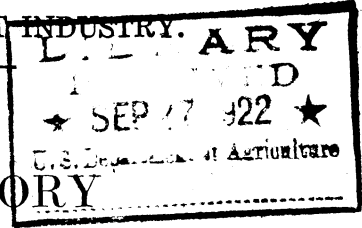


Issued July 20, 1922.

987
U. S. DEPARTMENT OF AGRICULTURE.
BUREAU OF PLANT INDUSTRY.



INVENTORY

OF

SEEDS AND PLANTS IMPORTED

BY THE

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION
DURING THE PERIOD FROM APRIL 1
TO JUNE 30, 1919.

(No. 59; Nos. 47349 to 47864.)



WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1922.

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INVENTORY OF SEEDS AND PLANTS IMPORTED BY THE OFFICE OF FOREIGN SEED AND PLANT INTRO- DUCTION DURING THE PERIOD FROM APRIL 1 TO JUNE 30, 1919 (NO. 59; NOS. 47349 TO 47864).

INTRODUCTORY STATEMENT.

The peculiar character of these inventories can not be emphasized too often. They are not catalogues of plants now growing in arboreta or botanical gardens. They do not represent a reservoir of living plant material kept in stock for the experimenters of the country, for it would be quite impossible to maintain such a thing except at tremendous expense. The inventories are, however, attempts to record for future use the characteristics of a stream of plant immigrants which is pouring into America through the activities of this office. They show what the plants are botanically, where they come from, the name of the person who starts each one of them toward this country, and what the sender and, to some extent, what the printed literature has to say about each of these plants.

The agriculture of America in the next century will diverge widely from what it is to-day, just as to-day it is something vastly different from its condition when the Indians hunted over the country. Some of the beginnings of the changes that are coming will find their first record in these plant inventories. Even now it will be found that the date oases of California and Arizona, the durum-wheat areas of the Great Plains region, the feterita-sorghum areas and the Sudan grass fields of the West, the dasheen patches of the South, the Zante currant vineyards of California, the timber-bamboo groves of Louisiana, the rice fields of California and Texas, if their history is traced, had their beginnings in part or wholly in these inventories, for the first notices of the arrival on American shores of the plants which have made them possible were printed here. Many interesting new plants make their first appearance with us in this fifty-ninth inventory.

The fact that many hardy palms thrive and bear well on the high pinelands of Florida and in southern California makes the introduction of a Brazilian species of *Butia* (No. 47350) with fruits as large as plums and having a pineapple flavor a matter worthy of unusual attention by Florida and California amateurs.

Rosa gentiliana (No. 47359) was presented by Lady Harriet Thiselton-Dyer, from her Gloucester home in England, in April, 1919. Dr. Van Fleet, who has a bush of this species at Bell, Md., predicts that it will have a great future in the Southern States, and he has urged its wide distribution there.

The Guatemala grass (*Tripsacum laxum*, No. 47396), first introduced by Mr. G. N. Collins, has made a satisfactory growth in southern Florida and seems promising as a forage grass there.

A variety of bush Lima bean (No. 47447), selected since 1876 by Mr. Harkness at Iroquois, Ontario, and now adapted to cultivation in regions with a season too short for the ordinary strains of this vegetable, is presented to American growers.

The success of certain African species of trees in southern Florida makes worthy of special mention the arrival of a collection (Nos. 47496 to 47503) which includes: A new species of *Erythrina* (*E. excelsa*, No. 47498), with gorgeous scarlet flowers; a fragrant-flowered tree related to the *Annona* (*Monodora myristica*, No. 47500), with flowers 6 inches across; an ornamental leguminous tree (*Pahudia africana*, No. 47501) with dense racemes of fragrant blossoms; and a new species of *Spathodea* (*S. nilotica*, No. 47502), related to *S. campanulata*, which is already a common tree around Miami.

Mr. Gossweiler has sent from Loanda, Angola, a distinctly new fruit tree (*Trichoscypha* sp., No. 47519) which bears bunches of edible peachlike fruits. The tree is native to Portuguese West Africa and may prove an acquisition to Porto Rican and Hawaiian horticulture.

The acom of Brazil (*Dioscorea latifolia*, No. 47564), a yam which bears aerial tubers suggesting by their shape a turkey's liver, is remarkable in that these tubers are excellent eating when cooked. The growing interest in this group of starchy food producers may make this new introduction which Sr. Argollo Ferrão has sent of unusual importance.

The discovery of a bush variety of *Dolichos lablab* (No. 47568) by Mr. Harland, of St. Vincent, not only may make it possible to use this excellent cover crop in the citrus orchards of Florida, since it will not climb the trees, but also may lead to a wider use of this species as a vegetable. Its beans make excellent soups and are useful in many ways.

The puka tree of New Zealand (*Meryta sinclairii*, No. 47570), which for some time was supposed to be nearly extinct in its native habitats but now is grown as an ornamental, has so interesting a history that amateurs who can grow it will be interested to read Mr. Poynton's account of its introduction into cultivation.

To an amateur who will take the trouble to breed them the Actinidias offer a promising field, and he will want to add *A. strigosa* (No. 47633) to his collection for breeding purposes. When one considers the vigor and beauty of these climbers and their freedom from disease, they seem worth improvement as decorative vines alone, but when the delicate character of their fruit is taken into consideration the problem of their breeding and selection becomes one of real importance.

Arundinella hispida (No. 47641) is a grass from the hilly parts of India, which is distributed pretty generally through the Tropics and which in Sao Paulo, Brazil, is considered a good forage plant for dry lands.

The Buddleias have proved a great addition to our garden plants and a tree species from India (*B. asiatica*, No. 47650), with sweet-scented white flowers which bloom continuously for three months, may add another perfume to the dooryards of Florida and California.

Eriobotrya petiolata (No. 47679), a relative of the loquat of Japan which occurs in Sikkim and the eastern Himalayas, may be interesting to try as a stock for the more familiar Japanese species.

Grewia multiflora (No. 47689), a tree related to the linden, the wood of which is suitable for ax handles, oars, etc., and which grows at 4,000 feet altitude in India, may be worthy of trial in the South.

A vigorous vine (*Holboellia latifolia*, No. 47693), which bears racemes of delightfully fragrant green and violet flowers and fruits 5 inches long resembling a passion fruit in flavor, is something which everyone who lives where it can be made to grow will be interested in testing.

Mr. Cave, the curator of the Lloyd Botanic Gardens in Darjiling, has sent in a remarkable collection of 230 species of Himalayan ornamental and economic plants (Nos. 47629 to 47858), among which are many that will doubtless find a permanent home in America. The Puget Sound region, if not too cool in winter, should be admirably adapted to their culture. Among the trees of interest are found Himalayan maples (*Acer* spp., Nos. 47629 to 47632); a new birch (*Betula utilis*, No. 47647); an Indian tamarisk (*Tamarix dioica*, No. 47810) which is often planted along the seacoast and which may prove of value for our own Florida coast; and two species of the genus Terminalia (Nos. 47855 and 47856), which may be worth trying as shade trees in Florida since *T. arjuna* has proved so successful there. There are a number of fruits of interest, including a wild olive from Sikkim (*Olea gamblei*, No. 47742), which bears fruits an inch in length; a yellow-fruited raspberry (*Rubus ellipticus*, No. 47781), said to be one of the best wild fruits of India; *Solanum verbascifolium* (No. 47800), a shrub cultivated in southern India for

its small fruits, which are eaten in curries: and a species of *Artocarpus* (*A. lakoocha*, No. 47833) related to the jack-fruit and bread-fruit trees but with small yellow acid fruits. *Manisuris striata* (No. 47847) and *Panicum patens* (No. 47848) are new forage grasses of possible value for the South. The collection contains some remarkable ornamentals: Five strains of the gorgeous *Magnolia campbellii* (Nos. 47714 to 47718), the most wonderful of all magnolias, bearing blossoms 10 inches across, ranging from white through dark red to purple; a new ornamental tree, *Luculia gratissima* (No. 47710) with magnificent round masses of pink flowers; *Microglossa albescens* (No. 47733), a tree of the composite family with corymbs of lilac flowers 8 inches in diameter; seven species of Himalayan rhododendrons (Nos. 47771 to 47777); *Pueraria phaseoloides* (No. 47850), a relative of the kudzu vine, bearing reddish instead of purple flowers (it may not have the luxuriant weedy habit of the kudzu); and one of the most beautiful of Himalayan creepers, the Porana or snow-creeper (*Porana racemosa*, No. 47761), which has already proved its adaptability to conditions in southern Florida, where it blooms in the winter time and makes a gorgeous show. There are also included a remarkable barberry (*Berberis napaulensis*, No. 47646); a Himalayan bittersweet (*Celastrus paniculatus*, No. 47657); three species of Indian Ilex (Nos. 47697 to 47699); two species of Himalayan cherry (Nos. 47766 and 47767), possibly suitable for stocks; *Toddalia asiatica* (No. 47813), one of the most valuable of Indian drug plants; and the emblic myrobalan (*Phyllanthus emblica*, No. 47751), a fruit which is used for tanning purposes and also as a pickle.

The botanical determinations of seeds introduced have been made and the nomenclature determined by Mr. H. C. Skeels, while the descriptive and botanical notes have been arranged by Mr. G. P. Van Eseltine, who has had general supervision of this inventory. The manuscript has been prepared by Miss Esther A. Celander.

DAVID FAIRCHILD,
Agricultural Explorer in Charge.

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION,
Washington, D. C., October 4, 1921.

INVENTORY.

47349 to 47357.

From Nice, France. Presented by Dr. A. Robertson Proschowsky. Received April 1, 1919.

47349. *ABROMA AUGUSTA* L. f. Sterculiaceæ.

A large spreading shrub, native to tropical Asia, with leaves and branches softly hairy, the leaves cordate and angled, and with purple flowers; the capsule is membranous, 5-angled and 5-winged, and the seeds are numerous. It flowers most profusely during the rains, and the seeds ripen in the cold season. The bark of the twigs yields a fiber much valued for its great beauty, softness, cheapness, and durability. It might be used with advantage as a substitute for silk. The plant yields three crops a year. The bark of the root is used medicinally. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 1, p. 8.*)

47350. *BUTIA CAPITATA PULPOSA* (Barb.-Rodr.) Becc. Phœnicaceæ. (*Cocos pulposa* Barb.-Rodr.) Palm.

"A hardy palm from southern Brazil, belonging to the same group as the species commonly cultivated in California as *Cocos australis*, *C. yatay*, and *C. eriospatha*. The trunk is 6 to 12 feet by 1½ to 2 feet in diameter, with rather short, abruptly arched leaves 6 to 9 feet long. The petioles are armed with stout spines. The fruit is yellow, about 1 inch long and 1½ inches in diameter, and the pulp is of a texture and taste somewhat like the pineapple." (*C. B. Doyle.*)

For previous introduction, see S. P. I. No. 43238.

47351. *CAESALPINIA SEPIARIA* Roxb. Cæsalpiniaceæ.

A large, climbing, prickly bush on the Himalayas, and extending to Ceylon and Java; it ascends to 4,000 feet in altitude. Lac is gathered on the tree in Baroda. The bark is much used for tanning and the young pods contain an essential oil; in Chumba the bruised leaves are applied to burns. It makes an impenetrable hedge. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 2, p. 13.*)

¹ All introductions consist of seeds unless otherwise noted. It should be understood that the varietal names of fruits, vegetables, cereals, and other plants used in these inventories are those which the material bore when received by the Office of Foreign Seed and Plant Introduction; and further, that the printing of such names here does not constitute their official publication and adoption in this country. As the different varieties are studied, their identity fully established, their entrance into the American trade forecast, and the use of varietal names for them in American literature becomes necessary, the foreign varietal designations appearing in these inventories will in many cases undoubtedly be changed by the specialists interested in the various groups of plants and the forms of the names brought into harmony with recognized American codes of nomenclature.

