadanaku	Rheede	Malayalam	S. India (Malabar coast)	**Aloe** sp.
Kadi	Forskohl Fl. Aeg. Ar. p. 172.	Arabic	Arabia Felix Yemen.	*Keura odorifera.*
Kalabanda (1)	Pharmacog. Ind.	Telegu	S. India	*Aloe vera*, Linn.
Kalabanda (2)	Govt. Botanist, Madras	Tamil	S. India (Nellore, Cuddapah)	**Agave Vera Cruz**, Mill.
Kalabantha	Balfour (Cyclopædia)	Do.	S. India	*Agave americana*
Kalabonda	Govt. Botanist, Madras	Telegu	S. India (Anantapur, Nellore, Bellary)	**Agave Vera Cruz**, Mill.

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
...	A variation of *Ixtle*. See *Istle* (1) and *Yztli*.
37	A sort of bitter aloes made at *Jafirabad* in Guzerat by families claiming African descent.
15	From the description this Euagave would seem near to our *Agave* (*H*), but we think the Indian plant is allied rather to the '*Sisalana*' group, including (E) and (F), and a likely fibre-producer. See *Keratto* also.
20	Meaning 'wild pineapple.' We have not met with the expression.
20	Cf. the above, also *Nanas utan, Reda aonas,* etc.
20	Cf. *Bara Kanwar, Kunvar,* etc., also *Gritha Kumari*: the species may be (D) = *A. Vera Cruz,* Mill.
10, 71	From *Jin* (a demon)? but cf. *Chini Kalabunda.*
68	Another spelling of *Henequen,* which see. We do not know precisely what Schott meant by the term, not having his original report before us. Engelmann ascribes all the best Yucatan fibre to '*A rigida,* Miller,' and its supposed varieties, *sisalana* and *longifolia,* but Schott seems to have relied a good deal on local accounts, and his *Jenequen* may have included fibre from other sources. See *Sisal Hemp* also.
20	'Ananas' (or the like) has evidently dropped out in printing. See *Jungli ananas* above.
37	Sometimes spelled Kadenaku. The first two syllables are probably Kanda, or Kanta, 'a thorn.' See also *Catevala, Cumari, Kenda* and *Kunvar.* The Persian and Arabic *Kadhi* (Qazi) and *Kadi* (Cadi) are perhaps glosses on the first component of the Indian name.
19	Cf. the preceding, and *Keura.*
20	We have not been able to discover the meaning of this widespread name,—but see *Kalbanda* and *Klamanda.*
11, 71, &c.	Cf. the preceding. Many changes have been rung on the spelling.
20	= the preceding.
11, 71	No doubt a variant of *Kalabanda.*

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
KALABUNDA	Ainslie Mat. Med. 1813	Telegu	S. India	Aloe sp.
KALABUNTHA	Liotard?	...	S. India (Madras)	*Aloe perfoliata*
KALA KANTALA	Balfour Cyclopœdia	Sanscrit	India	*Agave americana*
KALBANDA	Fallon (Dict.)	Hindi	India	*Aloe perfoliata?*
KALKALI	Do.	Hindi (Tirhut dialect)	N. India (Bengal)	Ditto
KALNAN	Dodge	...	India	*Agave* sp.
KALNAR	Liotard	Hindustani (Deccani)	India (Bombay)	Ditto
KAN	Dodge	Maya Indian	Central America (Yucatan)	*Agave rigida*
KANTALA	Pharmacog. Ind.	Sanscrit	India	*Aloe vera, Linn.*
KANTAL	...	Bengali	N. India (Bengal)	*Artocarpus integrifoltia, Linn.*

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
37	It seems almost as if in Telegu *Kalabanda* were the true aloe; in Tamil the *Agave*.
37	The first fibre products from 'Kalabuntha' sent to Europe from Madras (by Dr. Hunter) were ascribed to a true aloe. Later *Agave* fibre was sent from the same quarter under the same name of *Kalabantha*.
20	Cf. *Kalabanda* and *Kuntala*.
20, 37	'Kal' in 'Hindi,' etc. '=evil,' 'bastard,' 'degenerate,' etc. 'Banda' in Hindustani=parasite or epiphyte (e.g. Loranthus). See also *Klamanda*, of which possibly *Kalabanda* may be a corruption.
20, 37	See the preceding.
...	Perhaps taken from the following.
...	Cf. *Kalbanda*, *Kalkali*, and see *Nar*. Reported from the S. Mahratta country.
67	Evidently one of the *Euagaves* of Yucatan or a *Furcraea*.
37	An epithet of the true *Aloe* meaning '*thorny*.' Cf. *Catevala*, *Kadanaku*, etc., and see *Cantala*, *Kathal*, *Kuntala* and the following.
	See *Kathal*. This was also possibly a *Kantala*. The jack fruit is perhaps only introduced in N. India, but very anciently. The pronunciation and spelling vary: this has both the vowels fairly broad (accented).

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Kantala (1)	Stewart (Panjab Plants, p. 232)	Panjabi?	Panjab?	*Agave Kuntala*, Roxb.
Kantala (2)	Watt E.D.	Sanscrit	India	*Agave vivipara*, Linn.
Kantala (3)	Prain (Vegetation of Hughli-Howrah, and 24-Parganas)	Bengali	Bengal	*Agave Vera Cruz*, Mill.
Karao	Moerman, (The Ramie etc.)	Japanese	Japan	*Boehmeria* sp.
Karaoata	De Laet (in Sloane)	Carib?	Antilles	*Ananas sylvestris Brasiliana*, Herm.?
Karata	Du Tertre (in Sloane)	French	Do.	Ditto
Karata Sauvage	Do.	Do.	Do.	*Aloe Yuccae foliis*

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
54	This native name is not current in N.-W. India so far as we know, and was taken possibly from Roxburgh, whose specific name is wrongly quoted. Roxburgh's own spelling of it varied; in the Hort. Beng. it is *A. Cantala:* in the Flora Indica *A. Cantula.* We have followed the former for our (E), of which we have seen no Panjab examples except from the Kangra Valley and neighbourhood. Mr. Burkill, however, has observed it in the Satlaj basin from Suket to below Simla.
24, 51, 57, 60.	Under Part II it has been explained why we do not follow Wight in identifying his plant with the *A. vivipara* of Linnaeus. As regards 'Kantala,' Linnaeus most certainly never saw *Agave* (J) (*i.e., Wight's* vivipara), nor probably did Roxburgh, and Roxburgh's species, which is our (E), is altogether different. In his first accounts (which give a high place to the fibre), Roxburgh wrote of it as a new species. Later he seems to have referred it to '*A. americana.*' Ultimately it was published as *A. Cantala.* Whether it was the *Kantala* of the *Asiatic Researches* is doubtful. Voigt and Colebrooke very possibly supposed that Wight's plant was a native—and the original *Kantala,* but the plant which Roxburgh identified with Rumpf's illustration is our *Agave* (*E*) and not Wight's *vivipara.* From an economic point of view the distinction is material, for the leaf of (J) has been found to be too short for fibre extraction on a commercial scale, whereas fibre prepared from (E) ranks in the market. The *A. vivipara* of Baker in the *Gardener's Chronicle* is by description *A. vivipara* of Wight not of Linné but plants now in cultivation at Kew ticketed *A. vivipara* belong to *A. Cantala* Roxb.
10, 12	Our (D) = *A. Vera Cruz,* Mill. '*A. lurida*' of the Sibpur Garden (*not* of Gawler and others) may have been the plant identified by the Pandits who assisted Sir William Jones and his contemporaries in their endeavours to identify plants mentioned in the Hindu Classics and Pharmacopœia; but we do not think it is the fibre plant on which Roxburgh reported, which was, we consider, Agave (E), i.e., *A. Cantala,* Roxb.
...	Cf. *Carao, Carow,* and *Caraguata* (1).
22	Sloane goes on to identify this with the Jamaica *Penguin.* Hermann's plant was very likely the 'Bromelia sylvestris' of later authors; but if it yielded fibre would more likely be *Karatas Plumieri,* Morren, than *Bromelia Pinguin,* Linn. See *Bromelia pita, Caraguata-acanga* and *Caraguata* (1), also *Istle* (1) and (2) and *Silk grass* for the confusion under this set of names of *Bromeliaceous* fibre plants with *Furcræa* and *Agave.*
37, 41	'A fruit,' and therefore no doubt rightly identified by Sloane with the Jamaica 'Penguins.'
37, 41	A 'pite' without prickles which Sloane thought might be Hernandez' *Pati* and Oviedo's *Henequen* (i.e., a *Furcraea* or a *Sisal Agave*) See *Pite* also.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Karoon Kuttalay Nar	Madras Exh. Cat. 1857	Tamil	S. India (Madras)	*Agave* sp.
Karun Kathali	Govt. Botanist Madras	Do.	S. India (Dindigul)	**Agave Vera Cruz**, Mill.
Karun Kattalai	Do.	Do.	S. India (Coimbatore, Tinnevelly)	Ditto
Katar	Fallon (Dict.)	Panjabi	Panjab	*Artocarpus integrifolia*
Kathal	Do.	Hindi	N. India	Ditto
Kathalai	Watt E.D.	Tamil	S. India	*Agave americana*, Linn.
Kathalay	Balfour (Cyclopædia)	Do.	Do.	*Agave vivipara*, Linn.
Kathali	Govt. Botanist Madras	Do.	S. India (Cuddapah, Dindigul)	**Agave Vera Cruz**, Mill.
Kattal	...	...	...	...
Kattala	Govt. Botanist Madras	Telegu	S. India (Bellary)	**Agave Vera Cruz**, Mill.
Kattalay	Ainslie Med. Mat. (1816). —1-10.	Tamil	S. India	*Aloe perfoliata*, Linn.
Kattali	Cameron (Bangalore Cat.)	Canarese	S. India (Mysore)	*Agave americana*, Mill.

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
19, 37	Exhibited in 1855 from the same district, but source of fibre not named. Cf. the next.
10, 71	= *Agave* (D).
10, 71	= Do.
...	See *Kathal.*
...	Pronounced in Bengal with the last vowel broad (See *Bengal Plants*, p. 971). This has many forms, *e.g.*, Kathail, Kathair, Kath and *Katar*. See also *Kantal*. The allusion is of course to the spine of the Jack fruit. Fibre is said to be got in Burma and N. India from the bark of *Artocarpus* spp. (See also *Trap-tree.*) The Malayan name from which 'Jack fruit' is derived is applied also to the Pineapple (*Kapa-jakka*), while from old works on India it would seem that the 'Jakka or 'Yucca' of Malabar was an *Aloe* or even possibly an *Agave*. '*Kantala*' was perhaps originally an epithet of *Artocarpus integrifolia*, Linn., which must have been known long before any *Agave* had reached India. The difference of the 't' in the two words does not involve any radical distinction, and the current use of *Kantal* is for *Artocarpus*.
20	Usually in combination with a qualifying term, such as 'Anai,' etc. Cf. *Kattali*, etc.
20	Cf. *Cathaulay, Country aloe* (1) and (2) and *Kattali*, but also *Kattalay*.
10, 71	Cf. *Kathali, Kattala, Anai Kattalai*, etc.
...	See *Kathal.*
10, 71	Cf. *Kathali* and see also *Kantala* and *Kathal.*
37	Cf. the next, also *Kathalay, Kathali*, etc.
20	Mr. Cameron gives the Carnatic name for 'Aloe litoralis' as *Lolisaragida*.

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
KATTALI FIBRE	Madras Exh. Cat. 1855	English	S. India (S. Arcot)	*Agave* sp.
KATTALY	Do., 1857	Canarese ?	S. India (Madura)	*Agave* sp.
KEA	Roxburgh (Hort. Beng.)	Bengali	Bengal	*Pandanus odoratissimus* R.
KEA KANTA	Do.	Do	Do.	*Pandanus foetidus* R.
KENDA	Watt E.D.	Hindustani	Do.	*Pandanus odoratissimus*, Willd
KERATTO	...	Spanish	W. Indies	**Agave** sp.
KETAKI	Fallon (Dict.)	Pali	S. India	*Pandanus odoratissimus*
KETGI (1)	Do.	Hindi	India	Ditto
KETGI (2)	Watt E.D.	Do.	Central India (Deccan)	*Agave americana*, Linn.
KETKI (1)	Fallon (Dict.)	Do.	India	*Pandanus odoratissimus*
KETKI (2)	R. E. P., Govt. of India.	Do.	Central India (Berar)	**Agave Wightii** (of this Bulletin)
KETKI (3)	Liotard	Guzerati	Western India (Kathiawar)	*Pandanus odoratissimus*
KETUKEE	Roxb. (Hort. Beng.)	'Sanscrit'	India	Ditto
KEURA	Do.	Bengali	Bengal	Ditto
KEURKANTA	Do.	Hindustani	Do.	Ditto
KHETKI	Watt E. D.	Do.	N. India (Oudh)	*Agave vivipara*, Linn.
KIKANORA MATHA.	Govt. Botanist Madras.	Telegu	S. India	**Agave Vera Cruz**, Mill.