47349 to 47357—Continued.**47352. CASSIA BONARIENSIS** Colla. *Cæsalpiniaceæ.*

A shrub from Buenos Aires, Argentina, growing about 6 feet high, with lance-shaped leaflets and ornamental clusters of yellow flowers.

For previous introduction, see S. P. I. No. 43773.

47353. CASSIA HIRSUTA L. *Cæsalpiniaceæ.*

An erect annual herb covered with long hairs. The compound leaves are made up of three to five pairs of ovate leaflets 2 to 3 inches long, and the yellow flowers are borne in axillary racemes. Native to Brazil. (Adapted from *Martius, Flora Brasiliensis, vol. 15, pt. 2, p. 114.*)

47354. DAHLIA MAXIMILIANA Hort. *Asteraceæ.***Dahlia.**

A tall dahlia, about 7 feet high, with smooth lenticular stems, bipinnate leaves having relatively slender petioles, and lilac flowers. The plant presents a stately appearance and continues in bloom for a considerable time. Native to Mexico. (Adapted from *Gardeners' Chronicle, vol. 11, p. 216.*)

47355. ECHIUM NERVOSUM Ait. *Boraginaceæ.*

A shrubby perennial with lanceolate leaves and large, ovate racemes of blue flowers. It is native to the Madeira Islands, where it flowers from June to August. (Adapted from *Aiton, Hortus Kewensis, 2d ed., vol. 1, p. 300.*)

47356. ECHIUM WILDPRETTII Pearson. *Boraginaceæ.*

A tall, softly hairy biennial, with a simple, erect, leafy stem, 2 to 3 feet high, terminated by a dense-flowered thyrus of innumerable short-peduncled cymes which are very much shorter than the linear, upcurved floral leaves. The stem leaves are 6 to 8 inches long, softly hairy on both surfaces; the lower floral leaves are 3 to 4 inches long and linear. The pale-red flowers are funnel or bell shaped. Native to the Canary Islands. (Adapted from *Curtis's Botanical Magazine, pl. 7847.*)

47357. HIBISCUS MUTABILIS L. *Malvaceæ.*

A tall East Indian shrub, with large, broad cordate leaves and bearing large red flowers which change to white. It blooms in summer and late autumn, and is considerably planted in gardens and hedges. (Adapted from *Britton, Flora of Bermuda, p. 238.*)

47358. GARCINIA TINCTORIA (DC.) W. F. Wight. *Clusiaceæ.*

(*G. xanthochymus* Hook. f.)

From Cienfuegos, Cuba. Presented by Mr. Robert M. Grey, Harvard Experiment Station. Received April 1, 1919.

"The tree, which is fairly rapid in growth, has large, opposite, elliptic or oblong, coriaceous leaves 6 to 10 inches long. The orange-yellow fruits, borne singly or in clusters of 3 to 5 in the axils of the leaves on mature wood, are round or tapering to an acute apex and are often over 2 inches in diameter. They are made up of 3 to 5 segments, each usually containing a large, oblong seed. The flavor of the ripe fruit is subacid and not excellent. The green fruit, when cut or injured, exudes a quantity of yellow gum. Received several years ago under the name of *Garcinia mangostana.*" (*Grey.*)

47359. ROSA GENTILIANA Lev. and Van. Rosaceæ. **Rose.**

From Witcombe, Gloucester, England. Presented by Lady Harriet Thiselton-Dyer. Received April 2, 1919.

A rose which is abundant in the mountainous regions of western Hupeh and eastern Szechwan, where it forms tangled masses 6 meters or more in height. The numerous large white flowers are very fragrant, and the anthers are golden yellow. The species is easily distinguished by its glabrous, pale-gray shoots and the 3 to 5 foliolate leaves which are shining green above and very pallid beneath. (Adapted from *Sargent, Plantae Wilsonianae, vol. 2, p. 312.*)

Cuttings from the same plant were received as *Rosa cerasocarpa* Rolfe (now referred to *R. gentiliana*) and recorded under S. P. I. No. 46789.

47360. GLYCINE PRICEANA (Robinson) Britton. Fabaceæ. **Price's groundnut.**

(*Apios priceana* Robinson.)

From Hartsville, S. C. Collected by Mr. J. B. Norton, Agricultural Explorer for the Department of Agriculture, in September, 1918. Received April 2, 1919.

"Seed from plants growing on the grounds of Mr. David R. Coker, Hartsville, S. C. I collected the original tuberous roots in October, 1917, at Bowling Green, Ky. Bowling Green is the type locality and the only known region where this wonderful bean grows wild. This plant is useful both as an ornamental and as a food plant." (*Norton.*)

47361. XANTHOSOMA SAGITTAEFOLIUM (L.) Schott. Araceæ. **Yautia.**

From Port of Spain, Trinidad, British West Indies. Corms presented by Mr. Claude Connell through Mr. F. W. Urich, entomologist, Board of Agriculture. Received April 2, 1919.

"A yautia, with reddish buds, received under the name of 'nut eddo.' The flesh of the corms is yellowish when cooked, and of fair flavor." (*R. A. Young.*)

47362 and 47363.

From Peking, China. Presented by Mr. Han, assistant director, Chinese Forestry Bureau, through Hon. Paul S. Reinsch, American Minister at Peking. Received April 3, 1919. Quoted notes by Mr. Han.

47362. PISTACIA CHINENSIS Bunge. Anacardiaceæ. **Chinese pistache.**

"The pistache tree is a fairly rapid grower. Its wood is good, durable, and much valued in making household furniture and agricultural implements. Its shoots are edible. Oil is extracted from its seeds. It is found in the central parts of China, especially along the northern side of the Yangtze Valley. It is of great economic value."

For previous introduction, see S. P. I. No. 46136.

47363. STILLINGIA SEBIFERA (L.) Michx. Euphorbiaceæ. **Tallow tree.**
(*Sapium sebiferum* Roxb.)

"The tallow tree is well known for the oil it produces. Two kinds of oil are produced from the tallow tree: the waxy oil from the outside of the seed, much used in making tallow, and the liquid oil extracted from the seeds. It is found in the central parts of China, especially along the northern side of the Yangtze Valley. It is of great economic value."

For previous introduction, see S. P. I. No. 23218.

47364. Gossypium sp. Malvaceæ. Kidney cotton.

From Asahan, Sumatra. Collected at Kampong Poeloe, Mandi, by Prof. H. H. Bartlett, University of Michigan, Ann Arbor, Mich. Received April 3, 1919.

"*Kapas Palembang*. Seed of a native-grown cotton from Kampong Poeloe, Mandi, Asahan, Sumatra. It grows to be a small tree." (*Bartlett*.)

47365. LITHOCARPUS CORNEA (LOUR.) Rehder. Fagaceæ.
(*Quercus cornea* Lour.)

From Hongkong, China. Purchased from Mr. W. J. Tutcher, superintendent, Botanical and Forestry Department. Received April 3, 1919.

"An oaklike tree with oblong, sharp-pointed evergreen leaves 2 to 4 inches long, which are smooth and green on the under side; interesting particularly as bearing acorns as hard-shelled as the nuts of the American hickory, which contain a kernel almost as sweet as the sweetest Spanish chestnut. Said to be a very interesting ornamental as grown on the island of Hongkong." (*David Fairchild*.)

For previous introduction, see S. P. I. No. 10633.

47366 to 46368. ACACIA spp. Mimosaceæ. Acacia.

From Tangier, Morocco. Presented by M. Jules Goffart. Received April 3, 1919.

47366. ACACIA BUXIFOLIA A. Cunn.

An Australian shrub with slender twiggy branches bearing nearly erect, lanceolate, glabrous phyllodia and racemes, longer than the leaves, of four to six globose heads of deep-yellow flowers. (Adapted from *Hooker, Icons Plantarum, vol. 2, pl. 164.*)

47367. ACACIA HOLOSERICEA A. Cunn.

This shrub or small tree from Australia is interesting because of the white, silky pubescence which covers the branches and leaves. The branchlets are 3-angled; the obliquely acute phyllodia are 4 to 6 inches long; and the flowers are in spikes 2 inches long. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 1, p. 187.*)

47368. ACACIA NOTABILIS F. Muell.

A tall handsome shrub found on the slopes of the mountains in New South Wales and South Australia. The sword-shaped, almost linear, phyllodia are 4 to 6 inches long, and the dense globular heads, of about 50 flowers each, are borne in short racemes. (Adapted from *Bentham, Flora Australiensis, vol. 2, p. 365.*)

47369. PHORMIUM TENAX Forst. Liliaceæ. New Zealand flax.

From Auckland, New Zealand. Purchased through Mr. J. W. Poynton. Received April 3, 1919.

"Good *Phormium tenax* seed, purchased from a local seedsman. The variety has no name; in fact, the plant does not vary much, it is known as 'good' or 'poor' according to its size and fiber content." (*Poynton*.)

47370. PHYLLOSTACHYS PUBESCENS Houzeau. Poaceæ. Bamboo.

From Anderson, S. C. Rhizomes purchased from Mr. Rufus Fant. Received April 3, 1919.

"Mr. Fant's account of this clump [from which these rhizomes were taken] is that about twenty years ago he saw the 'Giant Japanese Bamboo' advertised in a florists' paper by H. H. Berger, of San Francisco. He sent the money and bought a plant, or rather a piece of rhizome; it died. He sent again and got a pot-grown plant; he was afraid this was not hardy, so kept it potted for about five years, until it outgrew the pot, and then planted it out of doors where it now stands. In 1912 he formed the idea of starting a grove along a little stream which runs through Silver Brook Cemetery, not far from his house. So he took up a clump of bamboo in February and planted it there—we counted, together, 266 good-sized canes about 30 feet tall. One is $12\frac{1}{2}$ inches in circumference 1 inch above the ground. The range is from 5 to $12\frac{1}{2}$ inches in circumference.

"On each side of his house Mr. Fant has plantings of this true Moso bamboo, *Phyllostachys pubescens*, or *P. mitis* as it was formerly called. On the right the clump had been cut back and was low and bushy; on the left the culms were tall, almost to the roof of the 2-story house. Mr. Fant explained that the clump on the right had been killed or at least seriously injured by a freeze of $+2^{\circ}$ F., which occurred February 15, 1918. He had cut the bamboo to the ground as soon as the new growth began, April 15, so that the dead culms were annoying for only two months. By May 10 the bushy growth had attained its present height. This is an important fact, for it indicates how quick will be the recovery from frost injury and of how little consequence is the fact that once in a while the grove may be killed down. The house protected the clump on the sheltered side." (*David Fairchild, Report of Southern Trip, 1918.*)

47371 to 47374. THEOBROMA CACAO L. Sterculiaceæ. Cacao.

From Dominica, British West Indies. Presented by Mr. Joseph Jones, curator, Botanic Gardens. Received April 7, 1919. Quoted notes by Mr. Jones.

47371. "The *Calabash* cacao. It is the hardiest of all varieties and yields the lowest grade of cacao."

47372. "A *Forastero* variety, with red-colored pods; very prolific."

47373. "C*riollo* variety, with yellow-colored pods; yields seeds of good quality."

47374. "Yellow *Forastero* variety, with yellow-colored pods; yields seeds of good quality."

47375 to 47377. LITCHI CHINENSIS Sonner. Sapindaceæ. Lychee.

(*Nephelium litchi* Cambess.)

From Honolulu, Hawaii. Cuttings presented by Mr. J. E. Higgins, horticulturist, Hawaii Agricultural Experiment Station. Received April 8, 1919. Quoted notes by Mr. Higgins.

47375. "No. 1083. This is the lot received from you through Seattle in 1907."

47376. "No. 1265. *Kwai mi*."