* An unpublished coloured drawing however made under the supervision of Buchanan (afterwards Hamilton) and now preserved at Kew, gives *Ketkei* as a vernacular name for a plant which is unmistakeably A. *Cantala*, Roxb.

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
19, 37	Cf. *Kathalay, Kathali, Kattalay,* etc.
19, 37	Do. Do.
...	Cf. *Ketaki, Keura, Kia, Koyan,* etc., and the next. Dodge spells this '*Keya.*' Called '*Kekel,*' '*Keker*' in Malaya.
...	For other names and scientific designations see Bengal Plants, p. 1101. Species of *Pandanus* are native in different parts of India, but those usually found in hedges or near temples in Bengal were probably imported from Malaya.
...	See *Palkande.* Probably a dialectic form of *Kanta.*
41, 52	Originally *Caraguata* (which see) but in Jamaica and other West Indian Islands now commonly applied to species of *Agave* and *Furcraea.*
...	Cf. the next, *Ketki, Ketukee*—and *Ketgi.*
...	Cf. the preceding and following.
20	See the next also, and *Banskeora.*
..	Cf. *Ketaki,* etc.
...	In the drier parts of India *Agave Wightii* (J) has made itself at home, and has acquired fairly constant local names, such as *Ketki* and *Banskeora.**
...	Fibre of leaves proposed as a paper stock; identification doubtful, possibly an *Agave.*
...	= *Ketaki.*
...	Cf. *Banskeora*; also *Mellis kyre,* etc. : *Keura* is the ordinary N.-W. Indian name for *Pandanus.* Forskohl (See *Kadi*) notes that a plant which was evidently a Pandanus was grown in S. W. *Arabia* in his day and called Keura by the 'Banians' (*i.e.*. Hindu traders).
...	See *Bengal Plants,* 1101, where '*Keorkanta*' (Bengali) is given for *P. foetidus,* Roxb.
15	Probably (J) brought from the Deccan and planted about forts and settlements by the *Rohillas,* as in the *Ganges Doab.*
10, 71	'*Matta,*' '*Motta*' or '*Matha*' is frequent in the names of *Agaves* in S. India (from Mata=Devi?); for '*Kanora,*' cf. *Kanur, Kunvar;*— and for the first syllable *kea, ghikomar,* etc.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Kithali nara Matha	Govt. Botanist Madras.	Telegu	S. India (Ganjam)	**Agave Cantala**, Roxb.
Kithanara	Do. ...	...	S. India (Godavari)	Ditto
Kitki	Stewart (Panjab Plants, p. 232)	Hindi?	Panjab	*A. Cantala*, Roxb.
Kitta Nar	Madras Exh. Cat. 1857.	Telegu	S. India (Rajahmundry)	*Agave* sp.
Kittanara	Balfour (Cyclopædia)	Tamil	S. India	*Agave Cantala* Roxb.
Kittanara Mattalu	Govt. Botanist Madras.	Telegu	S. India (Godavari)	**Agave Vera Cruz**, Mill.
Kittaulee Nar	Madras Exh. Cat. 1857	Tamil	S. India (Vizianagram)	*Agave* sp.
Klamanda	Do.	Canarese?	Do.	Do.
Koomaree	...	Hindi	India	**Aloe** spp.
Koyan	Mukerji (Descr. Cat. Ind., Prod. Amsterdam etc., 1883)	Bengali	Bengal	*Agave americana*
Kuntala	Roxburgh (Hort. Beng.)	Sanscrit	India	**Agave Cantala**, Roxb.
Kunwar	Ainslie	Deccani	Central and Western India	*Aloe* sp.
Kuttalay	Ainslie Mat. Med. (1826), ii—160	Tamil	S. India, Madras	Do.

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
11, 71	Cf. the preceding, but 'Nara' is here perhaps 'fibre'.
11, 71	Cf. *Anakyitha.*
24, etc.	Stewart cites 'A. vivipara Royle' as a synonym, by which he meant possibly A. vivipara of *Wight* = (J) : but from a coloured drawing made under the auspices of Buchanan (afterwards Hamilton) preserved at Kew it appears that the plant known to Buchanan as '*Ketki*' was A. *Cantala.* Roxb.
71	Cf. the next, also *Kithanara.*
71	This is probably correct : Cf. *Kithanara.*
	Cf. *Kithanara,* etc.
10, 71	The catalogue attributes this fibre (sent by H. H. the Raja of Vizianagram) to an *Agave,* but it may have been taken from *Sansevieria.* The original Coromandel *Kithanara* was most likely A. *Cantala,* Roxb. which is more like a screwpine in the leaf than the other Indian species.
10, 71	Cf. *Munda* and *Kalamanda,* also *Kalabanda.*
37	See '*Cumari*'. The correct transliteration is *Kumari.*
20	Probably from the local name of *Pandanus fascicularis,* Lam. (Bengal Plants, p. 1101).
53, 54, 60	Cf. *Kantala* and *Cantala.*
37	In Guzerati 'Kuvara' or 'Kumara'.
...	Cf. *Bara Kanwar, Catecomer,* etc.
37	Cf. Catevala (under *Catecomer*), *Cauthaulay, Kattali, Kathalay,* etc., Ainslie puts the accent on the second vowel, and says that *Kuttalay* is 'Aloe perfoliata' (Mysore, etc.) 'Aloe littoralis' being properly '*Sirooghoo Kuttalay*'. See *Small Aloe* also.

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
KUTTHALAI	Brown and Wood	Tamil	S. India, Madras	*Aloe* sp.
KUAR GANDAL	Stewart (Panjab Plants, p. 232)	Panjabi	Panjab	*Aloe indica*, Royle
KYRE	Ainslie	Deccani	S. India	*Agave vivipara*, Linn.
LAFFA	Et. de Flacourt (in Sloane)	French	Madagascar	*Aloe , Yuccae foliis* ?
LAL MURGA	Piddington (Index)	Bengali	Bengal	**Celosia cristata**, Linn.
LANGUE BOEUF	Dodge	French	Antilles	*Furcraea cubensis*
LARGE ALOE FIBRE	Mad. Exh. Cat. 1855	English	S. India (Tinnevelly)	*Agave sp.*
LECHEGUILLA	Miss. Garden Rept., 1896 (also Dodge, Rose and others)	Spanish	Central America (Mexico)	**Agave** spp.
LIDA BOAYA	Rumpf	Malay	Moluccas, &c.	**Aloe** sp.
LILY FIBRE	Indian Agriculturist, Dec. 12, 1891	English	England	*Agave americana*

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	REMARKS
37	When used without any qualifying addition this seems generally to refer to *Aloe* and not *Agave;* but see *Kattali.*
37	Means "Thorn—onion:" the first part is=*Kunwar,* &c., above.
19	'Kyre,' probably is from *Keora,* or *Keura,* usually in N. India given to Pandanus. Perhaps this word is the same as 'coir' and means simply 'fibre.' Old writers speak of a *Quera'* as yielding fibre near the Portuguese factories. Ainslie attributes his 'kyre' which was a 'strong and useful cordage' to an *Agave,* most likely (J) of this Bulletin. See also *Mellis Kyre* and *Kadi.*
1	This looks like one of the African names of *Sansevieria* (at Angola Ifé=*S. cylindrica,* Bojer) with the French definite article prefixed. Flacourt was Governor of Madagascar in the 17th century, and in Bojer's time *S. cylindrica* was cultivated in the Ile de France as a native of Zanzibar. See also *Anana de pite, Bowstring Hemp* and *Pitte Ahetz.*
...	Spon states that a valuable fibre is obtained from a *Celosia* in India, but, as Sir George Watt observes, 'confirmation of this fact is much required.' *Celosia cristata,* Linn. is cultivated in Bengal as an ornamental plant. *Celosia argentea,* Linn. is an abundant weed with autumn crops throughout N. India. Spon's authority may have been misled by a vernacular name. Cf. *Murga, Moorva,* &c. *Lal Murga* evidently means 'Red Cockscomb.'
18, 19	See *Cabuya, Henequen* (1) and (2), *Mauritius Hemp,* &c.
19, 20	Probably (D).
23	Applied in Northern Mexico and parts of Arizona, Texas, &c., to the 'cabbage' *Agaves,* several of which yield a short stapled fibre (see *Tampico fibre*), and are otherwise of economic interest. Most of these belong to the *Littaea* section of *Agave,* a section quite distinct from *Euagave* to which the *Sisal* group is referable. None are grown at present in India, except here and there in gardens, but in the drier provinces they would probably succeed as a source of *Brush fibre.* Dr. Trelease informs us that Lecheguilla means 'lettuce.'
37	'Crocodile's tongue,' as distinguished from '*Nana boaya'* (crocodile pineapple) which we take to be *Agave Cantala* Roxb.=(E) or a very closely allied species. Blanco gives 'Lidang bonya' as a name of *Aloe* in the Philippines.
23	The article quoted states that this is a white lustrous and superior kind of fibre used in brush making, which is obtained from *Agave americana* in Mexico, and might be abundantly produced in India; but see *Aloe fibre, Mexican fibre* (1), and *Tampico fibre.*

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Long Aloe (1)	Rice (Mysore Gazetteer)	English	S. India (Mysore)	**Agave** sp.
Long Aloe (2)	Madras Exh. Cat. 1855	Do.	Ditto	*Agave vivipara*
Macembira	Martius	Tupi Indian	S. America (Brazil, &c.)	*Bromelia laciniosa*, Mart.
Macoztic Metl	Hernandez	Aztec	Central America (Mexico)	**Agave** sp.
Madre Pulque	Martius (and others)	Spanish	Ditto	**Agave atrovirens**, *Karwinski* and other species
Magay	Edwards	Filipino	Philippines	**Agave** sp.
Maguay	H. B. K.	Do.	Ditto	*Agave americana*
Maguay de Cocuy	H. B. K.	Spanish	S. America (Venezuela)	*Yucca acaulis*, H. B. K.
Maguay de Cocuyza	Do.	Do.	Ditto	Ditto
Magüe	Edwards	Filipino	Philippines	**Agave** spp.
Maguei	Jacquin (Sel. St. Amer.)	Spanish	Cuba	*Agave cubensis*
Magueis	Hakluyt	Do.	Central America (Mexico)	**Agave** spp.

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
55	Probably Agave (J) *i.e.*, our *A Wightii* (See the next and *Short Aloe*).
55	Ditto ditto ditto.
22	Martius says Maca='hammock' and Embira='string'. *Bromelia laciniosa*, Mart. is believed to be=*Karatas Plumieri* Morren, for which see *Istle* (1) and (2).
33	See *Coztic Metl.*
64	The thickened dregs of the sap of the *Pulque Agaves* left in the 'cajete' or cavity of the plant,—added to the sap after it has been drawn off to promote fermentation.
23	=*Maguey.*
23	Humboldt in his own writings has noted clearly that the *Maguey* he saw in Mexico was planted or cultivated, and that there were several kinds, not belonging to the genus *Agave* exclusively. Kunth in dealing with the botany of Humboldt's travels described only one *Agave* which he referred (erroneously as appears from the works of Rose and others) to the *A. americana* of Linneaus (See also *Pulque, Tequila,* &c.) and stated that this occurred throughout Central America as far N. as Florida. The native place of *A. americana* Linn., is not known, but it seems doubtful if it is found except in gardens even in Mexico. See also *Maguey.*
22	So called at *Caraccas* (at that time) and used for fibre.
22	At *Cumana,* and used similarly. Cf. *Coquise.*
23	This is a provincial spelling in the Philippines. Other versions in the same Islands are *Amaguey* (which see), *Maguie, Maguey,* and *Magui.* The plant or the fibre is called also in some parts *'pita.'* Cf. also *Magui.*
18, 19	*Maguei* appears in Hernandez both for the cider 'Metl,' and for a species which does not seem to be a fibre *Agave.* Jacquin says his Maguei is common in Cuba and used as a detergent. It is a *Furcraea.*
33, 34	The Maguey is so called by early English travellers. Cf. *Magueyes* (2).

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Maguey (1)	Oviedo	Spanish	Antilles	*Agave vivipara*
Maguey (2)	Do.	Do.	S. America	*Agave americana*
Maguey (3)	Peter Martyr (in Martius, also in Danielli)	Haitian	Antilles (Haiti)	Agave sp. ?
Maguey (4)	Squier	Spanish	Central America (Mexico)	*Agave mexicana*
Maguey Blando	Dodge	Do.	Ditto	*Agave Salmiana*
Maguey Cimarron	Schiede (in Linnaea)	Do.	Ditto	*Agave americana*
Maguey de Tequila	Dodge	Do.	Ditto	Ditto
Maguey Manso	C. Beni (in Danielli)	Do.	Ditto	*Agave Maximiliana* P. & I Blasquez.
Maguey Manso fino	Dodge	Do.	Central America (District of Mexico)	*Agave americana*
Magueyes (1)	Oviedo	Spanish	Central or S. America	...

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
45	Martius says that there is a drawing with the supplement of *Oviedo* which shows as the original *Maguey* a smaller plant than either *A. americana* or *Furcraea cubensis*, and suggests that it may have been *Agave vivipara*, but by this he did not mean perhaps *Agave Wightii* (J) of this Bulletin.
23	Oviedo quoted by *Martius* (Beitrag, p. 10) says that on the mainland in the country of *Araya* there is a nation on whose lands the Maguey is so abundant that they are called 'Magueyes.' The allusion is perhaps to the Maya plantations. From a recent work on Costa Rica reviewed in *Nature* No. 1846, dated 16th March 1905, it appears that parts of the Isthmus were held in the 16th century by a civilized race called *Mangue*.
33	The first mention of Maguey is by this author who says the ancient inhabitants of Haiti had a sort of drum or cymbal which was called Maguey. Martius thinks that these drums may have been made from the scape of an *Agavea*.
49	Squier rightly distinguished the Pulque Agave from the so-called '*A. americana*,' but *Agave mexicana* of Lamarck is a misnomer, and the *Agave mexicana* of Moore (in Gardener's Chronicle) is more probably Agave (F) as to which see '*Tequila*'. Bates (in Stanford's Compendium) also calls the Maguey *A. americana* and supposes that there is only one species throughout the 'Tierra Templada' from Zapotlan eastwards.
9, 71	*A. Salmiana*, Otto is commonly identified with *A. atrovirens* Karwinski, which is said to be one of the chief Pulque Agaves in the State of Mexico. A large *Agave* is met with in gardens on the Continent of Europe under the name of *A. Salmiana*. Our Agave (C) appears to be near this species.
53	Meaning 'Wild Maguey.' Travellers have frequently reported finding '*Agave americana*' wild, but truly wild examples of Linnæus' *A. americana*, of the Pulque Agaves, and of *A. sisalana*, if they exist, remain to be discovered.
19, 20	See *Tequila*.
74 (footnote)	See *Maguey mansofino*. Beni says the scientific name is 'Agave Massimilianaea.'
19, 20	Meaning 'fine cultivated Maguey,' to distinguish a plantation kind from spontaneous hedge *Agaves*. It is unlikely that the term is restricted to the one species. A Mexican writer professes to have distinguished over 16 sorts in the Apam tract alone which is the princial Pulque-making area. He must have taken count of very fine distinctions, but even so the statement is significant.
.....	An Indian tribe of Central America in the 16th century 'named from the Agave.' See *Maguey* (2), but cf. the next also.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Magueyes (2)	Zurita (in Martius)	Spanish	Central America (Mexico)	...
Magui	M. Blanco (Flora de Filipines s.v. Agave)	Filipino	Philippines	*Agave americana*
Magweiz	Hakluyt, etc.	Spanish	Central America (Mexico)	**Agave** spp.
Malai Kathalai	Govt. Botanist Madras	Tamil	S. India (S. Arcot)	**Agave Vera Cruz**, Mill.
Malai Kattalai	Ditto	Do.	S. India (Tanjore)	Ditto.
Malay Kuttalay Nar	Ainslie	Do.	S. India	*Agave vivipara*, Linn.
Malino	Coulter	Spanish?	Hawaii	*Furcraea* spp.
Manchi Kalabunda	Govt. Botanist Madras	Telegu	S. India (Cuddapah)	**Agave Vera Cruz**, Mill.
Manguai	Ditto	Spanish	America	**Agave** spp.
Manguei	Linschotten (in K. Bauhin)	Do.	Do.	Ditto
Mangurie	Pedro Ordonnez (in Sloane)	Spanish	America	*Aloe secunda?*
Manila	Kew Sel. Papers (Addl. Ser. II), LXVI	English	Turks Islands	*Furcraea cubensis.*
Manila Aloe Fibre	Kew Sel. Papers (Addl. Ser. II), LXII	Do.	Philippines	*Agave vivipara* L.
Manjie	Mad. Exh. Cat. 1857	Deccan	India (Hyderabad)	*Agave sp.*
Manjina Naru	Cameron (Bangalore Cat.)	Canarese	S. India (Mysore)	*Sanseviera Zeylanica*, Roscoe

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
...	Maguey farms or plantations were so called by the early Spanish invaders of Mexico.
20	Mr. Edwards notes that this form of the name survives locally. The common naturalized Agave in the Philippines proves to be *A. Cantala*, Roxb.
33, 34	Cf. *Magueis* and *Magueyes* (2).
10, 71	=Agave (D.). Meaning of 'Malai' not known.
10, 71	Ditto ditto
19, 20	Perhaps Agave (J).
18, 19	Brought from America presumably.
10, 71	Agave (D). Cf. *Manjina Nar, Motta Munjee Nar*, etc.
23	A variant of *Maguey*.
23	Ditto.
40	As Sloane states that *Cabuja* was another name, the plant was doubtless a *Furcraea*.
...	See also Silk grass (4).
62	The naturalized Philippine species proves to be *A. Cantala*, Roxb.
..	Cf. the next and *Munjee Nar*.
1	(Misprint in the botanical name altered.) Cf. *Motta Munjee Mar* and *Manchi Kalabanda*.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Maquey	Booth (in Kew Sel. Papers Addl. Ser. II=LXIV)	Spanish	Central America	**Agave** spp.
Marool	Mad. Exh. Cat. 1857	Telegu (and Tamil)	S. India	*Sanseviera Zeylanica*
Marul (1)	Watt E.D.	Hindustani	India	*Sanseviera Zeylanica*, Wild.
Marul (2)	Govt. Botanist Madras	Tamil?	S. India (Tanjore)	**Agave Vera Cruz**, Mill.
Mast	Miss. Gard Report 1896 etc.	English	N. America	**Agaveae** spp.
Mauritius Hemp	Kew Sel. Papers (Addl. Ser. II) LXV, LXVI	English	Cosmopolitan	**Furcraea** spp.
Maurvi	Asiatic Researches IV. 271.	Sanscrit	India	*Aletris*, Linn.

Bulletin, page	Remarks
...	A variant of *Maguey*. If this represents the actual sound, the original is possibly 'Ma-qui,' and the second syllable = *Qui*,—*Quil* (q.v.)
1	'Kattalay Nar' from Travancore at the same exhibition was apparently *Sansevieria*, in which case the same *local* name would cover *Aloe*, *Agave*, and *Sansevieria*; but perhaps there has been a mistake in ticketing.
1	This (Marul) is the correct transliteration.
11, 71,	Cf. the preceding and *Marool* also.
4-6	Applied in the U. S. A. to the scape or 'pole' of *Euagave* and *Furcraea*.
18-19	It is usual to ascribe this commercial fibre to *Furcraea gigantea* Vent., but the plants grown in S. India do not always, or even ordinarily, answer to that species as defined by Mr. Baker. From the authority quoted by us it is clear that several species of *Agave* and *Furcraea*, to say nothing of *Sansevieria*, have run wild in the Mauritius, while the "Mauritius Hemp" that comes from St. Helena is not perhaps from a *Furcraea* at all, but from the St. Helena *Agave*, (*A. augustifolia* of the Buitenzorg Garden) which may be Agave (E) *i.e.*, *Roxburgh's Agave* = *A. Cantala* of this Bulletin. Wight's S. Indian *Furcraea* (see Part I, p. 19) and *Cajun* above, also the '*Agave viridis*' of Madras Exhibition Catalogues are perhaps *Furcraea cabensis* Ait. which is said to be the best fibre *Agavea* of the West India Islands. Different *Furcraeas* thrive throughout the moister parts of India, and the fibre is being brought into use in N. India also. Certain of the species tend like *Agave* (G.) (*Sisal*), and the Honduras Silk Grass plant [see *Istle* (1) and (2) and *Silk Grass*] to lose the side-thorns (prickles) of the leaf in cultivation. The true *Agave foetida* of Linnaeus grows in the Sibpur Garden, but we doubt its identity with the *Mauritius Hemp* plant of S. India. It seems to be common along the coasts of the Isthmus and the Orinoco region where it yields 'Cobblers thread.'—See *Aloes Vert*, *Cabuya*, *Hayti Hemp*, *Pite d'Haiti*, *Piet*, *Pita de Zapateros*, &c.
1	The *Sansevieria* fibre or Bowstring Hemp of Roxburgh (to be distinguished from the *Marsdenia* or *Jiti* bast, said to be the 'Muruvu Dul' of Ceylon). The name of the plant as distinguished from the fibre was 'Murva' which survives in the Bengali *Murva* or '*Moarba*' (Bengal Plants, p. 1054). Species of *Sansevieria* were at first referred to the genus *Aletris*.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Maya	Squier	Cuban	Cuba	*Agaveae spp.*
Maypole	Hughes' Hist. Barbadoes (in Martius)	English	Antilles (Barbadoes)	*Furcraea cubensis*, Haw.
Mellis Kyre	Ainslie	Portuguese ?	India (Deccan)	*Agave vivipara*, Linn.
Mescal	Miss. Gard. Report 1896	Spanish	Central America (Mexico)	*Agave spp.*
Metl	Hernandez (and others)	Aztec	Central America	*Agaveae spp.* also *Bromeliaceae.*
Metl Cotli	Hernandez	Do.	Central America (Mexico)	**Agave** sp.

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
52	Squier does not say which of the 'varieties' of *Henequen* or *Pita* is so called in Cuba; if it be a *Furcraea* then the reference is perhaps to the mainland opposite where the Maya Indians had their *Henequen* plantations. Great weight attaches to the view that '*Furcraea cubensis*' was taken to the Brazils from the Antilles, but more recent evidence points to the home of the *Furcraeas* being rather in Panama and the neighbourhood. In Venezuela the 'Maya' *fruit* is said to be a Bromelia (*Bromelia chrysantha*).
18-19	Probably one of the fibre yielding *Furcraeas*. Peter Martyr's text suggests that the Caribs worshipped one or other of the *Agaveae*, and a *Euagave* was deified in Mexico. Cf. *Mast* and *Pole* also.
34	Ainslie gives this also as *Mellis Cour* and says it is a smaller sort of cordage or twine than 'Kyre,' but from the same plant. The 'Kyre' or 'Cour' is probably the 'Queura' (Keura) of Garcia and other early writers, which seems to have been applied both to *Pandanus* and *Agave*. 'Mellore' was a Portuguese name for certain species of *Pandanus* including *P. Leram*, Jones; but the 'Mellis' in Ainslie may refer to the flowers of an *Agave*. The Maguey was called 'Honey Tree' and 'Melt,' a false analogy being drawn between 'Metl' and words meaning Honey in the Romance languages of Europe; the flowers, of the Island species particularly, distil honey. (Cf., however, *Agua de Miel*).
22	A spirit made from certain of the *Euagaves* that grow in the State of Mexico. It is called 'Mexical' or Mescal apparently to distinguish it from '*Tequila*,' and '*Mescal de Maguey*' as against *Aguardiente* and *Sotol* (which see, also *Aguardiente* and '*Tequila*').
34	A general name for sundry plants of Mexico (in the wider sense) mostly of the genus *Agave*—usually employed by the Mexicans themselves with a qualifying term to denote the sort intended. When the Spaniards arrived from the Islands they applied to the chief kinds, and particularly the Pulque-yielding species, the name of Maguey, which they had found given to plants of the same class in the Islands (e.g., *San Domingo*), and the early writers appropriated the names *Metl* and *Maguey* to a more or less apocryphal 'tree' which flourishes to the present day in various kinds of literature. *Acosta's* history has given rise to the statement that Maguey in Mexican means 'tree of wonders.' He did not say so, nor is 'Maguey' Mexican perhaps originally, but his '*Arbor de las Maravillas*' is a more or less imaginary plant gifted with the qualities of several different species.
33	See *Coztic Metl*.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Mexcal Metl	Hernandez	Aztec	Central America (Mexico)	**Agave** sp.
Mexican Aloe	Spon	English	Europe	**Agave** spp.
Mexican Aloe Fibre	Mad. Exh. Cat. 1857	English	South India	*Agave* sp.
Mexican Fibre	Dodge	Do.	N. America	*Agave heteracantha*
Mexican Fibre (1)	Booth in Kew Bulletin Sel. Papers (Addl. Ser. II) LXIV	Do.	Europe and America	**Agave** spp.
Mexican Fibre (2)	Spon	English	England	*Nidularium Karatas*