The *Kwai mi* (or *Kuei uei*) is a very popular commercial variety. The fruit has a very rough but pretty red skin, which is often tinged with green. Fruits of the *Kwai mi* the skin of which is altogether red are said to be very inferior to those with the green markings. This green

47375 to 47377—Continued.

color of the skin usually appears on the shoulders. There is usually a line or constriction in the skin, running around the fruit, which is quite characteristic. The roughened character of the skin, which is quite prickly, is another prominent feature of this variety. The seed of the *Kwai mi* is very small and dry. The flavor of the flesh is very sweet and fragrant, from which the variety doubtless gets its name of "cinnamon flavor." (Adapted from *Groff, The Lychee and Lungan, p. 93.*)

47377. "No. 1266. Hak ip."

The *Hak ip* (or *Hei yeh*) is one of the most widely known and popular varieties in Kwangtung. It is widely planted, but certain places are known to produce fruits of the better types. A characteristic feature of the *Hak ip* is the color of the leaves, which are very dark and from which the variety gets the name "Black leaf." The leaves are long and wide, pointed, and slightly curled. The tree is densely covered with them. The petioles are quite long. The fruit ripens in June and July, the season in which the best lychees appear. It is a medium-sized fruit with thin, soft skin. The shoulders are wide. The color is not so red as that of many varieties and is tinged with green. The seed is usually fully developed, of good size, and readily germinates. The inside of the skin, and sometimes the flesh, is slightly pink. The flesh is sweet and crisp. This variety is said to be one of the best of the "water lychees," but it is also recommended for upland conditions if sufficient water for irrigation is assured. It is a beautiful tree and widely used as an ornamental. (Adapted from *Groff, The Lychee and Lungan, p. 95.*)

47378. CUCURBITA PEPO L. Cucurbitaceæ.**Squash.**

From Shanghai, China. Presented by Mr. F. J. White, president, The Shanghai Baptist College and Theological Seminary. Received April 8, 1919.

"This squash is a greenish bronze, round, and ribbed; the flesh is remarkably thick and of very good quality. There is hardly any cavity at all inside the squash." (*White.*)

47379 to 47395. TRITICUM AESTIVUM L. Poaceæ.**Wheat.**

(*T. vulgare* Vill.)

From Queensland, Australia. Presented by Mr. H. C. Quodling, Director of Agriculture, Brisbane. Received April 9, 1919.

"Most of these varieties of wheat were grown at the Roma State Farm and are known so far only by letters and numbers corresponding with the records at the particular institution." (*Quodling.*)

47379. <i>Amy.</i>	47388. <i>B × IP 1.</i>
47380. <i>Bunge.</i>	47389. <i>B × IP 2.</i>
47381. <i>Coronation.</i>	47390. <i>B × Man 5.</i>
47382. <i>Haidee.</i>	47391. <i>B × Man 7.</i>
47383. <i>Soutter's Early.</i>	47392. <i>Bp × Bl 45.</i>
47384. <i>Warren.</i>	47393. <i>B × WP 50.</i>
47385. <i>Beloturka × Florence 3.</i>	47394. <i>C. C. C.</i>
47386. <i>B × F 33.</i>	47395. <i>343 × 18.</i>
47387. <i>B × F 96A.</i>	

47396. TRIPSACUM LAXUM Nash. Poaceæ. **Guatemala grass.**

From Alta Vera Paz, Guatemala. Presented by Kensett Champney & Co., Finca Sepacuite. Received May 2, 1919.

"Introduced originally from Guatemala by Mr. G. N. Collins who states that it grows wild rather extensively in the vicinity of Alta Vera Paz, Guatemala, and is known to the natives as *pal*. No use is made of it by the natives.

"Guatemala grass has grown very luxuriantly at Miami, Fla., for the past three years. The canes become an inch or more in diameter and grow to a height of about 12 feet. The nodes are numerous and the texture of the stems rather soft and juicy with a somewhat mucilaginous sweetish sap. The leaves are from 2 to 3 inches broad and are rather strongly armed on the margins with minute sharp teeth. These teeth are the only objectionable feature to the grass, as if carelessly handled the leaves will cut the hands. The grass looks exceedingly promising for either silage or for green feed. At Miami canes are often left over winter and have fallen down and become procumbent, and these canes have produced flowers in abundance but no good seed. Therefore all distributions of the grass made thus far have of necessity been of pieces of the cane, from which the grass grows very readily." (*C. V. Piper.*)

An illustration of this grass as it grows at Miami, Fla., is shown in Plate I.

47397. GOSSYPIUM sp. Malvaceæ. **Cotton.**

From Algiers, Algeria. Presented by Dr. L. Trabut. Received April 12, 1919.

"I have received from a correspondent at Djibouti a cotton which he has selected and which he characterizes as 'Coton Gabod,' obtained at Djibouti, at Din Davona. It is satisfied with an annual rainfall of 300 mm. in a very hot country, in siliceous-argillaceous soil; not irrigated for two years." (*Trabut.*)

47398 and 47399. DIOSCOREA ALATA L. Dioscoreaceæ. **Yam.**

From St. Lucia, British West Indies. Tubers presented by Mr. Samuel Rosen, New York. Received April 12, 1919. Quoted notes by Mr. R. A. Young.

47398. "A white-fleshed yam of medium size. It is quite moist when cooked, but makes an excellent dish when mashed and beaten thoroughly."

47399. "A medium-sized yam of good quality, with yellowish flesh."

47400. SCHRANKIA sp. Mimosaceæ.

From Bahia, Brazil. Presented by Dr. V. A. Argollo Ferrão. Received April 12, 1919.

"A kind of sensitive plant that forms a small bush and appears to make a forage crop as well as a green manure. Mules and cattle are fond of it. This seed was collected from plants growing in an orchard on argillaceous soil." (*Argollo Ferrão.*)

47401 and 47402.

From Cairo, Egypt. Presented by Mr. F. G. Walsingham, Horticultural Section, Gizeh Branch, Ministry of Agriculture. Received April 15, 1919.

47401. CESTRUM PARQUI L'Her. Solanaceæ.

A semihardy, nearly glabrous shrub, native to Chile. The leaves are lanceolate to oblong and the long tubular flowers are sessile in open panicles, greenish yellow, and very fragrant at night. It is much

47401 and 47402—Continued.

grown in warm countries where it blooms continuously. (Adapted from *Bailey, Standard Cyclopaedia of Horticulture, vol. 2, p. 727.*)

47402. *HYPHAENE THEBAICA* (L.) Mart. Phœnicaceæ. **Doum palm.**

An Egyptian palm, 3 to 9 meters in height, with a trunk about 30 centimeters in diameter.

For previous introduction, see S. P. I. No. 45004.

47403 to 47408. *THEOBROMA CACAO* L. Sterculiaceæ. **Cacao.**

From Port of Spain, Trinidad, British West Indies. Seeds and pods presented by Mr. R. S. Williams, Acting Director of the Department of Agriculture. Received April 15, 16, and 17, 1919.

"Pods of each of six varieties of our best-bearing types of *Forastero cacao*." (*Williams.*)

47403. 1a.	47406. 4a.
47404. 2a.	47407. 5a.
47405. 3a.	47408. 6a.

47409 to 47415. *RIBES* spp. Grossulariaceæ. **Currant.**

From Middle Green, Langley, Slough, England. Plants purchased from Mr. J. C. Allgrove. Received April 17 and 19, 1919.

Introduced for breeding experiments.

47409 and 47410. <i>RIBES NIGRUM</i> L.	Black currant.
47409. <i>Carter's Champion.</i>	47410. <i>Ogden's Black.</i>
47411 to 47415. <i>RIBES VULGARE</i> LAM.	Garden currant.
47411. <i>American Wonder.</i>	47414. <i>La Versailles, red.</i>
47412. <i>Cherry.</i>	47415. <i>Warner's grape, red.</i>
47413. <i>For's Large Grape, red.</i>	

47416 to 47422.

From Philippine Islands. Presented by Mr. P. J. Wester, agricultural adviser, Zamboanga. Received April 17, 1919. Quoted notes by Mr. Wester.

47416. *GYNURA SARMENTOSA* (Blume) DC. Asteraceæ.

"A climber with panicles of orange-colored flowers which have a pronounced odor similar to that of the field daisy. It is very floriferous. If it succeeds it would make a very striking and attractive climber. Collected at an altitude of 1,500 feet in Mindanao."

47417 to 47420. *RUBUS* spp. Rosaceæ.

"Four species of *Rubus* sent to me from the Mountain Province [Luzon] without any vernacular names or description, and I am therefore unable to give any information as to what species they are."

47417. *RUBUS* sp.

A large-seeded form.

47418. *RUBUS* sp.

A form with medium-sized seeds.

47419. *RUBUS* sp.

Small seeded; apparently small fruit.

47420. *RUBUS* sp.

Small seeded; apparently medium-sized fruit.



A CLUMP OF GUATEMALA GRASS AT MIAMI, FLA. (TRIPSACUM LAXUM NASH., S. P. I. No. 47396.)

Guatemala grass, a new forage crop for the South, introduced in 1919, has been found valuable in southern Florida, where it is now being planted extensively by dairymen and others. On ordinary soil it reaches 6 to 8 feet in height; on muck lands it grows even larger and produces 20 to 60 culms to a clump. The stems are juicy practically to the base, and cattle eat them with great avidity. Propagation is easily effected by means of the joints, which should be placed in moist moss and roots allowed to develop before they are planted in the field. The species, which will not tolerate much frost, gives promise of an important future in Florida as a soiling and silage crop. (Photographed by Peter Bisset, Miami, Fla., December 10, 1917; P23778FS.)



A DISH OF THE ACOM. (DIOSCOREA LATIFOLIA BENTH., S. P. I. [No. 47564.]

The acom, one of the tropical yams, is almost unique among the edible species of this genus in that the tubers are aerial, being borne in the vine axils of the leaves instead of underground. The flesh of the tubers is yellowish, very dry, and firm, with a distinctive flavor. While perhaps not of such high table quality as some of the white-fleshed yams, the exceptional keeping qualities of the acom may give it a place of considerable value in our markets when the right conditions for growing it in this country are found. It is much esteemed where grown in Brazil. (Photographed, slightly reduced, by E. L. Crandall, from tubers grown at the Plant-Introduction Garden, Brooksville, Fla., April 24, 1920; P25411FS.)

47416 to 47422—Continued.

47421 and 47422. *VIGNA SINENSIS* (Torner) Savi. Fabaceæ. **Cowpea.**

"Two varieties of sitao, *Vigna sinensis*, a climbing bean with long, slender, flexible pods that may be eaten as string beans and are of good quality when picked young and tender."

47421. *Tentdog.*

47422. *Inombog.*

47423. *DIMOCARPUS LONGAN* Lour. Sapindaceæ. **Longan.**
(*Nephelium longana* Cambess.)

From Port Louis, Mauritius. Presented by Mr. G. Regnard. Received April 22, 1919.

"The fruits of this longan are small but excellent. Plants of this variety grown from seed bear well and would certainly grow in Florida." (*Regnard.*)

47424 and 47425.

From Guayaquil, Ecuador. Presented by Dr. Frederic W. Goding, American consul general. Received April 21, 1919. Quoted notes by Dr. Goding.

47424. *ACHRADELPHIA MAMMOSA* (L.) O. F. Cook. Sapotaceæ. **Sapote.**
(*Lucuma mammosa* Gaertn. f.)

"A fruit about the size of a teacup, resembling a potato in general appearance and having a rough, dark greenish brown skin mottled with sordid yellow. The edible portion is red, soft, and sweet, with a peculiar but pleasant flavor; in the center of the edible portion is a shuttle-shaped seed about 2 inches long, of a chestnut-brown color, and always split along one side. Within the hard, thin, shining shell is a white kernel."