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
23	Hernandez' figure represents a small 'cabbage' Agave, rather like some of the ornamental kinds seen in gardens, but unknown in India; it seems near *Agave Shawii*, Engelmann, of California, but it may not be an *Euagave*. Its leaves were eaten by the natives as several species allied to *A. Shawii* are to this day by the Apaches, etc., who also prepare an intoxicating beverage from the Mescals of their country but by a different method from that of the South. Zuccarini identifies Hernandez' picture with his *A. heteracantha* (usually regarded as a chief source of *Tampico fibre*) but it looks like certain species since discovered in North Mexico.
20, 49	Given to the '*Agave americana*,' which has been supposed to yield so many economic products. (See *Maguey, Pulque*, &c.). About Mexico itself the local *Agaves* are chiefly valued for the sap, while the best fibres, those of Yucatan, come from altogether different species. The name perhaps originated with the '*Agave mexicana*' of the Encyclop. Meth. which is unmaintainable. See also *Pite d' Haiti* and *Tequila*. Mr. Gamble's '*A. mexicana*,' = (F) of this Bulletin, from North India is an altogether different thing from what Spon intended.
49	Also shown (from Madras) in 1857. See the preceding : several species no doubt contributed.
22, 23	Mr. Rose has shown recently that the botanical identity of the plants which yield this, also called (from places of export) 'Tampico fibre,' 'Matamoras fibre' &c., is as yet very doubtful. See the next also.
23	None of the *Agaves* that yield the Brush-making staple so largely exported from ports on the Gulf of Mexico are naturalized or grown on a commercial scale in India, and most of them belong to a different group from that which embraces the Pulque Agaves, with the Sisal Hemp and other long-stapled fibre plants of the order. Mr. Booth's account of the *Tampico fibre* is very clear as regards the trade from Northern Mexico where this class of fibre constitutes the local 'Istle' as contrasted with the *Istle* of the coast from Vera Cruz eastwards, which is from a different natural order. In India, however, good brush fibre has been taken from one or more of the naturalized *Euagaves*. (See *Aloe fibre* (3), *Mexican Whisk*, *Lily fibre* and *Reju*).
17	This is the *Bromelia pita* (for which see above) or '*Istle*' of certain parts of Central America, and altogether different from the preceding, as well as from the *Mexican Whisk* used in brush-making. It has been confused in America and elsewhere with '*Tampico fibre*'; also with the *Sisal Hemp* (See *Sisal Hemp*, *Istle*, *Ixtle* and *Silk Grass*), and in India with *Mexican Whisk*, which see, also the preceding.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Mexican Grass	Guilfoyle	English	Australia	*Agave sisalana*, Perrine (and allied species)
Maxican Hemp	Do.	Do.	Ditto	Ditto
Mexican Whisk	Kew Sel. Papers (Addl. Ser. II) LXXIX and LXXX	Do.	Europe and America	*Epicampes macroura*, Bth.
Mexocotl	Hernandez	Aztec	Central America (Mexico)	**Bromeliaceæ** Spp.
Mezcal (1)	Dodge	Mexican	Ditto	*Agave potatorum*, Zuccarini
Mezcal (2)	Jackson	Do.	Ditto	*Agave americana*
Mordha	R. E. P., Govt. of India	Bengali ?	Central India (Singhbum)	**Agave Vera Cruz**, Mill.
Motta Munjee Nar	Mad. Exh. Cat. 1855	Telegu ?	S. India (Madura)	*Agave* Sp.
Munda	Govt. Botanist Madras	Malayalam	S. India (Malabar)	**Agave Wightii** (of this Bulletin)
Munjee Nar	Mad. Exh. Cat. 1857	Canarese ?	S. India (Salem)	*Agave* Sp.
Muraga	Asiatic Researches, IV. 271	Hindi	India	*Aletris*, Linn.

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks.
13, 71	Dr. Guilfoyle says that this name is given to the *Sisal Hemp* fibre (from species allied to *Agave sisalana*, Perrine). It is also mentioned by Dodge in his valuable '*Useful fibre Plants of the World.*'
13, 71	This is no doubt the 'Sisal' introduced into Australia, which we believe to be Agave (G) of this Bulletin. See *Sisal Hemp* also.
...	This has been confused in India with *Mexican fibre* (1) (which see) and with the fibre locally obtained for brush-making purposes from species of *Euagave* naturalized in India. The American product is used as a substitute for fibre obtained in Europe from different *Gramineae* (true grasses) some of which are believed to be abundant in the Himalaya also. In America brooms are made also from an *Aristida* closely allied to species that abound in India, *e.g.*, the 'broom sticks' of the Madras Presidency.
32	Probably *Bromelia Pinguin* Linn. Given with the different kinds of *Metl*, but *not* as a fibre plant.
...	Mr. Rose observes that the *Pulque* and *Mescal* Agaves are of different species in different parts of Mexico. We do not know whether *Agave* (D) is one of them and cannot therefore say whether any have been naturalized in India. See also *Mescal*.
20	A version of *Mescal*. See also *Mescal Metl* and the preceding.
10, 71	Agave (D). Perhaps from the Bengali *Murga*, which see.
19, 20	Cf. *Manchi Kalabunda, Manjee, Munjee Nar*, &c.
15, 71	=Agave (J). Cf. *Kalamanda*. In the *Pharmacographia Indica* it is noted that the true aloe is called *Mandala* because of the scimetar-like leaves.
20	Cf. *Manjee, Motta Munjee Nar*, &c. Doubtfully the same as the 'Fibre of Mungie Plant' shown from Mysore in 1855.
1	Usually now spelled 'Murga.' There are many variations, such as Murva, Murgabi, Murgahvee, Moorgalie, Murva, Murba, Moarba, etc., but all usually refer to the Bowstring Hemp of Roxburgh—a species of *Sansevieria*. (In Ceylon, however 'Muruvu-dul' is said to be the bast of *Marsdenia tenacissima* W. & A.) As a name of *Sansevieria* this has found its way to the West Indian Islands. See *Maurvi* and the next also.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Murga (1)	Watt E. D.	Bengali	Bengal	*Agave americana*
Murga (2)	R. E. P. Government of India	Bengali	Central India (Singhbum)	**Agave Vera Cruz**, Mill.
Musambra	Pharmacographia Indica (III, 472)	Canarese	S. India	*Aloe* sp. [?]
Mutta Saga	Govt. Botanist Madras	Telegu ?	S. India (Ganjam)	**Agave Vera Cruz**, Mill.
Mysore Aloes	Pharmacographia Indica (III, 472)	English	S. India	*Aloe* sp.
Nanas Boaya	Rumpf	Malay	Amboyna (Malay Archipelago)	**Agave Cantala**, Roxb.
Nanas utan	Do.	Do.	Java, &c.	*Agave* sp.
Nannas Sabrang	Hasskarl (in 'Flora' II, 1842 p. 5).	Do.	Java (Sunda, &c.)	*Agave Rumphii, Hasskarl.*
Nar	Ainslie	Tamil ?	S. India	*Agave, &c.*
Nequametl (1)	Piso	...	S. America	**Furcræa tuberosa**, Ait.

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
19, 20	It is not quite clear whether the older authorities regarded '*Muraga*' or '*Murga*' as derived from *Murva*. The ordinary word for a gamecock is commonly derived through the Persian from the Arabic, but the wild bird is Indo-Malayan, and 'Murva' is given by some authors as a variant of 'Murgha,' so the word may be originally Indian. In N. India *Sansevieria* is as much an incomer as *Agave* (see Bengal Plants, 1054), and when *Murga* is applied in N. India to *Agave*, the allusion is plainly to the 'terrible spurs' as an American writer calls the spines of certain species. The habit of the leaves in *Sansevieria* may have earlier suggested a fanciful resemblance to the spur of a '*Bantam*.'
10, 71	See the last, and *Mordha*.
37	From the Arabic name of the true Aloe (see *Sabr*, etc.) and a common term for the *drug* throughout India, but in S. India locally applied also to a 'size' or 'glue' used in house decoration, much as gilder's size is used in Europe; it seems possible that this is obtained from an *Agave*. See *Mysore Aloes* also.
10, 71	Cf. *Motta Munjee Nar*, *Sagi Mutta*, etc.
...	A species of the true Aloe is understood to be common in *Mysore*, but the gilder's cement or size called 'Musambra' and said to be got from '*Mysore Aloes*' may be from an *Agave*. See *Hedge Aloe* (2) however.
24	Meaning 'Alligator Pineapple.'
26, 38, &	Meaning 'Wild Pineapple.' From Rumpf's account it would seem that more than one Agave had reached the Indian seas by the middle of the 17th Century, for the merits of the fibre were even then disputed. See also the next and the preceding.
58	Meaning 'Foreign pineapple.' *Hasskarl* himself later identified this with our Agave (E.)=*A. Cantala* Roxb. (see his *Neuer Schluessel* etc., 1866) and with the 'Nanas Costa' of Java mentioned by Miquel.
19	In several languages of S. India signifies 'cord,' 'thread,' or 'fibre.' In Hindustani it is a 'ligament' or 'sinew.'
18, 19, 53.	This is not Hernandez' *Nequametl* unless the figures have been misplaced by his editor: that looks like an *Agave* of the *Littaea* section, or, as Martius suggests, a *Dasylirion*.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Nequametl (2)	DeLaet	...	Antilles (Tobago)	*Furcraea cubensis* (f. Martius).
Nipi	Blanco (Fl. de Filip.)	Filipino	Philippines	*Agave americana*
Nita	Balfour (Cyclopædia)	Tamil	S. India	*Agave americana, etc.*
Nulkyitha	Govt. Botanist Madras	Malayalam?	S. India (Malabar Dist.)	**Agave Wightii** (of this Bulletin)
Octli	Hernandez	Aztec	Central America (Mexico)	**Agave** Spp.
Ocpatli	Gomara (in Martius, etc)	Do.?	Ditto	...
Offset	...	English	...	...
Palkande	Dymock (Marathi Names, p. 5)	Marathi	S. W. India	*Agave* Sp.
Palma	Booth in Kew Sel. Papers (Addl. Ser. II.) LXIV	Spanish	Central America (Mexico)	*Agave* and *Yucca* Spp.
Panam Katrazhi	Watt E. D.	Malayalam	S. India	*Agave americana*
Parkand	Ditto	Marathi	S. W. India	Ditto
Patha	...	Panjabi	N.-W. India (Indus Valley.)	**Nannorhops Ritchieana** Wendl.
Pati	Hernandez	..	Central America (Mexico?)	**Agave sisalana**, Perrine?

Bulletin, page	Remarks
18, 19	In editing Markgraf's work on the Brasils De Laet added *Nequametl* and a drawing of it as it grew in Tobago; this Jacquin has identified with his *Agave cubensis*, which is taken as = *Furcræa cubensis* of Ventenat.
20	This name is not in Edwards. Blanco says the outer leaves are smaller than in typical 'Americana,' meaning possibly *A. Cantala* Roxb.
20	Fibre of different *Agaveae*.
15, 71	Cf. *Ana Kyitha*.
21	Hernandez does not mention 'Pulque,' but gives *Octli* as the Mexican name, in his day, of the fermented liquor.
22	A herb which was mixed with the Agave mead to give it strength. Hernandez gives two different names for it. The practice continues, and it has been suggested, but probably without due ground, that the thorn apple (*Datura Stramonium*, Linn.) is employed.
5	A lateral shoot from the trunk or stock. In the Indian species of *Euagave* these are given off under ground, but the seedling develops at the surface.
19	Cf. *Parkand*. The 'Kand' is probably='Kanta,' a thorn. See *Kenda*, etc.
22	The earliest mention of the *Agaveae* in the Islands compares the *Maguey* to a palm, and the name is given in Tula, Zacatecas, and other tracts that supply Brush fibre, to different kinds of *Agave* and *Yucca*. Mr. Booth distinguishes the Palma loca, Palma real and Palma bareta. See *Mexican fibre*.
20	Cf. *Anaik Katrazhai*, etc.
20	Cf. *Palkande*.
...	See *Aloe* (2), *Pesh* and *Wild aloe*.
41	This does not seem to be either Spanish or Mexican, and no Aztec equivalent is given. The sketch suggests a *Furcraea*, *or* Agave (G) (the spineless form). It is called 'Metl lenissimum,' and is said to produce thread of the finest quality.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Pedda Kala-banda Nara	Ainslie	Telegu	S. India	*Agave vivipara*
Peemai Katha-lai	Govt. Botanist Madras	Tamil	S. India (Salem)	**Agave**, Sp.
Peetha Kala-banda	Ditto	Telegu	Ditto	**Agave Vera Cruz**, Mill.
Peetha Kala-bantha (1)	Drury (Useful Plants of India)	Ditto	S. India	*Agave vivipara*
Peetha Kala-bantha (2)	Brown and Wood	Ditto	Ditto	*Agave americana*
Pei Kathalai	Govt. Botanist Madras	Tamil	S. India (Madras, Tinnevelly)	**Agave Vera Cruz**, Mill.
Pemm	Dodge	Maya Indian	Central America (Yucatan)	*Ceiba pentandra*
Pemmanaw	Smith's 'Virginia' (Sloane)	...	N. America?	*Aloe Yuccae foliis*
Penca	Blanco, &c.	Spanish	Mexico, Philippines, &c.	**Agave**, Sp.
P'esh	Liotard	Beluchi	Beluchistan and Indus Valley border	**Nannorhops Ritchieana**, H. Wendl.
Petha Kala-bantha	Watt E. D.	Telegu	S. India (Bellary)	*Agave americana*, Linn.
Petre	Squier	Spanish	Central America (Guatemala) ?	*Yucca gloriosa*
Piante de cent anni	Danielli	Italian	Italy	*Agave americana*
Piet (1)	J. Commelin (Ed. Kiggelaar)	Dutch	Antilles	*Fourcroya foetida*
Piet (2)	Boerhaave	Do.	Ditto (Curacao)	**Furcraea**, sp.?

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
15, 16	Probably Agave (J).
7-8	We have not been able to determine the species, but this may be=Agave (A), the Burma species. (See *Ixtilli*).
10, 71	Cf. the following.
62	See *Pita* and *Kalabuntha*.
23	Probably Agave (D) is intended.
10, 71	Agave (D).
...	*Ceiba* belongs to a very different class of fibres from the *Agaveae* viz., the bast of the *Tiliaceae, Sterculiaceae,* etc., but see the next.
22	Possibly a *Yucca* or a *Manfreda*.
...	The outer leaves of *Euagave* as distinguished from the *Cogollo* or *Corazon*. Taken from the artichoke or thistle (cardon).
...	See *Aloe* (2), *Patha*, and *Wild aloe*.
20	Cf. *Peetha kalabanda*.
...	Dodge questions the identification.
20	i.e. *Century Plant*.
18, 19	'*Fourcroya foetida*' should be *Furcraea gigantea*, Vent. Pre-Linnaean botanists knew this as '*Aloe Americana folio viridi, &c.*' and this is probably the origin of '*Aloes vert*' and the '*Agave viridis*' of S. Indian Catalogues. Through the French '*pite*.'
18, 19	Boerhaave says that the thread was used by shoemakers in Curacoa, and that the name was given to the plant from the fibre. Cf. also *Pita de zapateros*, and *Pit*.

Glossary of local and commercial terms referring to the

NAME	Authority	Language.	Where used	Scientific determination
PINON	Squier	Spanish	Cuba	**Agave** or **Furcraea**, sp.
PINUELLA	Do.	Do.	Central America (Panama, &c.)	*Bromelia sylvestris*
PIT	Hermann	Dutch	Antilles	**Furcraea ?**
PITA (1)	Ditto	Spanish or Carib	Ditto	**Ditto**
PITA (2)	Martius	Carib	Ditto	**Agave** and **Furcraea**, spp.
PITA (3)	Ditto	Portuguese	Portugal	*Agave americana*
PITA (4)	Dodge	Spanish	America	**Agaveae**, **Bromeliaceae**, and **Palmae**, spp.
PITA (5)	Squier	Do.	Central America (Panama, &c.)	*Bromelia sylvestris*
PITA (6)	Kew Sel. Papers (Addl. Ser. II) XLVI	English	Turks Islands	*Agave rigida* var. *sisalana*
PITA BROMELIA	Ditto	Do.	Central America (Honduras)	*Ditto*
PITA DE ZAPATEROS	Seemann, Botany, Voyage of the Herald, p. 215	Spanish	Central America (Panama)	*Bromelia karatas*, Linn.

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	REMARKS
22	No doubt from 'Pina,' meaning 'wild pineapple.'
17, 22	'Pina' is the 'Pine apple;' Pinuella = *Karatas Plumieri*, Morr. probably. See *Pita* (3).
18, 19	Boerhaave (Hort. Ac. Lugd. Bat.) quotes Hermann's Par. Bat. Prodr. for *Pit*, *Pita*, as = an 'Aloe' (Agave). In the supplement to the Par. Bat. the spellling is 'Pitha' cf. *Piet*.
18, 19	Ditto ditto ditto.
21	Martius thinks *Pita* is the Carib equivalent of the Haitian *Henequen*, but leaves it in doubt to what species it was applicable. The Cabuja of the Spaniards was, he considers, a *Furcraea* and the Island *Maguey* was a comparatively small Agave (the '*Palms*' of Peter Martyr) used as a famine food (Oviedo). In another place he says '*Pita*' means 'pipe' (referring to the uses of tobacco in the W. Indies). Whatever its origin the name has spread very widely, and is incorporated with the languages of Southern India.
23	See also *Piteira*.
...	A general term on the Caribean coasts and Islands for the longer staples obtained from *Agaveae* and *Bromeliaceae*. In S. America it is replaced by *Caraguata* and *Ibera* with their variations. *Pita* is often used with a specific addition, *e.g.*, *Pita de corojo* (a Palm fibre), *Pita pinuella* (see the next), etc. In India it is restricted to *Euagave*.
17-22	In Panama and on the adjoining coast *Pita* is or was equivalent to *Istle* (1), or *Pinuella*, which is usually, we think, *Karatas Plumieri*, Morren. Cf. *Bromelia Pita*, *Istle* (1) and (2), *Pita Bromelia*, *Pinuella*, *Silk Grass*, &c.
...	*Agave sisalana*, Perrine—*i.e.* (G).
17-22	This fibre was highly reported on as a fine fibre by London firms many years ago. It is said to be produced from *Karatas Plumieri*, Morren (= *Nidularium Karatas*, Lem.) which we identify with a plant that thrives in the Sibpur garden. See *Istle* (1), *Bromelia pita*, and *Silk Grass*
17-22	Meaning "*Shoemakers thread.*" The leaves of this plant (says Seemann) furnish a strong fibre. He adds that the thread is extensively used by shoemakers. This is said of other 'Pita' fibres also by various authorities. *Bromelia Karatas*, Linn. is = *Karatas Plumieri*, Morren.

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
PITA FIBRE	Cameron (Bangalore Cat.)	English	S. India (Mysore)	*Agave mexicana*
PITA FLAX	Cleghorn (Forests and Gardens of S. India)	Do.	S. India	Ditto
PITA FLOYA	Dodge	Spanish	Central America (Costa Rica)	*Furcraea gigantea.*
PITA HEMP	Do.	Do.	America	**Yucca** and **Furcraea** spp.
PITA KALABANTHA	Balfour (Cyclopædia)	Tamil	S. India	**Agave**, sp.
PITE (1)	Du Tertre (in Sloane)	French	Antilles	*Agave* or *Furcraea* sp.
PITE (2)	Do.	Do.	Do.	**Tillandsia**, sp.
PITE D'HAITI	Fasio (in Journ. d' Agric. Trop. 1904, No. 41 p. 343)	French	France, Algeria, &c.	**Furcraea**, sp.
PITEIRA	Martius	Portuguese	Portugal and Brazil	*Agave americana*
PITHA KALABANDA	Balfour (Cyclopædia)	Tamil	S. India	*Agave vivipara* Linn.
PITHA KALABUNTHA	Watt E. D.	Do.	Do.	*Agave americana*, Linn.
PITTA	Humboldt, &c.	Spanish	America and West Indian Islands	Ditto

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
49	Mr. Cameron correctly separates the fibre Agave from the true *americana*, but as to the specific name see *Maguey* (4), *Mexican Aloe* (1), *Tequila*.
20	Fibre produced from Agave (D) or (J) or perhaps from a Furcraea.
18-19	*Furcraea*, as Mr. Hemsley has remarked, seems to replace *Agave* in the S. E. of Central America; in cultivation or as an escape it extends to the Orinoco region, northern Brazil (with Guiana), Cuba and the Antilles. There is much confusion as to species, but all are best suited to a gravelly soil, with a fairly moist climate. See *Cabuja, Mauritius Hemp, Piet*, &c.
22	We should think this covered *Agave* and certain *Bromeliaceae* also.
22	Cf. *Peetha Kalabunda*.
41	Du Tertre speaks of two spineless sorts of *Pite*, of which Sloane thought one might be his *Aloe Yuccae foliis* (*Henequen* of the Islands) but see *Piet* also.
...	An epiphyte belonging to the pineapple family. Cf. *Caraguata* IV.
33	See *Hayti Hemp*.
9	The garden plant seen in Brazil by *Martius* was probably one or other of the varieties of *A. americana* Linn *i.e.*, our (B). He says that he never saw *A. americana* naturalized in S. America.
15, 71	Perhaps Agave (J), but there is great confusion in the vernacular names recorded in most books from S. India.
10, 71	No doubt Agave (D), at least usually. See *Peetha Kalabanda*.
32	See *Pita* (4) above.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Pitta Ahetz	Sloane	Malagasey	Madagascar	*Aloe Yuccae foliis*
Pitte	Lamarck Dict, I. 53	French	France and French colonies	*Agave foetida Linn.*
Pole	...	English	Cosmopolitan	Agaveae
Pole plant	Miss. Gdn. Report, 1896	Ditto	America	Ditto
Pooty Mungem	Mad. Exh. Cat. 1857	Canarese	S. India (Mysore)	*Aloe* sp.
Pulque	Humboldt (and others)	Spanish	Central America (Mexico)	*Agave,* spp.
Pulque Agave	Squier, Bates, and others	English	Ditto	*Agave mexicana*

Agaveae (also certain other fibre plants) or to their products

Bulletin, page	Remarks
22, 37	We have not traced Sloane's authority (possibly an edition of De Flacourt's work), but the plant was perhaps a *Sansevieria,* or the *Bow-string Hemp* identified by *Martius* with 'Sanseviera lunginosa,' which appears however to be a *Cordyline* ; see *Bow-string Hemp* (3). On the other hand there is a *Furcraea madagascariensis* of Haworth ; what this was we cannot say, but it is highly improbable that any *Furcraea* should be found in Madagascar unless introduced from America, through the Mauritius possibly, or St Helena.
...	See *Anana de Pite, Bowstring Hemp* (3) and *Laffa.* Identified by Lamarck with a *Furcraea* grown in the *Mauritius.*
4	The scape or flowering stem of *Euagave* and *Furcraea.* When this is thrown up from the trunk the plant is said to ' pole.' Cf. *Hampe, Mast,* and *Maypole.*
5	*Bulbil,* which see.
20	This is given as the source of ropes which were carefully tested at the Arsenals and exhibited in 1857 at Madras. 'Pooty Munjee' is referred to ' *Hibiscus cannabina.*' See also *Cuthala Nar.*
...	The national beverage of *Mexico, (Tequila, Sotol, Mescal,* &c. being distilled spirit), obtained from sundry species of *Euagave* (See *Pulque, Agave* &c.) The name occurs under the form of *Pulco* and *Pulcre* in writers of the early 17th Century, but the origin is obscure, and the statement that *Pulcu* is an Araucanian word for a drink of Peru wants confirmation. 'Pulcro' is a Spanish word, and *Pulco* or *Pulque* may be derived from it. *Pulqueria* is a shop or booth for the sale of *Pulque,* also called *Cantina.*
22, 64, &c.	The true *Agave americana* of Linnaeus, (B) of this Bulletin, is to all intents a purely ornamental species, and its native country is not known at present. It is practically of no economic importance. Whether *Agave Vera Cruz,* Miller, D of this Bulletin *(A. americana* and *A. mexicana* of S. Europe) is one of the Pulque yielding species or not remains doubtful. Recent American authorities mention *A. atrovirens* of Karwinski (which is commonly identified with *A. Salmiana,* Otto) as the chief source in the Apam plain and other centres of the *Pulque* cultivation. This appears to be near our *Agave* (C) sometimes called, but wrongly, ' *A. Jacquiniana.*' ' *Agave mexicana* ' is a name to which there is practical objection. *Ignatio Blasquez* (quoted by Dodge) states that there are 33 varieties of *maguey* which grow or are cultivated in the Apam district and 10 Pulque Magueys in Cholula. The brothers Blasquez held that the best species of Pulque Maguey was undescribed, and named it ' *A. Maximileanea,* ' but their distinctions were too fine for either scientific or industrial purposes, apparently.