47425. *MAMMEA AMERICANA* L. Clusiaceæ. **Mamey.**

"From the injured skin of the *mamey de Cartagena* exudes a resinous, gummy juice which is much used for killing chigoes and lice when applied locally. Animals suffering with mange and sheep ticks are cured by washing in a decoction made by boiling the seeds in water; if, however, ulcers are present it should not be employed—as a case is known of a dog suffering from mange and ulcers, but otherwise healthy, that died in two days after having been bathed twice in the solution. Used in the form of a cerate it kills many varieties of insects. An infusion of the fresh or dry leaves (one handful to a pint of water in cupful doses) given during the intervals of fever, has repeatedly cured intermittents and remittents which did not yield to the quinine salts. The treatment should be continued for several days. A yellow and violet-scented liquor is made from the fruit and flowers and is a very delicious beverage. The fruit eaten green or ripe, or in preserves, possesses beneficial stomachic qualities."

47426 to 47428. *COIX LACRYMA-JOBI* L. Poaceæ. **Job's-tears.**

From Buitenzorg, Java. Presented by Dr. W. Docters van Leeuwen, director, Botanic Garden. Received April 22, 1919.

47426. Fruit narrowly ovate, twice as long as broad, pearl gray.

47427. Fruit nearly spherical; the ordinary variety.

47428. Fruit narrowly ovate, 2½ times as long as broad, grayish brown.

47429 and 47430. HIBISCUS SABDARIFFA L. Malvaceæ. Roselle.

From Zamboanga, Philippine Islands. Presented by Mr. P. J. Wester, agricultural adviser. Received April 23, 1919.

"Var. *altissima*. Because of the fibrous and spiny character of the small calyces of the two forms belonging to the *altissima*, they have no culinary value. However, their habit of growth is favorable to the production of a long fiber; and, according to Mr. M. M. Saleeby, chief of the fiber division of this Bureau, the two forms of this variety are far superior to jute and to all other varieties of roselle (including four from India) in habit, growth, and yield. As yet the problem of utilization of the fiber of the *altissima* has not been carefully studied, but it is apparently suitable for all uses in which jute fiber is now employed." (*Wester, Philippine Agricultural Review, vol. 7, p. 268.*)

47429. *Altissima* roselle, red. **47430.** *Altissima* roselle, white.

47431. DIMOCARPUS LONGAN LOUR. Sapindaceæ. Longan.
(*Nephelium longana* Cambess.)

From Port Louis, Mauritius. Presented by Mr. Gabriel Regnard. Received April 24, 1919.

"The longan has fruited successfully both in Florida and California. The quality of the fruit, however, is inferior; and the principal interest which this species now has for us is in connection with lychee culture, as it is possible that it may be of value as a stock for the lychee in certain regions." (*Wilson, Popenoe.*)

47432 and 47433. IPOMOEA BATATAS (L.) Poir. Convolvulaceæ. Sweet potato.

From Mayaguez, Porto Rico. Tubers presented by Mr. T. B. McClelland, horticulturist, Porto Rico Agricultural Experiment Station. Received April 24, 1919.

"Tubers of two varieties of the mamey type of sweet potato from the eastern part of the island. The donor distinguishes these as *Mameyona*, or large mamey, and *mameyita*, or small mamey. He prefers the *mameyita*, if it is eaten immediately after digging, but says that the *mameyona*, if kept for a week, has the better flavor. However that may be, both belong to the best type of Porto Rican [sweet] potato." (*McClelland.*)

47432. *Mameyona*. **47433.** *Mameyita*.

47434. ANNONA SQUAMOSA L. Annonaceæ. Sugar-apple.

From Rio de Janeiro, Brazil. Presented by Mr. T. R. Day, chief, Industrial Department, Leopoldina Railway Co., Ltd. Received April 29, 1919.

"Seed of the *pinha* (fruta de conde), of a very special variety. This is not the very large kind, but it is the best flavored I have ever found in the country. This fruit will grow in southern Florida." (*Day.*)

47435. VIGNA SESQUIPEDALIS (L.) Fruwirth. Fabaceæ.

Yard-Long bean.

From Gatun, Canal Zone. Presented by Mr. George E. Hardwick. Received April 29, 1919.

"A bean the pods of which grow to a length of 15 to 20 inches." (*Hardwick.*)

47436 and 47437. SOJA MAX (L.) Piper. Fabaceæ. Soy bean.
(*Glycine hispida* Maxim.)

From Wakamatsu, Japan. Presented by Rev. C. Noss. Received April 29, 1919.

47436. Received as *Ogon daizu*. Seeds large, nearly spherical, golden yellow. The seeds, however, agree with those of S. P. I. No. 40371, *Dekisugi*.

47437. Received as *Hato koroshi daizu*. The seeds agree, however, with those of S. P. I. No. 40119, *Usuao*.

47438 and 47439.

From Bahia, Brazil. Presented by Sr. V. A. Argollo Ferrão. Received May 2, 1919. Quoted notes by Sr. Argollo Ferrão.

47438. CROTALARIA sp. Fabaceæ.

"A species from the coast, which grows in sandy land."

47439. CROTALARIA sp. Fabaceæ.

"A species from the mountains of Villa Nova, which grows in red soil formed by decomposed granitoid rocks."

47440. ATTALEA GOMPHOCOCCA Mart. Phœnicaceæ. Palm.

From Puntarenas, Costa Rica. Presented by Mr. A. Garrido. Received August 22, 1918. Numbered May, 1919.

An ornamental palm, native to Costa Rica, 20 to 30 feet high, crowned by a magnificent cluster of large leaves with very numerous linear or linear-lanceolate leaflets, bright green above and paler beneath. The fruit is fibrous coated. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 1, p. 428.*)

47441 to 47445.

From Burringbar, New South Wales. Presented by Mr. B. Harrison. Received April 30, 1919. Quoted notes by Mr. Harrison.

47441. CHENOPODIUM sp. Chenopodiaceæ.

"*Blackham's saltbush*. A species of Chenopodium grown in South Australia for fodder."

47442 and 47443. CUCUMIS MELO L. Cucurbitaceæ. **Muskmelon.**

47442. "Large rock melon. Seed saved from a specimen weighing 18 pounds."

47443. "The *Egyptian* or *Shemum* rock melon, which weighs about 18 pounds."

47444 and 47445. CUCURBITA MAXIMA Duchesne. Cucurbitaceæ.

Pumpkin.

47444. "*Iron bark* pumpkin. An unrivaled table variety and a good keeper, 8 or 10 pounds in weight."

47445. "*Crown* pumpkin. A splendid table variety, very prolific and a good keeper, 5 to 10 pounds in weight."

47446. DIOSCOREA ALATA L. Dioscoreaceæ. Yam.

From Honolulu, Hawaii. Tubers presented by Mr. J. E. Higgins, horticulturist, Hawaii Agricultural Experiment Station. Received May 1, 1919.

"This yam, understood to be the best variety grown in Hawaii, has purple skin and flesh that is a little dark when cooked. Like many other varieties it is somewhat moist when cooked. Besides being boiled and mashed—a favorite method of preparation—yams may be baked or, after being boiled, may be sautéed or made into a salad like potatoes. The yam makes an especially good salad." (*R. A. Young.*)

47447. PHASEOLUS LUNATUS L. Fabaceæ. Lima bean.

From Guelph, Ontario, Canada. Presented by Mr. James A. Neilson, Ontario Agricultural College. Received May 6, 1919.

"Lima beans which were grown near Iroquois, Ontario, in the garden of Mr. Leigh Harkness. Mr. Harkness states that this strain of beans has been grown by members of his family since 1876. The seed was first procured from a seedsman in Philadelphia, Pa. During the first few years that the beans were tried at Iroquois comparatively few ripened; but through selection of the earliest maturing and most productive plants for seed, a strain has been isolated which matures in a latitude which is farther north than where Lima beans can usually be grown.

"During the past summer I had the privilege of going through Mr. Harkness's garden and was very favorably impressed with the fine appearance of the beans. The plants were not very large, being about 16 to 18 inches in height and of about the same breadth, but they were very productive. I will venture to say that some of the plants produced as many as 75 pods from 3 to 4 inches in length.

"Iroquois is in Dundas County and is approximately 44° 45' north latitude. Considering the fact that Lima beans are native to climates which are much warmer than that of the St. Lawrence River Valley, I think that Mr. Harkness has attained very good results." (*Neilson.*)

47448 to 47491. SOLANUM TUBEROSUM L. Solanaceæ. Potato.

From Edinburgh, Scotland. Tubers purchased from Dobbie & Co. Received May 8, 1919.

Introduced to be tested by the specialists of the Department for resistance to potato wart.

EARLY VARIETIES.

47448. *America.*
 47449. *Arran Rose.*
 47450. *Dargill Early.*
 47451. *Eclipse.*
 47452. *Edzell Blue.*
 47453. *Eightyfold.*
 47454. *Epicure.*
 47455. *Exhibition Red Kidney.*
 47456. *May Queen.*

EARLY VARIETIES—continued.

47457. *Midlothian Early.*
 47458. *Resistant Snowdrop.*
 47459. *Sharpe's Express.*
 47460. *Witch Hill.*

SECOND EARLY VARIETIES.

47461. *Arran Comrade.*
 47462. *British Queen.*
 47463. *Climax.*

47448 to 47491—Continued.

SECOND EARLY VARIETIES—continued.

47464. *Great Scot.*
 47465. *Mauve Queen.*
 47466. *King George.*
 47467. *The Ally.*
 47468. *The Duchess.*

LATE VARIETIES.

47469. *Arran Chief.*
 47470. *Arran Victory.*
 47471. *Burnhouse Beauty.*
 47472. *Golden Wonder.*
 47473. *Irish Queen.*
 47474. *Kerr's ink.*
 47475. *King Edward.*

LATE VARIETIES—continued.

47476. *Langworthy.*
 47477. *Lochar.*
 47478. *Majestic.*
 47479. *Nithsdale.*
 47480. *Rector.*
 47481. *St. Andrew.*
 47482. *Templar.*
 47483. *The Bishop.*
 47484. *The Factor.*
 47485. *The Favorite.*
 47486. *The Provost.*
 47487. *Tinwald Perfection.*
 47488. *Up-to-Date.*
 47489. *White City.*

The following two numbers are seedlings from the cross *Snowball* × *Myatt's Ashleaf*:

47490. No. 3. M. T.

47491. No. 16. M. T.

47492. CARICA PAPAYA L. Papayaceæ.**Papaya.**

From Richmond, Jamaica, British West Indies. Presented by Mr. Henry B. Wolcott. Received May 10, 1919.

"The development of commercial papaya culture depends upon obtaining hardier types which are suitable for market purposes. For this reason, seed is desired from all of the important regions in the Tropics where papayas are commonly grown. Jamaica is one of the best known of these regions." (*Wilson Popenoc.*)

47493 to 47495. DIOSCOREA spp. Dioscoreaceæ.**Yam.**

From Singapore, Straits Settlements. Tubers presented by Mr. I. Henry Burkill, director, Botanic Gardens. Received April 17, 1919.

47493. DIOSCOREA BULBIFERA L.

This yam grows wild in Sylhet, Chittagong, and throughout the western Ghats to Bombay, and it is cultivated in the Western Presidency, especially in the Konkan. The tubers, after being dried and powdered, are applied to ulcers. The bulbules on the stems and the tubers under ground are used as vegetables. The latter are bitter, but are rendered eatable by being covered with ashes and steeped in cold water. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 3, p. 128.*)

47494. DIOSCOREA HISPIDA Dennst.

Mr. Burkill says in his letter announcing the shipment of these yams that this one is "poisonous, but its starch has been used in these parts from time immemorial when famine presses."

47495. DIOSCOREA sp.

"A fingered, lobulate yam from the Philippines. It is related to *Dioscorea pentaphylla* or to *D. cumingii*; excellent cooked, but the yield is too small." (*Burkill.*)

47496 to 47503.