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
QUETZALYCHTLI	Hernandez	Aztec	Central America (Western Mexico)	**Agave Wightii** (of this Bulletin)
QUI	Martius	Maya Indian	Central America (Yucatan, &c)	**Agaveae** spp.
RAIL KATTALAI	Govt. Botanist Madras	Tamil	S. India (Tanjore)	**Agave Vera Cruz,** Mill.
RAILWAY ALOE	Do.	English	S. India	Ditto
RAIZ DE ZACATON	Kew Sel. Papers Addl. (Ser. II) LXXIX	Spanish	Central America (Mexico)	*Epicampes Macroura,* Bth.
RAKAS	Balfour (Cyclopædia I. 51)	Hindustani	S. India	*Agave americana*
RAKASHI MATTALU.	Mukerji (Desc. Cat. Ind. Prod. Amsterdam, etc.)	Telegu	Do.	*Agave americana*
RAKASI MATTA	Govt. Bot. Madras	Telegu ?	S. India (Ganjam)	**Agave Vera Cruz,** Mill.

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
15, 26, 71	The drawing and description of this '*Metl*' answer well to our Agave (J), which has not apparently been described from America by any recent author: but this is hardly surprising, as the country about *Mazatlan*—where Hernandez says it was found in warm places—is comparatively little visited. He says others call it 'Metl Pitae' (*i.e.* 'Thread Agave') and that the fibre was prized specially for cloth weaving. It is plainly a *Euagave*, and though the stock of *Theometel* is like that of *A. Wightii* in the sketch, the leaf of this other is much nearer (J)—or the *Tequila* (which see); while the description fits (J) better than either (E) or (F), which moreover seem to affect the '*Templada*,' or plateau, rather than the coast belt or the deep hot canons (*barraneas*) of Jalisco, etc. The second part of the Mexican name seems to be another masquerade of '*Ixtli.*' See also *Yztli.*
69	'Qui' or 'Quil' seems to mean 'herb' or 'grass' in several languages of Central America, and in Yucatan was applied to the fibre yielded by various *Agaves*, *Furcraeas.* and *Bromeliaceae.* The Maya Quiche country extends from near Vera Cruz to San Salvador taking in both coasts from Guatemala to Honduras, but towards the north is confined to the tropical belt on the Gulf of Mexico. The original Istle of the Mayas was perhaps *Karatas Plumieri*, said to abound in the wild parts of Nicaragua. Tradition bears that the *Henequen* was introduced by a Toltec dynasty from Central Mexico. See also *Yztli*, *Yacqui*, *Yashqui*, and (for the Mangue dynasty) *Maguey* (2) and *Magueyes* (1)
10, 71	'Railway Aloe.' See the next.
10, 71	In Madras the 'Railway Aloe' is commonly Agave (D). In Northern India the same species has been used, in parts, for railway fencing, but in the drier tracts Agave (F) has been substituted. Agave E is used also.
...	Often called (see Dodge) simply '*Raiz*,' *i.e.* roots. Cf. *Aloe fibre*, *Broom root*, *Brush fibre*, *Mexican fibre*, *Mexican Whisk* and *Reju.* *Raiz* is said to be corrupted into 'rice root.'
...	From the Sanscrit *Rakshasha* = an evil demon. Names of Agave species are frequently compounded with this (See *Bramarakashie*, etc.) Spelled in old reports, etc. as 'Rakus.'
20	See also Rakshi Matalu under *Agave americana* in Watt E.D., and the following.
10, 71	Ditto ditto

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Rakasi Mattalu	Govt. Botanist Madras	Telegu	S. India (Nellore)	**Agave Vera Cruz,** Mill.
Rakas patta	Watt, E.D.	Hindustani	India (Deccan)	*Agave americana*
Rakshasha Bali	Govt. Botanist Madras	Telegu	S. India (Cuddapah)	**Agave Vera Cruz,** Mill.
Ram Bans	R. E. P., Govt. of India	Hindi	Rajputana ? (Jaipore)	**Agave Cantala,** Roxb.
Rambanskeora	Supdt. Govt. Gardens U.P. Agra and Oudh	Do.	N. W. India (Saharanpore, etc)	Ditto
Ramkanta	Watt E.D.	Do.	India	*Agave americana* Linn.
Raspador	Coulter	Spanish	America, West Indies, and Pacific Islands	...
Ravana	Ainslie	Canarese	India	*Aloe perfoliata,* Linn.
Ravana Meshid	Buchanan (afterwards Hamilton)	'Karnataka' (*i.e.* Canarese)	S. India (Mysore)	*Agave vivipara*
Reda aonas	Liotard	Guzarati	Western India	*Agave* Sp.
Reju	Imp. Inko Hand-bst. (Ind. Sec.) No. 12	Bengali	India (Calcutta)	*Epicampes macroura* Bth. ?

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
10, 71	See also 'Rakashimatalu' under *Agave americana* in Watt E. D. and the following.
20	Possibly our Agave (D) : 'patta'=leaf in Hindustani:—also spelled Rakis pattah.
10, 71	Cf. the preceding.
11, 71	'Divine (*i.e.*, wild) bamboo.'
11, 14	See the preceding and *Banskeora*, applied to (E) as contrasted with (J).
20	Cf. *Rambans* ('Kanta'='thorn' or 'prickly shrub,' etc.)
...	A machine for scutching the leaves of fibre-yielding *Agaveae*. Originally (in Mexico) an iron scoop or spoon for scraping the *Cajete* (which see) of a *Pulque Agave* plant to promote the flow of sap after drawing off the daily storage.
37	Ainslie states that (with the scape presumably) this attains 10—12 feet in S. India.
15, 55, 71	Agave (J)='*A. vivipara*' of Wight, *not* of Linnæus. Ainslie says that Ravana Meshid is Canarese for a true *Aloe*, which produces the drug in India.
...	Evidently a survival from the days of Portuguese ascendancy. *Rede*= net and *aonas*=pineapple. Cf. *Cravata de rede*. Agave fibre is used by fisher folk on the Indian coasts and islands for nets, etc.
...	Imported formerly from Mexico for brush-making. The ordinary supply of 'whisk' seems to come from the N. W. Terai (Moradabad etc.) and to consist of the roots of one or more *Andropogons*. Cf. *Raiz de Zacaton*.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Sabbare	Forskohl Fl. Aeg. Arab.	Arabic	Arabia Felix (Yemen)	*lAoe maculata*
Sabr	Do.	Do.	Asia, Africa, etc.	*Aloe officinalis*
Sacci	Engelmann	Maya Indian	Central America (Yucatan)	*Agave rigida* var., *longifolia.*
Sacqui	Martius	Ditto	Ditto	*Agave* sp.
Saganara	Madras, Exh. Cat., 1855	Telegu	S. India (Masulipatam)	Sansevieria ?
Saganara Matha	Govt. Botanist Madras	Ditto	S. India (Kistna)	Agave Vera Cruz, Mill.
Sagi Matta	Balfour (Cyclopædia)	Telegu	S. India	*Agave americana*
Samato	Balfour (Cyclopædia)	Telegu	S. India	*Fourcroya cantula*
Samba kattalai	Govt. Botanist Madras	Tamil	S. India (Salem)	Agave sp.
San ka Nar	Watt, E. D.	Deccani	S. India (Deccan)	*Agave americana*
Sauga Rope	Madras Exh. Cat. 1857	Telegu	S. India (Guntoor)	*Sanseviera Zeylanica*
Saugoo nara	Do.	Do.	S. India (Vizianagram)	Ditto
Saparra	Martius	Sicilian	Sicily	Ditto
Seaside Aloe	Ainslie Mat. Med. (1826) ii. 169	English	S. India	*Aloe littoralis*, Koenig

Bulletin, page	Remarks
31	Forskohl distinguishes this from 'Aloe officinalis' to which he attributed the 'Socotra Aloes.' Cf. *Sabr*.
37	Lane and Burton quote certain meanings of the Arabic word which refer to 'patience' or 'endurance,' but these are most likely secondary, and founded on the plant's remarkable vitality (cf. *Sempreviva*). There are many variations, *e.g.*, Sabir, Sibir (Persia), Cebar and Sebar (Spain), Sobr (Palestine), Sabila and Zabila. See also *Acebar*, *Azeure*, *Azul*, etc. Sabarra and Seubbara (Africa) are perhaps of independent origin, and have given rise to a number of the names of the naturalized *Agave* of S. Europe (see *Sabbare*, *Seubbara*, *Saparra*, etc.)
67, 68	The chief *Euagave* of the Yucatan plantations differs from the kind Dr. Perrine selected for acclimatization in Florida; it is understood to be the *Sacci*, *Sacqui* or *Sosquil* and near Agave (G.) = *A. sisalana* Perrine. Spelled by Dodge '*Saci*,' but the word is certainly compound, and the second syllable is '*Qui*' (q.v.) This is *not* the 'sisal' of India or the Bahamas, which is '*Yashqui*.'
1	Sent as '*Bowstring Hemp*. Martius seems to have thought that this might be *Marsdenia tenacissima* W. and A. (See *Bowstring creeper*).
10, 71	Cf. the next.
20	Cf. the preceding. Spelled by Brown (Handbook of Agri-Hort. Soc. Gdn. and neighbourhood of Madras, 1866) as Sagi Mutta. Perhaps from 'Sagi' (Malay) = *Metroxylon* sp. (a palm).
54	*Fourcroya Cantula* of Haworth is a misnomer, apparently, for *Agave Cantala*, Roxb.
71	This is very nearly allied to Agave (J), but seems a lighter and smaller plant altogether, with the leaves narrower. The variegated garden kind hitherto referred as a variety to Agave (J) may be the same as Mr. Barber's plant, which comes from Tinevelly, etc. Cf. *Seemai Kattalai* and *Seeppu Kattalai* also.
20	'San' is primarily *Crotalaria* or *Hibiscus* fibre. Cf. *San ka nar* and *Belati pat*.
1, 1	Cf. *Saganara matha*, which is Agave D. Roxburgh does not mention this set of names apparently. 'Sauga' suggests the Malay sago palm, to which Agave might be likened, but hardly *Sansevieria*. The Guntoor exhibit was rope made from '*Sauga*' apparently.
31	From '*Sabarre*' or '*Seubbara*' which is applied to *Agave* spp., naturalized in N. Africa (probably to *Aloe* originally).
37	Cf. *Small Aloe*.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Seema Kathalai	Govt. Botanist Madras	Tamil	S. India (S. Arcot)	**Agave Wightii** (of this **Bulletin**)
Seema Kattalai	Do.	Do.	S. India (Tanjore)	Ditto
Seemai Kattalai	Do.	Do.	S. India (Tinnevelly)	**Agave** sp.
Seemay cattalay	Mad. Exh. Cat. 1857	Tamil	S. India (Chingleput)	*Fourcroya gigantea*
Seemay Kathalay	Brown and Wood	Tamil?	S. India	*Furcraea gigantea*, Vent.
Seemay Kuttalay	Madras Exh. Cat. 1855	Tamil	S. India (Madura)	**Furcraea** sp.
Seeppu Kattalai	Govt. Botanist Madras	Tamil	S. India (Tanjore)	**Agave Vera Cruz**, Mill.
Sempreviva	Danielli	Italian	Italy	*Agave americana* Linn.
Seubbara	Balfour(and others)	Arabic	N. Africa	*Agave americana*
Short aloes	Mad. Exh. Cat. 1855	English	S. India (Mysore)	*Agave americana*
Silk Grass (1)	Spon	English	England and America	*Nidularium Karatas*

Bulletin page	Remarks
15, 71	Cf. *Samba Kattalai* and the following.
15, 71	Ditto ditto.
11	See *Samba Kattalai.*
18, 19	Also spelled 'Cuttalay.' Cf. *Seemai Kattalai.*
18, 19	Cf. the preceding.
18, 19	'The small Aloe', and should therefore be a true *Aloe*, but see the preceding.
...	Cf. also the preceding.
38	The true *Aloe*,—and hence the *Agave*,—was called 'Sempervivum' and 'Aizoon' in Mediaeval Europe with reference to their tenacity of life, but the connected traditions (see *Sabr*) are of Syrian (or Nubian) origin.
20	See *Sabbare, Sabr*, and *Saparra.*
37	The scientific names of this and *Long Aloe* seem to have been transposed (See *Long Aloe*).
17-22	Spon's reference is correct for the coast from the Gulf of Campeachy to near Vera Cruz, where a 'fine' fibre seems to be obtained from a Bromeliad which is probably the species quoted = *Karatas Plumieri* of E. Morren, and perhaps the '*Bromelia Karatis*' of which Squier gives an illustration. See *Anana de pite, Bromelia Pite, Caraguata* (1) *Caraguata* V, *Caroata, Curratow, Gravata. Grawatha, Henequen* (1), *Istle* (1) and (2), *Ixtle* (1) and (2), *Ixtli* (1) *Karaota, Mexican Fibre* (3), *Pinuella, Pita* (3), *Pita Bromelia,* and *Pita de Zapateros*, also the following.