From Entebbe, Uganda. Presented by the chief forestry officer, Forestry Department. Received April 29, 1919.

47496. ACACIA sp. Mimosaceæ.

An ornamental shrub or tree, with handsome foliage and cylindrical spikes or globular heads of yellow flowers.

47497. CHLOROPHORA EXCELSA (Welw.) Benth. and Hook. Moraceæ.

This is a valuable timber tree, native throughout most of tropical Africa. The wood is whitish, gradually changing to pale bay, and it is durable and easily worked. The tree often reaches a height of 130 feet, with a diameter of 10 feet, the trunk bare of branches for 60 feet. The thin, leathery, elliptic leaves are 6 to 7 inches long. The flowers, borne in dense spikes, are of two kinds: The staminate having long exerted white stamens, while the pistillate are inconspicuous. The slightly fleshy fruits are greenish yellow. (Adapted from Prain, *Flora of Tropical Africa*, vol. 6, pt. 2, p. 22.)

47498. ERYTHRINA EXCELSA Baker. Fabaceæ.

A tree, native to upper Guinea, growing to a height of 60 feet. It has glabrous branches which are armed with numerous sharp, straight, short prickles. The leaves are trifoliate, the broadly ovate central leaflet being 9 inches long. The bright-scarlet flowers are borne in dense racemes about 6 inches long. (Adapted from *Oliver, Flora of Tropical Africa*, vol. 2, p. 183.)

47499. MARKHAMIA PLATYCALYX (Baker) Sprague. Bignoniaceæ.
(*Dolichandrone platycalyx* Baker.)

A tree, 30 to 40 feet high, known in Uganda, where it is native, under the name *lusambia*. It is said to yield the finest of local timbers. The compound leaves are made up of five to nine obovate leaflets and the flowers, which are yellow striped with red, are borne in axillary and terminal panicles. (Adapted from *Thiselton-Dyer, Flora of Tropical Africa*, vol. 4, pt. 2, p. 525.)

47500. MONODORA MYRISTICA (Gaertn.) Dunal. Annonaceæ.

Calabash nutmeg.

A large, branching tree, native to Africa. The shining, pale-green leaves are confined to the ends of the branches. The fragrant flowers, borne singly in the axils of the leaves, are about 6 inches across, with 3 spreading, wavy-margined, yellow petals and three erect, creamy white petals, all six dotted with red. The fruit, 4 to 6 inches in diameter, contains a number of cylindrical seeds each about 1 inch long which have a flavor closely resembling that of the nutmeg. (Adapted from *Curtis's Botanical Magazine*, pl. 3059.)

47501. PAHUDIA AFRICANA (Smith) Prain. Cæsalpiniaceæ.
(*Afzelia africana* Smith.)

This large forest tree is a native of the Niger and Kongo Valleys in western Africa. The abruptly pinnate leaves are made up of four to five pairs of elliptical, thinly coriaceous leaflets 3 to 5 inches long. The small, white and red, fragrant flowers are borne in lax or dense racemes and are followed by smooth, thick, woody pods containing about 10 seeds. (Adapted from *Oliver, Flora of Tropical Africa*, vol. 2, p. 302.)

47496 to 47503—Continued.**47502. SPATHODEA NILOTICA** Seem. Bignoniaceæ.

This is a bushy tree up to 20 feet in height; native to the upper Nile Valley and the Belgian Kongo. The opposite leaves are made up of 9 to 15 leathery leaflets covered with dense short hairs beneath. The scarlet flowers are borne in short, dense, terminal racemes and resemble closely those of the well-known *Spathodea campanulata*. (Adapted from *Thiselton-Dyer, Flora of Tropical Africa, vol. 4, p. 529.*)

47503. SYZYGIUM sp. Myrtaceæ.

A shrub or small tree probably bearing edible fruits; closely related to the Eugénias.

47504 to 47507. ELAEIS GUINEENSIS Jacq. Phœnicaceæ.**Oil palm.**

From Buitenzorg, Java. Presented by Dr. P. J. S. Cramer, chief, Division of Plant Breeding, Department of Agriculture. Received April 24, 1919.

The oil palm is indigenous to the Guinea coast, where travelers found it used by the natives as early as the sixteenth century. From there it has gradually been disseminated throughout the Tropics.

The palm attains 15 to 20 meters in height; its trunk is erect and straight; the trees are monœcious, and the pistillate flowers develop into fruits (drupes) of the form and size of a prune, yellow or brownish at maturity, according to variety.

These fruits, numbering 1,000 to 1,500 upon a raceme, have a hard, woody endocarp surrounded with a fibrous and at the same time fleshy pulp, varying in thickness according to variety, and containing much oil. The seed contains an oleaginous kernel which is exported to Europe under the name *palmiste*.

In his Documents sur le Palmier à Huile, Chevalier mentions several varieties of this plant, differing in production and the quality of their oil. The development of improved varieties will be a matter of great importance.

The racemes are harvested by natives who are very skillful in climbing the palms. The principal season of ripening is toward the end of the rains, but the harvest continues more or less throughout the year.

The fruit yields two sorts of oils: One is extracted from the pulp (*huile de palme*) and the other from the seed (*huile de palmiste*).

Huile de palme is seen in Europe only in the solid state, since it does not become liquid at a lower temperature than 40° C. It is orange-yellow in color. When fresh it has a faint odor of violets and is employed by the natives who use it very extensively in cooking. It becomes rancid very quickly. Commercially, it is used in soap making.

In its native home (Dahomey, for example) the oil is extracted by fermenting the fruits in jars for several days; they are then mashed, the nuts are taken out, and the pulp is boiled in large kettles of water. The oil rises to the surface of the water and is skimmed off. Its purification is later brought about by boiling it for some time. The nuts, clean of pulp, are then broken with stones or hammers. The kernel (*palmiste*) is removed and dried, after which it is ready for use. These dried kernels are exported to Europe, and yield under pressure 40 to 42 per cent of palmiste oil which is white and has a melting point of about 25° C. This oil is employed in the making of fine soap. (Adapted from *Capus et Bois, Les Produits Coloniaux, 1912, p. 294.*)

The following are selected strains:

47504. "Banga K. 46 I." 47506. "Nsombo C. 42 II."
 47505. "Banga K. 54 I." 47507. "Nsombo D. 24 II."

47508 and 47509. PSIDIUM GUAJAVA L. Myrtaceæ. Guava.

From San Marcos, Cuba. Presented by Mr. Robert Reid. Numbered in May, 1919.

"I am sending you two packages of seed of Peruvian guava, white and pink. The white is the best guava." (Reid.)

47508. White. 47509. Pink.

47510 to 47512.

From Zamboanga, Philippine Islands. Presented by Mr. P. J. Wester, agricultural adviser. Received May 12, 1919. Quoted notes by Mr. Wester.

47510. BOTOR TETRAGONOLOBA (L.) Kuntze. Fabaceæ. Goa bean.
 (*Psophocarpus tetragonolobus* DC.)

"*Seguidilla*. A climbing bean with 4-winged pods which, when used as string beans while tender, are of excellent quality. They should be of great value in Porto Rico and Panama."

47511. DRACAENA sp. Liliaceæ.

"This *Dracaena* may prove a good pot plant for the conservatory, and of course for culture out of doors in Porto Rico and southern Florida."

47512. GYNURA SARMENTOSA (Blume) DC. Asteraceæ.

"The *Gynura* is a composite climber. It is a plant worthy of all the care possible to establish it in the West Indies and Florida."

**47513. PHYTELEPHAS MACROCARPA Ruiz and Pav. Phœnicaceæ.
 Ivory-nut palm.**

From Para, Brazil. Burs purchased from Mr. George H. Pickerell, American consul. Received May 13, 1919.

An arborescent palm with a thick, rough, creeping trunk, from the under surface of which roots are given off; native to South America and Central America. The leaves which crown the trunk closely resemble those of the coconut palm in size, shape, and disposition. The flowers emit a strong perfume, especially the large, white, pistillate flowers which are, however, few in number. The fruits grow on the trunk just above the bases of the leaves in bunches of six or seven, and are called *cabeza de negro* by the natives of Colombia. The albumen of the seed is the so-called vegetable ivory, and this becomes whiter and more opaque on exposure to the air. (Adapted from *The West Indian Bulletin*, vol. 9, p. 279.)

47514. PHYSALIS PERUVIANA L. Solanaceæ. Poha.

From Sawtelle, Calif. Presented by Mr. P. D. Barnhart, superintendent, Danziger Estate, Beverly Hills. Received May 13, 1919.

"Native to temperate and tropical America, widely naturalized in many countries of the warmer zones. With double inaptness called the Cape gooseberry. A perennial herb; but for producing its fruit well it requires early renovation. The acidulous berries can be used as well for table fruit as for preserves. The dried fruit acts as a substitute for yeast. Doubtless several

other kinds of *Physalis* can be utilized in the same manner. In colder countries *Physalis peruviana* becomes annual. Seeds will keep for eight years." (Mueller, *Select Extra-Tropical Plants*, p. 377.)

47515. STEVIA REBAUDIANA Bertoni. Asteraceæ.

From Asuncion, Paraguay. Presented by Mr. H. H. Balch, American consul. Received May 5, 1919.

Kaá-Hcé. "This Paraguayan herb is of peculiar interest because of the very large saccharin content of the leaves. A fragment placed on the tongue seems sweeter than a lump of sugar of similar size. Several years ago the discovery that this plant, then called eupatorium, contained a substance many times sweeter than sugar was heralded by the press and excited the keen interest of sugar planters all over the world. The substance turned out to be a glucosid, and the anxiety of the sugar interests subsided." (David Fairchild.)

47516. ACHRADELPHA MAMMOSA (L.) O. F. Cook. Sapotaceæ.

(*Lucuma mammosa* Gaertn. f.)

Sapote.

From Laguna, Philippine Islands. Presented by the Bureau of Agriculture, Manila. Received May 14, 1919.

"One of the most important fruits of the Central American lowlands, well known to the Indians since time immemorial. It is wild in many regions, notably southern Mexico and Guatemala. It occurs most abundantly between sea level and 2,000 feet; at 3,000 feet it is still common, while at 4,000 it becomes scarce. It is generally believed that it will not succeed at 5,000 feet, but occasionally trees are seen at this elevation. In the highlands they are slow of growth and the fruit requires a long time to reach maturity.

"In the lowlands the sapote (Spanish orthography *zapote*) is a large forest tree, often 60 feet in height, with a thick trunk and stout branches. The Indians, when clearing land for coffee plantations, usually leave the sapote trees they encounter for the sake of their valuable fruits. The foliage is abundant and light green in color; the leaves are clustered toward the ends of the branchlets and are obovate or oblanceolate in outline, broadest toward the apex, and 4 to 10 inches long. The flowers are very small, produced in great numbers upon the stout branchlets.

"The fruit is elliptical in form, commonly 3 to 6 inches in length but sometimes larger. The skin is thick and woody, externally russet in color and somewhat scurfy. The flesh is salmon red, finely granular in texture, and of sweet, almost cloying flavor, in poor specimens strongly suggesting a squash or pumpkin. The single seed is large, shining brown except on the rough, whitish ventral surface, and is easily removed from the fruit.

"The Indians commonly eat the sapote out of hand. It is occasionally made into a rich preserve, however, and can be used in a few other ways. It is slightly inferior in quality to its near relative, the injerto or green sapote (*Achradelpha viridis*) of Guatemala.

"The seed of the sapote is an article of commerce in Central America. The large kernel is removed, roasted, and used to mix with cacao in the preparation of chocolate. According to some of the Indians, it imparts flavor to the chocolate; others say it is done to increase the bulk of the latter. In view of the high price of chocolate it seems more likely that sapote seeds are used as an adulterant, rather than for their flavor.

"In southern Mexico and Central America this fruit is known as *zapote* (from the Aztec *tzapotl*); in Guatemala the Indians know it under the Maya names *saltul*, *saltulul*, and *tulut*; in Cuba it is called *mamey colorado*; and in the Philippines *chico mamey*." (Wilson Poppenoe.)

47517. CACARA EROSA (L.) Kuntze. Fabaceæ. Yam bean.
(*Pachyrhizus angulatus* Rich.)

From Santiago de las Vegas, Cuba. Presented by Dr. Mario Calvino, director de la Estacion Experimental Agronomico. Received May 19, 1919.

Jicama de agua. These seeds have been introduced for the purpose of determining the botanical differences between the several forms of this species. This form was received under the name *Pachyrhizus tuberosus*.

47518. ZINZIBER OFFICINALE ROSCOE. Zinziberaceæ. Ginger.

From Kingston, Jamaica. Roots presented by Mr. W. Harris, superintendent, Hope Gardens, Department of Agriculture. Received May 21, 1919.

This material was procured for experimentation.

47519. TRICHOSCYPHA sp. Anacardiaceæ.

From Loanda, Angola, Africa. Seeds presented by Mr. J. Gossweiler. Received May 21, 1919.

"No. 6882. A dioecious, palm-shaped tree, 25 meters in height, which produces on its trunk, about 2 meters above the ground, large bunches of peachlike, edible, succulent fruits. Quite a distinct, curious, and ornamental plant from Angola. March, 1919." (*Gossweiler*.)

47520 to 47523. TRIFOLIUM ALEXANDRINUM L. Fabaceæ. Berseem.

From Cairo, Egypt. Presented by Mr. Thomas W. Brown, director, Horticultural Section, Gizeh Branch, Ministry of Agriculture. Received May 21, 1919.

"To judge by its behavior at Bard, Calif., berseem seems to have considerable promise as a winter annual for the extreme Southwest. There are still problems in regard to proper planting dates, soil inoculation, etc., to be solved, but for the last three years the yields on the experimental plats at Bard have been large enough to encourage further trials." (*Roland McKee*.)

47520. No. 1.

47522. No. 3.

47521. No. 2.

47523. No. 4.

47524 and 47525.

From Ecuador. Presented by Dr. J. N. Rose, associate curator, U. S. National Herbarium, Washington, D. C. Received May 26, 1919. Quoted notes by Dr. Rose.

47524. CARICA CANDAMARCENSIS Hook. f. Papayaceæ.

"This *Carica* from Ambato (No. 22354) is very different from the other *Carica* (S. P. I. No. 46623) collected by me in Ecuador. It has a stout, thick trunk and a large, round top. Unlike most of the other species, male and female flowers are borne abundantly on the same plant. The fruit is small, about 3 inches long, and has three broad, low ribs. It is used chiefly in making dulces. It is usually grown in yards or gardens."

47525. TROPAEOLUM PELTOPHORUM Benth. Tropæolaceæ. Nasturtium.

"Several species of *Tropaeolum* are to be found in Ecuador. Between Chuncha and Huigra I collected this very interesting one (my No. 22408). It is a small creeping vine with peltate leaves and small yellow or orange flowers."

47526. LYCOPERSICON ESCULENTUM Mill. Solanaceæ. Tomato.

From Naples, Italy. Presented by the Museo Commerciale e Coloniale of Naples, through Mr. B. Harvey Carroll, jr., American consul. Received June 11, 1919.

"Tomato seed of the variety 'fiascone' or 'fiaschetti,' of which the English translation would be 'little flagons' on account of the shape of the tomato. This is the type of tomato most largely grown in this consular district and most used for canning and for making tomato paste." (*Carroll*.)

47527. SAGUERUS PINNATUS Wurm. Phœnicaceæ. Sugar palm.
(*Arenga saccharifera* Labill.)

From Mayaguez, Porto Rico. Presented by Mr. D. W. May, Porto Rico Agricultural Experiment Station. Received May 14, 1919.

"The *gomuti* palm is one of the most useful of palms, and occurs in a wild state throughout the islands of the Indian Archipelago, but is more common in the interior, principally in the hilly districts, than on the sea coast; it is also very generally cultivated by the various people who inhabit that region. It is indigenous to Sonda and the Philippines, and is cultivated generally in tropical Asia. This palm attains a height of 30 to 40 feet and, in addition to its saccharine sap, furnishes a highly valuable black fibrous substance, ejo fiber, superior in quality, cheapness, and durability to that obtained from the husk of the coconut, and renowned for its power of resisting moisture. It is used by the natives of the Indian islands for every purpose of cordage, and is known as *tsongli*. Underneath this material is found a substance of a soft gossamerlike texture, which is imported into China. It is applied as oakum in caulking the seams of ships, and more generally as tinder for kindling fire. It is for the latter purpose that it is chiefly in demand among the Chinese. In Malacca, the *gomuti*, there termed *kabong*, is cultivated principally for the juice which it yields for the manufacture of sugar." (*Simmonds, Tropical Agriculture, p. 252.*)

47528 to 47530. HEVEA SPRUCEANA (Benth.) Muell. Arg. Euphorbiaceæ.

From Para, Brazil. Presented by M. Au Lims de Vasconcellos Chaves. Received May 17, 1919.

"In the region where the 'seringueira barriguda' occurs I was told that its latex is of inferior quality and not used in the preparation of rubber. It is certain that in the lower Tapajoz country, where this plant appears to be most common, the best rubber is furnished by other species, principally *Hevea brasiliensis*. According to Dr. Ule, in the Juruá region the latex of *H. spruceana* is sometimes mixed with that of *H. brasiliensis*, with the result that the quality of the latter is impaired, and the product is known as 'borracha pobre.'" (*Huber, Observações sobre as Árvores de Borracha da Região Amazonica, p. 11.*)

47528. "Barriguda" 948.

47530. "Barriguda" 950.

47529. "Barriguda" 949.

47531. CUCURBITA sp. Cucurbitaceæ. Squash.

From Guayaquil, Ecuador. Presented by Dr. J. N. Rose, associate curator, United States National Herbarium, Washington, D. C. Received May 26, 1919.

"(Rose No. 24034. Collected August 11, 1918.) A squash found hanging in a tree; the vine was dead so that no foliage or flowering specimen could be obtained." (*Rose*.)

47532. IPOMOEA CAIRICA (L.) Sweet. Convolvulaceæ.*(I. palmata* Forsk.)**Morning-glory.**

From Zamboanga, Philippine Islands. Presented by Mr. P. J. Wester, agricultural adviser. Received May 28, 1919.

"Seeds of a white-flowered variety of *Ipomoea cairica*, extremely attractive and floriferous. Unlike most plants of this family, *I. cairica* is everblooming. The mauve-colored variety is the most popular climber in the Philippines and very rarely seeds, being propagated by cuttings. The plant from which these seeds were obtained is the only one I have seen with white flowers." (*Wester.*)

47533. FRAGARIA INSULARIS Rydb. Rosaceæ.**Strawberry.**

From Kingston, Jamaica. Presented by Mr. W. Harris, Hope Gardens. Received May 29, 1919.

The "wild strawberry" of Jamaica. Introduced for breeding experiments in developing new varieties of strawberries.

47534 and 47535. PRUNUS spp. Amygdalaceæ.

From Chevy Chase, Md. Collected by Dr. David Fairchild, at his home "In the Woods." Received June 3, 1919. Quoted notes by Dr. Fairchild.

47534. PRUNUS SUBHIRTELLA AUTUMNALIS Makino.

"Seed from a tree of the October blooming Japanese flowering cherry tree imported from the Yokohama Nursery Co., Yokohama, Japan, in 1906. I suggest it as a stock for commercial cherries because of its unusual vigor. Its trunk has been very free from disease, it does not sucker, its seedlings are not subject to the usual leaf blight (*Cylindrosporium padi*), and its seeds are regularly produced. The flowers are single and are produced both in autumn (October) and spring (about April 1)."

47535. PRUNUS SUBHIRTELLA PENDULA (Sieb.) Tanaka. Rosebud cherry.

"Seed gathered from drooping Japanese cherry trees imported in 1906 from the Yokohama Nursery Co., Yokohama, Japan. The unusual vigor of these drooping cherry trees, the fact that they belong to a long-lived species which in Japan grows to be 300 years old, combined with the facts that the leaves of the seedlings are free from the *Cylindrosporium padi* disease which attacks the Mazzard seedlings, that their trunks are vigorous and are free from disease such as gummosis, and also that the trees bear abundant crops of seeds, would seem to indicate that it is worth testing as a stock for our cultivated cherries, providing it should prove congenial. I have grown seedlings, and find that though uniformly vigorous some have the drooping habit whereas others are upright in growth, agreeing with the prototype which Wilson says occurs wild in the mountains of China and Japan and which he has called variety *ascendens*. No leaf blight has been observed among them. Gathered June 5 or 6, 1919."

47536. XANTHOSOMA sp. Araceæ.**Yautia.**

From Huigra, Ecuador. Corms grown until June, 1919, in the Department of Agriculture greenhouse, from material collected in September, 1918, by Dr. J. N. Rose, associate curator, U. S. National Herbarium.

"(No. 22574.) Found in a semiarid region, among cacti and other dry-land plants on a gravelly hillside, at an altitude of 4,000 feet." (*Rose.*)

"The corms, which seem to be usually only a few ounces in weight, are edible when cooked. They have a yellow interior, surrounded by a layer about three-sixteenths of an inch thick, of translucent white flesh; this is acrid, and requires longer cooking than the inner part to make it edible. The corms of this yautia should make a satisfactory starchy food in regions where the plant can be grown. The cormels are diminutive at first and appear to grow slowly." (*R. A. Young.*)

47537. TRIGONELLA FOENUM-GRÆCUM L. Fabaceæ. Fenugreek.

From Waukegan, Ill. Presented by Blatchford's Calf Meal Factory. Received June 5, 1919.

"*Egyptian fenugreek*, or *helba*, as it is called by the Arabs. This plant yields an important condiment; and its root system is so remarkably provided with tubercles that it is worthy of serious attention as a green-manure crop. The seeds are also of value for feeding purposes, and a large quantity of fodder is produced, which if cut before the seeds ripen is of excellent quality. The condition powders and condiment foods which are sold in England and America extensively and fed to ailing horses, cattle, and chickens, are mixtures of the fenugreek with other meals or grains. It is sometimes planted with berseem." (*David Fairchild.*)

47538 to 47547.

From Teheran, Persia. Presented by Col. J. N. Merrill, American legation. Received May 5, 1919.

47538. ALLIUM CEPA L. Liliaceæ. Onion.

"Onion seed from Tarum, 25 miles west of Zenjan, in western Persia." (*Merrill.*)

The following grains are introduced for variety tests being carried on by specialists of the Department of Agriculture.

47539 to 47541. HORDEUM VULGARE PALLIDUM Seringe. Poaceæ. Barley.

47539. No. 1.

47541. No. 3.

47540. No. 2.

47542. SECALE CEREALE L. Poaceæ.

Rye.

47543 to 47547. TRITICUM ÆSTIVUM L. Poaceæ.

Wheat.

(*T. vulgare* Vill.)

47543. No. 1.

47546. No. 4.

47544. No. 2.

47547. No. 5.

47545. No. 3.

47548 to 47550.

From Richmond, Victoria, Australia. Presented by Mr. F. H. Baker. Received June 2, 1919. Quoted notes by Mr. Baker.

47548. BANKSIA MARGINATA Cav. Proteaceæ.

"She-oak. Grows along the coast."

This wood is porous, soft, spongy, and light. In the process of drying it twists and warps to a great extent, but when thoroughly seasoned it takes a fine polish and has a pleasing surface. It is used in cabinet-making and for indoor ornamental work. (Adapted from *Maiden, Useful Native Plants of Australia*, p. 383.)