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
SILK GRASS (2)	Temple (in Journal Soc. of Arts, V. 125)	English	Central America (British Honduras)	*Bromelia sylvestris*
SILK GRASS (3)	Dodge	Ditto	England and America	*Bromeliaceae and Agaveae*
SILK GRASS (4)	Kew Sel. Papers (Addl. Ser. II) LXV	Ditto	Jamaica	*Furcraea cubensis, Haw.*
SILK OF GRASS	Hariot (in Sloane)	Ditto	Central America	*Aloe Yuccae foliis*
SIMAI KATHALAI	Mukerji	Tamil ?	S. India	*Furcraea gigantea*
SIME KATTALAY	Balfour (Cyclopædia)	Telegu	Ditto	*Fourcroya Cantula Haw.* [formerly *Agave Cantula* Roxb.]
SIME KATTALE	Liotard	Canarese	S. India (Mysore)	*Agave vivipara*
SIROOGHOO KUTTALAY	Ainslie, Mat, Med. 1826, ii—169	Tamil	S. India	*Aloe littoralis*, Koenig
SISAL	...	...	...	...

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
22	From Temple's description this name, given by the denizens of British Honduras to the '*Istle*' or '*Pita Bromelia*' (which see), probably indicated *Karatas Plumieri*, E. Morren: for fuller references see the preceding.
22	"Some of the species of fibres that have been called Silk grass . . . . . are *Ananas sativa*, *Karatas Plumieri*, *Bromelia sylvestris*, *Furcræa Cubensis*, and other similar forms, while the name has even been applied to the fibre of some of the Agaves. Its use, therefore, without the botanical name of the species can only add to the confusion which already exists."
81, 19, 22, 52	Sir Daniel Morris thinks that *Furcraea cubensis* may also be a source of silk grass fibre in Yucatan (cf. *Sisal Hemp* and *Cajun*).
Do.	See *Grass Silk*, etc.
18, 19	Cf. *Seemay Kathalay* above.
18, 19	Probably Mauritius Hemp, wrongly identified with Agave (E) in consequence of Haworth's having transferred Roxburgh's plant from *Agave* to *Furcraea*, erroneously.
Do.	As the fibre is said to be very long, fine, and white, and the English name is given as 'Green aloe,' the fibre was no doubt Mauritius Hemp, and from a *Furcraea*. See *Green Aloes* also.
...	Cf. *Kattali*, &c., and see also *Kuttalay*.
...	A port on the coast of Yucatan, formerly the chief outlet for the fibre of the Merida district. The export trade is said to have now shifted to Progreso.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Sisal Hemp	Martius (Beitrag etc. p. 39), also Kew Sel. Papers (Addl. Ser. II) XLII and XLIX	English	Cosmopolitan	**Agave longifolia,** Engelmann **Agave sisalana,** Perrine, etc.
Small Aloe	Ainslie Mat Med. (1826) ii—169	English	S. India	*Aloe littoralis* Koenig

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
70, also 13 67, 71	The fibre long exported from the coast of Yucatan was mainly derived from a *Euagave* to which the name of *Sacqui* ('Qui' being 'fibre') was given by the *Mayas*, a civilized nation (see Keane in Stanford's Compendium, '*Central America*') who were once the ruling power from the Nicaragua Isthmus to the Vera Cruz coast-belt of Mexico. Other fibres seem to have been exported also, on their own merits, or mixed with the fibre of the *Sacqui*, which is still grown in plantations on a large scale. One may have been from a *Furcraea*, and another is called 'Istle,' but whether this 'Istle' was the same as the *Pita Bromelia* or *Silk Grass* of Honduras is uncertain; through mixing of the fibres, or confusion over local names Yucatan fibre has been called 'Silk grass' and 'Istle,' and a *Euagave* has been named '*Agave Ixtli*' on the assumption that it is the source of 'Yucatan Istle fibre.' In 1838 Dr. Perrine, then U. S. Consul at Campeachy, took several kinds of *Euagave* to the coast of *Florida*, and started plantations, which were ruined by a Seminole incursion, and the plants have run wild; but the species which he judged best adapted for the American plantations was Agave (G) of this Bulletin, *i.e.*, *Agave sisalana*, Perrine, which has since spread to the Bahamas, and has been introduced into British India, South and East Africa, Australia, the Pacific Islands, and the Philippines. *Engelmann* in a valuable account of this group of Agaves has treated the *Sacqui* or Sosquil as well as the *Yashqui* [which is (G) or Perrine's Agave] as 'varieties' of a supposed wild plant, which he further identified with a species described by Miller under the name of *Agave rigida*. We do not know what Miller's species actually was, but it certainly was *not* Perrine's fibre Agave. There is only one *Sisal* Agave in India, which has often prickles on the edges of the leaf, sometimes many, sometimes a few only; the best sort is entirely free of margin prickles, but is liable (in this respect) to vary. The 'longifolia' of Engelmann, which is the '*Sacqui*' chiefly grown in Yucatan, is *not* known so far in India, and is a different plant from the *Yashqui* (which is Perrine's species and the 'Sisal' of India). It is doubtful if either the *Sacqui* or the *Yashqui* exists anywhere except in cultivation. Both 'Yashqui' (A. *sisalana*, Perrine) and 'Sacqui' (A. *longifolia*, Engelmann) are grown in Yucatan, but *A. sisalana*, Perrine is the plant that has been introduced in India, and in the Bahamas. '*Bahamas Hemp*' has been attributed to '*Agave rigida* var. *elongata*', on the supposition apparently that the *Sacqui* had been so described by Engelmann; it is true that Engelmann supposed that the *Sacqui* might be 'A. elongata' of Jacobi, but his *own* name for '*Sacqui*' was 'var. *longifolia*.' We distinguish these plants thus: *Sacqui, i.e.*, the chief 'Sisal' of Yucatan = A. *longifolia*, Engelmann; *Yashqui, i.e.*, the Bahamas Hemp, and E. Indian 'Sisal' = A. *sisalana*, Perrine. See also *Henequen* (3), etc.
...	As compared with *Agave* and *Furcraea* species called '*Large Aloe*' or '*Great Aloe*.' See *Small Aloe*, and *Seaside Aloe* also.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Smokva arapska	Visiani	Sclavonic	S. E. Europe (Dalmatia)	*Agave americana* Linn.
Soap Agave	Smith (Dict. Ec. Plants)	English	Central America (Mexico)	*Agave Saponaria*
Sacqui	Martius	Maya Indian	Central America (Yucatan)	*Agave rigida*
Sodursun	Liotard	Hindi	Central and N. W. India	...
Sotol	Rose	Spanish ?	Central America (Mexico)	*Dasylirion* sp.
Spanish Aloe	Guilfoyle	English	Australia ?	*Agave americana* Linn.
Spanish bayonet	Dodge	Do.	N. America	*Yucca spp.*
Spatone	Danielli	Italian	Italy	*Agave americana* Linn.
Sucker	...	English	Cosmopolitan	...
Sun ka nar	Ainslie	Deccani	Central & S. India	Agave sp.
Suvaru	Govt. Botanist Madras	Tamil	S. India (Tinnevelly)	...
Suvaru Kattali	Do.	Canarese	S. India (Bellary)	Agave Vera Cruz, Mill.

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
31	The species is believed to be Agave (D) and to have been brought to the Adriatic littoral from Sicily or Calabria where the true *Aloe* was introduced from N. Africa by the Saracens, and named from the Arabic. When the *Agave* came to S. Europe from America, sundry local names of the true *Aloe* were extended to it. See *Saparra*, etc.
21	*Agave Saponaria* of Lindley is identified with *A. brachystachys*, Cav. of the *Littaea* group, and the reference is doubtless to the *Amole* Agaves (see *Amole* &c.) Several of the West Indian *Euagaves*, however, are much used for scouring purposes (see *Keratto* also).
70	A spelling of *Sacqui* = *A. longifolia*, Engelmann.
...	Said to have furnished Jail factories with stock for paper-making in Dehra Dun and Moradabad (Agra Province) and to be called in Rohilkhand '*Baskitri*' (which see), also to grow wild in Lliatpur (towards Central India). *Sukhdarsan* is the usual name of one or more species of *Crinum*, but none of the Indian species of *Crinum* or *Pancratium* is known to yield fibre, though they are nearly allied to the *Agaveae*. *Crinum asiaticum* var. *toxicaria*, Herb. is called (See Watt, E.D.) in Bengal *Bara Kanur*, while *C. latifolium Linn.* (perhaps wild towards Central India) is (Bengal Plants p. 1061) the true *Sukhdarshan*. The names *Kanwar* and *Kanur* have been confused possibly (see *Bara Kanwar*). Fibre from Euagaves has been largely used at different times for paper-making throughout India. *Baskitri* was perhaps Agave (E) or an allied species, and the reference to *Sudarsan* may be due to a mistake or to some very local application, of the name, which may not after all be the same as *Sukhdarshan*. We do not know of either being applied to *Agave* in N. W. India.
22	A kind of spirit formerly supposed to be distilled from the juice of '*Agave americana*,' but now ascertained to be got from *Dasylirion* which does not belong to the *Agaveæ*.
...	Cf. *Mexican aloe*, etc.
2	See *Dagger Plant* also.
20	From the resemblance of the leaves to swords. Danielli gives several variations, *e.g.* Spata, Spadu, Spatona, Spatola, etc.
...	See *Offset*.
19	See *San ka Nar* also, but the name seems very doubtful.
71 (footnote)	This is a doubtful plant, probably the same as the *Sambakattalai* from Salem, and perhaps a form of (J), *i.e.*, *Agave Wightii*.
11, 71	This is a hedge plant; the preceding looks like a dwarf kind of a quite different species (J).

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Tabago Silk grass	Dodge	English	America	*Furcraea cubensis*
Tacori	J. Bauhin and Sloane	[Tupi Indian]	S. America	*Aloe Yuccae folii* (Sloane)
Tale naru	Liotard	Canarese	S. India (Mysore)	*Pandanus odoratissimus*
Tapemete	Rose	Mexican	Central America (Mexico)	*Agave vivipara*
Tampico	...	...	...	...
Tampico fibre	Rose	English	America	*Agave* spp.
Tequila (1)	Rose (and others)	Spanish	Central America (Mexico)	*Agave* sp.

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
18, 19	Cf. *Silk Grass* (3) and (4) and *Nequametl* (2). Also spelled 'Tobago'. De Laet's drawing of the plant he called *Nequametl* (which see) was made in Tabago.
...	The older writers seem to have connected this in some way with the *Agaveae*, but it was doubtless the *Tagoara* fibre now ascribed to *Guadua Tagoara*, Kunth (of the Bamboo family).
...	'Tale' is properly a palm, but often applied to species of *Pandanus* in S. India.
...	Mr. Rose is referring doubtless to *Agave vivipara*, Baker, of which the description answers *A. vivipara* of Wight, *i.e.* (J) of this Bulletin. He observed it in Jalisco and Zacatecas on the sides of hot ravines, where thread is got from it for household uses. So far as we can judge from his description, the 'Tapemete' is not the plant called *A. vivipara* by Buchanan, and figured by Wight, though it may be very near it. It is probably the *Tepemexcalli* of Hernandez.
...	A port bordering on the State of Vera Cruz (in the Mexican Republic) from which fibre collected in *Tula, Zacatecas* and other upland tracts is exported for brush-making.
...	This has often been regarded as co-extensive with 'Istle' and obtained in great part from '*Agave heteracantha*,' but there is considerable doubt as to what '*Agave heteracantha*' may be, and it is now certain that there are a number of species which contribute to the supply of 'Brush fibre' through the ports on the Gulf of Mexico, of which *Tampico* as regards this branch of trade is the principal. It is also clear that *Ixtle* or Istle is applied in different parts of Central America to very different fibres: the Istle of British Honduras being derived from a Bromeliad and not from an Agave at all. Also sometimes called 'Tampico Hemp' (unless this is really something quite different).
22	A liquor (spirit) made from the sap of an *Agave*, chiefly in the States lying westwards from the capital (*Jalisco*, etc.). Mr. Rose says that the leaf is very narrow, and that it may be the same as *Huila* (which see), but in any case is not *A. americana*. If *Huila* be the same then it yields fibre also.