47548 to 47550—Continued.**47549.** CALLISTEMON RIGIDUS R. Br. Myrtaceæ.

"Bottle brush."

A shrub, sometimes 30 feet tall, native to New South Wales. The leaves, 2 to 5 inches long, are narrowly linear, and the red flowers, with dark-red stamens an inch long, are borne in large, dense spikes. (Adapted from *Bentham, Flora Australiensis, vol. 3, p. 121.*)

47550. CALLITRIS CUPRESSIFORMIS Vent. Pinaceæ.*(Frenela rhomboidea* Endl.)

"Murray pine. Grows in low districts of the mallee."

The timber is strong, durable, and close grained. It is much used for telegraph poles and for building purposes. (Adapted from *Maiden, Useful Native Plants of Australia, p. 543.*)

47551. BAUHINIA sp. Cæsalpiniaceæ.

From Cristobal, Canal Zone. Presented by Mr. S. P. Verner. Received June 2, 1919.

"I have a suspicion that this is the *cacique carey*." (Verner.)

"This name probably refers to a beautifully mottled wood which is used for making walking sticks." (W. E. Safford.)

47552 to 47555. DAHLIA spp. Asteraceæ. **Dahlia.**

From Leyden, the Netherlands. Seeds presented by the director of the botanical laboratory, Rijks Universiteit. Received June 2, 1919.

Introduced for experiments being conducted by specialists of the Department of Agriculture in tracing the ancestry of our cultivated dahlias.

47552. DAHLIA MERCKII Lehm.**47553 to 47555.** DAHLIA VARIABILIS Desf.**47553.** Hybrids.**47555.** Apparently mixed varieties.**47554.** Variety *paeoniaeflora*.**47556 to 47558.** SACCHARUM OFFICINARUM L. Poaceæ.**Sugar cane.**

From Porto Rico. Cuttings from Dr. E. W. Brandes, Office of Sugar-Plant Investigations. Received April 25, 1919.

47556. *Rayada*.**47558.** *D17*.**47557.** *D117*.**47559.** HYMENAEA COURBARIL L. Cæsalpiniaceæ. **Courbaril.**

From Puerto Cabello, Carabobo, Venezuela. Fruits presented by Mr. J. G. Meyer, American vice consul. Received June 5, 1919.

This important tree flourishes throughout the tropical parts of the Western Hemisphere. The pods contain an edible substance surrounding the seeds, and the wood is fine grained, hard, and heavy. The principal use of the tree is in furnishing South American copal, a gum which exudes from wounds in the bark [and is also said to exude naturally from the roots and lower part of the trunk]. Some of the trees in the Brazilian forest are 6 feet in diameter above the buttresses and are estimated to be more than 1,000 years old. These trees produce large quantities of gum during their lifetime, and the spot in which

one has stood often yields 5 to 10 barrels of the best gum, which is used in the manufacture of varnishes. (Adapted from *Bulletin of the Pan-American Union*, vol. 43, p. 453.)

47560. COLOCASIA ESCULENTA (L.) Schott. Araceæ. Dasheen.

From Port of Spain, Trinidad, British West Indies. Tubers presented by Mr. E. Andre. Received June 5, 1919.

"These dasheens were bought in the Port of Spain ground-provision market; they are a fair sample of what is sold under the name of dasheen, at prices that are subject to a good deal of fluctuation. The price during the last few days has been 3 cents per pound retail, which is also the price of eddoes. All starch foods are high; wheaten flour sets the price.

"Last year I conducted at the Dabadie Nurseries a pretty exhaustive set of experiments in the growing of dasheens and Chinese eddoes. I may say that only here and there, in some particularly favored patch close to the river bank, did an occasional dasheen give anything like a respectable tuber; the poor clay at Dabadie did not suit them. It was otherwise with the Chinese eddoes which did remarkably well with but little care. The dasheen requires well-watered, low-lying land for remunerative crops." (*Andre.*)

"The buds, or shoots, from the corms and cornels of this dasheen are white or greenish white, while those from the one heretofore grown by the United States Department of Agriculture as the Trinidad dasheen have pink shoots. The quality of the tested specimen of this new variety was good." (*R. A. Young.*)

47561. KOKIA ROCKII KAUAIENSIS Rock. Malvaceæ. Kokio.

From Honolulu, Hawaii. Presented by Mr. J. F. Rock. Received June 10, 1919.

"Seeds of a new variety of *Kokia rockii*, from the island of Kauai, discovered by Mr. A. Knudsen. There is only one specimen of the tree; it grows in the very dry region of Kauai, several miles from Mana, in Koaloha canyon, on the edge of a cliff, which saved it from destruction by cattle. I think the discovery of this form is one of the most noteworthy since the days of Hillebrand." (*Rock.*)

47562 and 47563. CARICA PAPAYA L. Papayaceæ. Papaya.

From Merida, Yucatan, Mexico. Presented by Mr. G. O. Totten, Washington, D. C. Received June 10, 1919. Quoted notes by Mr. Totten.

47562. "Seeds of a medium-sized papaya which grows only about 12 feet high and bears fruits of the finest flavor of any we ever tasted. They were brought to Merida from Campeche, Yucatan."

47563. "Seeds given to me by Mr. E. H. Thompson, former consul at Merida, who declared they were from a variety of very fine quality."

47564. DIOSCOREA LATIFOLIA Benth. Dioscoreaceæ. Acom.

From Bahia, Brazil. Tubers presented by Sr. V. A. Argollo Ferrão. Received June 11, 1919.

"*Inhame figado de piru* [turkey-liver yam] or *caissara*. This very interesting inhame is cultivated here in some localities, but is rare and is not found in the markets. The tubercules are borne on the vine. I had a few last year and planted them in December, when they were starting. I am now (April 28) picking the crop. Those I have eaten were boiled, and I found them very good. I think it is a plant worth propagating, for it gives an excellent substi-

tute for the potato, is productive, and the tubercles keep for several months without deterioration." (*Argollo Ferrão.*)

"Aerial tubers constitute the crop of this yam. The angular form of the tuber suggests the name 'turkey liver.' The flesh is of a yellowish color and very firm when cooked. The tubers are eaten boiled, fried, or baked. The flavor is mild, and there is just a suggestion of sharpness in the taste, which is in its favor." (*R. A. Young.*)

For an illustration of these aerial tubers, see Plate II.

47565. CASIMIROA EDULIS La Llave. Rutaceæ. **White sapote.**

Plants growing at the Plant-Introduction Field Station, Miami, Fla. Numbered June 27, 1919, for convenience in recording distribution.

"A productive, large-fruited variety which originated at the Miami garden. The fruits are oval to round, yellow-green, and sometimes nearly 4 inches in length. The flesh is cream colored, smooth, and sweet, with a trace of bitterness." (*Wilson Popenoe.*)

47566. TABERNAEMONTANA sp. Apocynaceæ.

From Guinea Grass, British Honduras. Presented by Mr. D. Masson. Received June 4, 1919.

"A sample of chicle and seeds from the same tree which in Central America is called *courgeton*." (*Masson.*)

47567. PRUNUS SERRULATA Lindl. Amygdalaceæ.

Flowering cherry.

From Chevy Chase, Md. Collected by Dr. David Fairchild, at his home "In the Woods." Received June 8, 1919.

"*Daizen*. Seeds from a tree at the southeast corner of my study. This tree, in fact all the *daizen* trees on my place, have characterized themselves by their regular fruiting habit, the cherry fragrance of their single white flowers, and the vigor of their trunks and freedom from suckers. These trees have been particularly free from disease and have struck me as promising for stock purposes. They were bought originally from the Yokohama Nursery Co., Yokohama, Japan, in the spring of 1906, and are now 13 years old and 20 feet or so high, with trunks about 6 inches in diameter.

"It is possible, of course, that the plants from these seeds will show the result of crossing with other varieties, such as *Murasaki* and *Jobeni* and *Naden*, with which they are closely planted. These varietal names are the ones attached to the trees when they were sent by the Yokohama Nursery Co." (*Fairchild.*)

47568. DOLICHOS LABLAB L. Fabaceæ. **Bonavist bean.**

From St. Vincent, British West Indies. Presented by Prof. S. C. Harland, assistant for cotton research, Agricultural Experiment Station. Received June 11, 1919.

"*St. Vincent Bush*. I discovered this type of bean in a peasant holding in St. Vincent in the spring of 1915 and found that it bred true when put into pedigree culture. Under cultivation it produces a wiry bush from 18 inches to 2 feet in height, and bears a heavy crop when environmental conditions are favorable. As a cover crop for orchards in Florida I think it is worth a trial.

"With me the plants of the bush *Dolichos* always flower when 5 weeks old and ripe pods are produced at 8 weeks. Often a second crop of pods is produced. The beans are quite palatable, though they are inferior to Lima beans.

"I should mention that in the course of my inheritance studies on *Dolichos*, I have established that the bush form behaves as a simple Mendelian recessive to the climbing form. In a cross between *St. Vincent Bush* (white) and *Purple Soudan* climber, I have isolated pure bush types of varying vegetative habits. Some are much more vigorous than the original bush parent. I have also succeeded in isolating a bush form of *Vilmorin's Stringless* by crossing *Stringless* with the native bush." (*Harland*.)

47569. STIZOLOBIUM BRACTEATUM (DC.) Kuntze. Fabaceæ.

From Namkham, Burma, India. Presented by Mr. Robert Harper. Received June 21, 1919.

Introduced for experiments being carried on with various forms of velvet beans.

47570 to 47575.

From Auckland, New Zealand. Presented by Mr. James W. Poynton. Received June 12, 1919. Quoted notes by Mr. Poynton.

47570. MERYTA SINCLAIRII (Hook. f.) Seem. Araliaceæ.

"Native name *puka*. The *Meryta* has large leaves, and is rather a striking-looking small tree much grown in gardens for ornament. For a time it was believed the rarest tree in the world, only one plant being known. One of our early botanists saw a tree near a large native camp, but the Maoris declared it was taboo and forbade him under penalty of death to touch it. He reported its discovery and described it as accurately as he could. No other naturalist had ever seen such a tree in New Zealand, and much interest was aroused by his report. Twelve years afterward he returned to the place and found the camp deserted; but the tree was still there. He got some leaves and flowers and sent them to the eminent botanist, Sinclair, who classified it, and it is now named after him. Subsequently 27 plants were found on some islands in the Hawaki Gulf near Auckland, and from them seeds were obtained for distribution. The plants are male and female."

47571. METROSIDEROS TOMENTOSA A. Rich. Myrtaceæ.

"The Christmas tree of our early settlers; native name *pohutukawa*. It comes into bloom mostly during Christmas week (midsummer here). The flowers are deep red, and the tree is very pretty when in flower. It grows well by the seaside, gives good shelter, and endures salt spray splendidly. The wood is hard and durable, but the tree does not grow straight, being bent at the branches. For this reason it was much sought after for knees for boat building."

47572. PHORMTUM TENAX Forst. Liliaceæ. New Zealand flax.

"I gathered the flax seed myself from some strong, well-fibered plants growing in the Court House grounds at Hamilton in the Auckland Province of New Zealand. I can therefore warrant it to be of good pedigree and freshly gathered."

47573. PHYLLOCLADUS TRICHOMANOIDES D. Don. Taxaceæ.

"Cones of the remarkable 'celery-topped pine'; native name *tanekaha*. The bark contains two valuable red dyes and about 22 per cent of tannin.

47570 to 47575—Continued.

When about 18 months old the leaves become aborted and the leafstalks expand, become leaflike, and take on all the functions of leaves. Some of the acacias do this; but this, I believe, is the only pine with this habit."

47574 and 47575. VERONICA spp. Scrophulariaceæ.