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientfic determination
TEQUILA (2)	Nelson	Mexican	Central America (Mexico)	**Agave** sp.
THALAY NAR	Mad. Exh. Cat. 1857	Canarese	S. India (Madura)	*Pandanus odoratissimus*
THEMBU NANUT	Liotard	Burmese	Burma (Mergui)	*Agave americana*
THEOMETEL	Hernandez	Aztec	Central America (Mexico)	**Agave** sp.
TOCCON	J. Bauhin	Brazilian	S. America	...
TOL	Martius	French	Antilles	*Furcræa cubensis*
TOUCON	Lery (in Sloane)	Do.	Do.	*Aloe Yuccae foliis*
TOW	...	...	...	...
TRAP TREE	Martius	English	Malaya (Singapore)	*Artocarpus* sp.

Bulletin, page	Remarks
12, 13, 22, 49, 71	Mr. Nelson's *Tequila* seems to be the same as the preceding, excluding possibly the suggested identity with 'Huila.' It is grown in large plantations in the State of Jalisco (capital *Tequila*). Mr. Nelson's figure (Plate XXXV), which we had not seen when Parts I and II were written, shows an *Euagave*, of the Sisalana group, apparently, very closely resembling our Agaves (E) and (F), but especially the latter, which is Mr. Gamble's "*mexicana*." If, as seems not unlikely, certain of the species naturalized in India came originally from the Tequila and Zapotlan country, then possibly F='*A. mexicana*' of Gamble (and probably T. Moore), may be=*Tequila*; J=*A. Wightii* of this Bulletin (A. vivipara of Wight)=Bastard Tequila; E=*A. Cantala Roxb.*=A. vivipara of Rose of which the description is not that of Wight's 'vivipara,' but would fit our (E) or Baker's A. *laxa*. See the preceding, also *Bastard Tequila*, and *Huila*.
...	Cf. *Tale Nar*. Spelled *Thaulay Nar* also. Pandanus is often spoken of as a fibre plant, but the commonest use seems to be by cutting strips from the leaf for mat-making, etc., rather than by extraction of the actual fibre.
20	Nanut=Pine apple ?
49, 51,	Zuccagui refers Hernandez' plant to A. *Theometel*, Zuccagni. The trunk in Hernandez' representation is suggestive of Agave (J), but the leaves are quite different. Theometel extract was in great repute as an anti-periodic drug. It may not be an *Euagave*, and is seemingly unknown in India.
...	See *Toucon*.
...	See *Bois de Meche*, etc.
...	Sloane cites these with a query under the title quoted, which includes *Henequen*, etc. It was probably the fibre attributed by Squier to the *Ticu palm* of 'marshy grounds of the Orinoco' and the 'Tecum' as to which there is great confusion, but the different fibres under these names are got from different species of palm and not from any of the *Agaveae*.
...	Short curled or interlaced fibres, from certain *Agaveæ*, *Yuccas*, and *Bromeliceae*, as distinguished from the long staple of the best species of *Furcraea* and *Euagave* (*Sansevieria* also).
...	Cf. *Kantal* or *Kathal*. This is probably not the Jack fruit however, but the *Getah Tarap=A. Kunstleri*, King of which Ridley (Flora of Singapore) says the bast is used for cordage and cloth-weaving. Mr. Ridley elsewhere says that locally fibre is got from an *Agave* but we do not know what the species may be.

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
VENETIAN WHISK	Kew Sel. Papers (Addl. Series II) LXXIX and LXXX	English	Europe, etc.	*Chrysopogon Gryllus*
VERA CRUZ	...	...	...	...
VERA CRUZ ALOE	Moon (Ceylon Catalogue)	English	Ceylon	**Agave Vera Cruz**, Mill.
WHITE FIBRE	...	English	England, India etc.	**Agave** and **Furcræa** also **Bromeliaceæ**
WILAYATI ANANAS	...	...	...	...
WILAYATI KANTALA	Stewart, (Punjab Plants, p. 232)	Hindustani	N. W. India (Punjab)	*Agave Americana* L.
WILD ALOE	Liotard	English	Beluchistan	**Nannorhops Ritchieana**, H. Wendl.
WILD ALOE FIBRE	Mad. Exh. Cat., 1857	Do.	S. India (Bellary)	*Agave* sp.
WILD ALOES	Mad. Exh. Cat., 1855	Do.	S. India (Coimbatore)	Do.

Agaveae (also certain other fibre plants) or to their products.

Bulletin page	Remarks
...	See *Broom root, Brush fibre* (1 and 2), *Mexican Whisk*, etc.
...	A town and harbour on the Gulf of Mexico (State of Vera Cruz), which was and still is the chief seaport of the central parts of Mexico. It lies in the warm coast strip below the plateaux and the Cordilleras, but as the products of Mexico found their way largely by this route to Europe, plants have been attributed to the Vera Cruz neighbourhood which are not found there or even very near it.
55	Agave (D) most likely. We have seen no Ceylon specimens. The name has often been used in Europe also, but it is not always easy to say which species may have been intended. The true plant was first described by *Miller*, afterwards in German (very well so far as the leaves go) by Gmelin (*Onomat.* Frankfort and Leipzig 1772, p. 202) under the name of *A. Vera Crux.* (See also Dietrich, *Nachträge.* I, 135 where Miller's name is given correctly.)
...	A term sometimes used for fibres from the *Agaveae* (and probably also from *Bromeliaceae*, e.g., the *Pita Bromelia*) as distinguished from the Manila Hemp (see *Abaca*) obtained from *Musa textilis.* In Yucatan, on the other hand, the *Euagave* fibres were divided by the natives into 'white' and 'green,' which had reference to the colour of the pulp before heckling apparently.
...	See *Bilati ananas.*
19	This was doubtless on the supposition that Agave (J), which is self-maintaining in parts of the Punjab, was a native of India as compared with other kinds of *Agave* (notably the garden *A. americana* Linn.) which were known in cultivation. Other species than (J) are now, however, to be found in the Punjab in hedges.
...	See also *Pesh* and *Aloe.*
20	No doubt (J) or (D). Sent in 1855 from *Nellore* without clue to the plant. *Aloe perfoliata*, a true aloe, is said to be abundant and to grow to a great size in Mysore, etc., so that fibre from this has probably been frequently confounded with that from *Agaveae.* Cf. *Hedge Aloe* (1) and (2).
Do.	Ditto Ditto Ditto.

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
YASHQUI	Engelmann	Maya Indian	Central America (Yucatan)	**Agave** sisalana, Perrine
YAXCHE	Dodge	Aztec	Central America (Mexico)	*Bombax ceiba*
YAXCI	Miss. Gdn. Rept. 1896	Maya Indian	Central America (Yucatan)	**Agave** sisalana, Perrine
YANUGA CALABUNDA FIBRE	Mad. Exh. cat., 1857	Telegu	S. India (Kurnool)	*Aloe perfoliata*
YENUGA KALABANDA	Govt. Botanist Madras	Do.	S. India (Gantur, Kurnool, Nellore)	**Agave Vera Cruz**, Mill.
YENUGA KALABONDA	Do.	Do.	S. India (Cuddapah)	Ditto
YENUGA KALAMANDA	J. A. C. Boswell (Nellore Manual)	Do.	S. India (Nellore)	**Agave** sp.
YSTLE	Miss. Gdn. Rept. 1896	Mexican	Central America (Arizona Texas and southwards)	*Agave Lechuguilla*, Torrey and allied species
YUCAY	Mad. Exh. cat. 1855	Canarese?	S. India (Mysore)	*Aristolochia indica*
YUCCADA FIBRE	Mad. Exh. Cat. 1857	Aztec	Central India	...

Agaveae (also certain other fibre plants) or to their products.

Bulletin, page	Remarks
...	Agave (G) See *Sisal hemp.* Spelled by Martius *Yaxqui*, and by others *Yaxci, Yaxqui* &c.
...	A cotton tree: the down from the capsules is used for stuffing pillows &c.
...	See *Yashqui.*
...	Cf. the following.
...	Cf. the following and the preceding, also *Enugakalabanda,* etc.
...	Ditto ditto d to.
...	Probably Agave (D) as above.
...	Cf. *Istle,* &c.
...	This is given as 'Yucay, white' and is followed by 'Yuccay, red' without any clue to the origin of the latter. There is evidently some mistake. None of the Indian *Aristolochias* are known to have yielded fibre, while *Yekka, Yekkada, Yokada,* &c., are names of the well known '*Yercum*' (a *Calotropis*). See the next also.
...	'*Yuccada fibre*' sent from Hyderabad was placed among 'unclassified barks' in 1857, but '*Yuccada Naru*' from Bangalore was referred to *Yucca gloriosa. Yakkada Naru* is given in the Mysore list of paper fibres (in Liotard '*Yekkada naru*'). True *Yucca* and *Agave* have been a good deal confused in S. India.

Glossary of local and commercial terms referring to the

Name	Authority	Language	Where used	Scientific determination
Yztli	Hernandez	Aztec	Central America	...
Zabbara	Danielli	Italian (Provincial)	Italy	*Agave americana*, Linn.
Zabbara di ghai	Do.	Do.	Do.	Ditto
Zamarra	Do.	Do.	Do. (Calabria)	Ditto
Zambarone	Do.	Sicilian	Sicily	Ditto
Zaparra	Do.	Italian (provincial)	Italy	Ditto
Zubbur	Do.	Arabic	N. Africa	...
Zugo de Coc oyza	Humboldt (Ex Miss. Gdn. Rept. 1896)	Spanish	Central America	*Agave americana*, Linn.

Bulletin, page	Remarks
...	The mineral obsidian, from which, as Hernandez recounts (Ant. Rech, p. 339) the native Mexicans, before the use of metals was discovered, made their swords, daggers, knives, arrow-heads and spear blades. Even after the reduction of the country by the Spaniards, obsidian knives only were used to cut the leaves of the 'Octli' ('Pulque') yielding *Agaves* (Recchi has made nonsense of the text s. v. 'Metl seu Maguei' by omitting a letter), and the name of *Yztli, Ixtle* or *Istle* was no doubt taken from the likeness of the ensiform leaf to the 'ill-omened and atrocious blades' with which the Aztec champions would 'divide an enemy at one blow into two pieces.'
20	i.e. *Agave Vera Cruz*, Miller, the naturalized species in S. Europe, from the N. African *Seubbare* or *Sabarre*, or from *Sabr*, the true aloe. See *Sabr, Seubbare* etc.
20	See the preceding.
33	See the next.
33	Danielli derives this from 'Zanbar' which he says means threads (of wool) in Arabic, but the word he means is perhaps '*Zaubar*.' These variants may be from *Musambra*, the Arabic name for the drug as distinguished from the plant, which has been taken into several languages, in India particularly.
20	See *Zabbara, Saparra*.
20, 33	Martius gives this as *Zaubar* which is no doubt = *Seubbare*. It is quite possible that there may be such words as 'Zaubar' or 'Zambar' in the N. African dialects of Arabic, and that these are applied to the *Agaves* naturalized along the coast of *Algeria*, etc.; but the Saracen ascendency in Sicily and S. Italy had ceased before the *Agaves* reached either Europe or Africa, and the names of the *Saparra* and *Zambarone* series were given to the true *Aloe* in the first instance presumably.
20	The juice of young plants is said to be used locally as a caustic in surgery. Writers on the West Indies mention the juice of different *Agaveae* as a detergent for wounds, etc. The juice from cut leaves of the *Sisal Euagave*, also (D), is more or less acrid, if they are much handled. That of (*Agave* (H) is said to be uniformly harmless.

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