"The veronicas in New Zealand are the most numerous of special plants. We have about 550 species of plants, and of these the veronicas number over 100. In the northern hemisphere they are merely herbs; some species here attain the dignity of trees, being 30 feet high and as thick as a man's body; most of them are shrubs."

47574. VERONICA sp.

"This one is a large-leaved shrub with purple flowers."

47575. VERONICA sp.

"This species is a smaller leaved shrub with light-blue flowers."

47576. MEIBOMIA LEOCARPA (Spreng.) Kuntze. Fabaceæ.
(*Desmodium leiocarpum* Don.)

From Santiago de las Vegas, Cuba. Cuttings presented by Dr. M. Calvino, director, Agricultural Experiment Station. Received June 14, 1919.

"This plant was introduced by me from Brazil and has shown itself to be a very good legume fodder for Cuba. I am now experimenting to see if it can be propagated by cuttings." (*Calvino*.)

47577. CROCUS SATIVUS L. Iridaceæ.**Saffron.**

From Valencia, Spain. Bulbs presented by Mr. J. R. Putnam, American consul. Received June 16, 1919.

A light-purple autumn-flowering crocus native to southern Europe. Commercial saffron consists of the deep orange-colored stigmas of the flowers gathered with part of the style and carefully dried. A grain of good saffron contains the stigmas and styles of 9 flowers, and over 4,000 flowers are required to yield an ounce of saffron. The principal use is to furnish an orange-red dye. (Adapted from *Lindley, Treasury of Botany, vol. 1, p. 349.*)

47578 and 47579.

From Miami, Fla. Plants grown at the Plant-Introduction Field Station at Miami. Numbered for convenience in recording distribution in June, 1919.

47578. JUBAEA CHILENSIS (Molina) Baill. Phœnicaceæ.**Palm.**(*J. spectabilis* H. B. K.)

"This is the palm from which the palm honey of Chile is made. This sirup is the most delicious I have ever tasted. It is superior, in my estimation, to maple sirup, being milder and not cloying the palate as the latter does. In 40 years the trees will be ready to tap for the sap from which this sirup is made. It is a very ornamental palm but a slow grower. It thrives on very dry, poor soils, and requires very little water. Hitherto palms have been felled, but they can be tapped, I am assured, just as maple trees are tapped." (*David Fairchild.*)

47578 and 47579—Continued.**47579.** PUERARIA THUNBERGIANA (Sieb. and Zucc.) Benth. Fabaceæ.**Kudzu.**

"The kudzu vine is a large-leaved, rapid-growing legume, native to Japan. It succeeds well in nearly all sections of the United States. It is an excellent vine for arbors or wherever a quick cover is required. It furnishes an abundant and nutritious forage, and is of value for planting on rocky land or hillsides where cultivation is difficult. The roots produce starch of good quality." (J. H. Johnson.)

In moist, rich woodland it becomes a troublesome weed.

47580 to 47583.

Plants grown at the Plant-Introduction Field Station, Brooksville, Fla. Numbered for convenience in recording distribution in June, 1919.

47580. ACACIA LONGIFOLIA (Andrews) Willd. Mimosaceæ.

A bushy acacia, useful for binding coast sands since the lower branches root very readily and spread quickly. The bark, while not so high in tannin as that of *Acacia mollissima*, is used chiefly in tanning sheep skins. (Adapted from Mueller, *Select Extra-Tropical Plants*, p. 7.)

47581. HYPERICUM CANARIENSE L. Hypericaceæ. **St.-John's-wort.**

"A species native to the Canary Islands. It forms a shrub up to 15 feet in height. The leaves are oblong lance shaped, narrowed at the base, and 2 to 3 inches long. The flowers, produced in panicles, are 1 to 1½ inches across. Similar to *Hypericum floribundum*." (J. H. Johnson.)

47582. BULBINE LONGISCAPA (Jacq.) Willd. Liliaceæ.

"A stemless, liliaceous perennial with a small tuberous rootstock—alleged to *Anthericum*. The leaves are fleshy and very glaucous, 8 to 12 inches in length. The flower spike is a foot or more long, and the flowers are bright yellow, one-third of an inch long, the perianth segments reflexing when fully expanded. The capsule is the size of a pea. The plant is native to South Africa." (J. H. Johnson.)

47583. AGAVE VERSCHAFFELTII Lem. Amaryllidaceæ.

A variable species from southern Mexico, many named varieties being in cultivation. The leaves are 3 inches wide by 6 to 8 inches long, glaucous, tipped with red-brown spines and armed with long, rusty teeth on large, fleshy prominences. The inflorescence is rather sparse. (Adapted from Bailey, *Standard Cyclopaedia of Horticulture*, vol. 1, p. 233.)

47584 to 47592.

From Colombia. Collected by Mr. Alfred Lenz, Flushing, Long Island. Received June 16, 1919. Quoted notes by Wilson Popenoe.

47584. ACHRAS ZAPOTA L. Sapotaceæ.**Sapodilla.**

"The sapodilla or chicozapote is the best of the sapotaceous fruits. It is common in many parts of tropical America (found wild in several regions) and is cultivated successfully in southern Florida, where it merits commercial exploitation. The fruits, which are picked when still hard, can be shipped to distant markets. Choice varieties should be propagated by budding."

47584 to 47592—Continued.

47585. *ANNONA SQUAMOSA* L. Annonaceæ. Sugar-apple.

"One of the best of the anonas. It succeeds only in regions where there is little frost. It does well in southern Florida, but has never been successfully grown in California. New varieties should be tested to obtain superior ones combining productiveness with good size and quality of fruit."

47586. *CARICA PAPAYA* L. Papayaceæ. Papaya.

"The papaya succeeds admirably in southern Florida. The greatest difficulty which has been encountered thus far is the perishable nature of the fruit. This variety may aid in the production of varieties with better shipping qualities."

47587. *CARYOCAR* sp. Caryocaraceæ.

"This genus yields the souari nut, sometimes exported from South America to Europe. There are several species which produce edible nuts. Probably the only section of the United States in which they can be planted with reasonable hopes of success is extreme southern Florida."

47588. *CROTALARIA* sp. Fabaceæ.

A legume which may have possibilities as a green-manure or as a cover crop.

47589. *MIRABILIS JALAPA* L. Nyctaginaceæ.

Seeds of this herbaceous perennial with fragrant red, white, yellow, and variegated flowers are always interesting to grow in the search for new varieties.

47590. *PHASEOLUS COCCINEUS* L. Fabaceæ. Scarlet Runner bean.

A rather small variety having light-brown seeds with dark-brown markings.

47591. *PHASEOLUS VULGARIS* L. Fabaceæ. Common bean.

Small tan-colored beans with dark-brown markings.

47592. *ZEA MAYS* L. Poaceæ. Corn.

Ears of a small variety having flat, flinty kernels resembling pop corn.

47593. *OCHROMA LAGOPUS* Swartz. Bombacaceæ. Balsa wood.

From Santiago de las Vegas, Cuba. Presented by Dr. M. Calvino, director, Agricultural Experiment Station. Received June 24, 1919.

A wild tree, rather abundant, growing about 40 feet high and a foot or more in diameter. The wood is white, stained with red, luminous, and sometimes silky in aspect. It is very porous, the lightest of all woods, lighter even than true cork. In Trinidad and other places it forms an article of commerce with fishermen who use it in place of cork on their nets. (Adapted from *Cook and Collins, Economic Plants of Porto Rico, p. 205.*)

"In the past ten years this wood has sprung into prominence as an insulating material and for use in life rafts. Refrigerators, the thick walls of which are made of this wood, have kept ice for two weeks; refrigerator cars of unusual lightness and extraordinary insulating qualities are now being made of it, and a motor boat has been made nonsinkable by using it to fill the air spaces in its hull. Plantations of Balsa trees are even now being made in Central America under the stimulus of a large commercial company." (*David Fairchild.*)

47594. CASSIA sp. Cæsalpiniaceæ.

Plants growing at the Yarrow Plant-Introduction Field Station, Rockville, Md. Numbered in June, 1919, for convenience in recording distribution.

Grown from seeds received from Dr. A. Robertson Proschowsky, Nice, France, under the name *Cassia arborescens*.

47595 and 47596.

From Kabul, Afghanistan. Presented by Mr. A. C. Jewett, Fresno, Calif. Received June 18, 1919. Quoted notes by Mr. Jewett.

47595. BRASSICA sp. Brassicaceæ.

"A vegetable much like a turnip but which grows above the ground like a cabbage."

47596. CUCUMIS MELO L. Cucurbitaceæ.**Muskmelon.**

"This melon grows about a foot long and 7 inches in diameter. It is a late melon, ripening in September, and keeps for some time; I have had them at Christmas time. The meat is firmer than that of most muskmelons, is not very yellow, and is of good flavor."

47597. TRIFOLIUM PANORMITANUM Presl. Fabaceæ.**Palermo clover.**

From Algiers, Algeria. Presented by Dr. L. Trabut. Received June 19, 1919.

"A clover closely resembling *Trifolium alexandrinum*, which grows vigorously in damp places along the coast. It is easily distinguished by its dark-green color and its larger leaves. This clover makes a good forage, but does not as yet lend itself readily to cultivation. Hybridization experiments with berseem are being carried on. This Palermo clover shows local variations which should be studied." (Trabut.)

47598 to 47601. ZEA MAYS L. Poaceæ.**Corn.**

From Insein, Southern Circle, Burma, India. Presented by Mr. A. McKerral, deputy director of agriculture. Received June 23, 1919.

"Different kinds of maize grown by the Chins." (McKerral.)

47598. Nim-Tlorr.**47600. Nim-Doom.****47599. Nim-Pe.****47601. Nim-Leng.****47602. SOLANUM MELONGENA L. Solanaceæ.****Eggplant.**

From Zamboanga, Philippine Islands. Presented by Mr. P. J. Wester, agricultural adviser. Received June 24, 1919.

"An eggplant said to be of very good quality; it is a cross between the American and the native long slender variety." (Wester.)

47603 to 47616. BRASSICA OLERACEA BOTRYTIS L. Brassicaceæ.**Broccoli.**

From Reading, England. Purchased from Sutton & Sons. Received June 25, 1919.

These seeds have been introduced for specialists in the department who are studying the disease resistance of the several varieties.

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|---|-------------------------------------|
| 47603. <i>Autumn Protecting.</i> | 47610. <i>Safeguard Protecting.</i> |
| 47604. <i>Bouquet.</i> | 47611. <i>Satisfaction.</i> |
| 47605. <i>Improved White Sprouting.</i> | 47612. <i>Snow-White.</i> |
| 47606. <i>Late Queen.</i> | 47613. <i>Standwell.</i> |
| 47607. <i>Michaelmas White.</i> | 47614. <i>Superb Early White.</i> |
| 47608. <i>Purple Sprouting.</i> | 47615. <i>Vanguard.</i> |
| 47609. <i>Reading Giant.</i> | 47616. <i>Whitsuntide.</i> |

47617. COIX LACRYMA-JOBI L. Poaceæ. Job's-tears.

From Rio de Janeiro, Brazil. Presented by Mr. T. R. Day, through Mr. Augustus I. Hasskarl, vice consul, Rio de Janeiro. Received June 23, 1919.

"*Lagrimas de Nossa Senhora* (Tears of Our Lady). I found this plant growing in a natural state in Brazil, and have had it under experiment for about three years at one of the Leopoldina Railway Co.'s experiment stations. It is a very vigorous grower and produces under almost any conditions here great crops of excellent forage. It reaches a height of 10 feet or over, and a single plant often produces 40 to 50 shoots. The yield in green forage under favorable conditions runs very high, from 10 to even 20 tons to the acre, and the yield of grain is also very heavy. The seeds are very hard and require crushing or grinding before feeding, if allowed to mature. But I am of the opinion that the best results may be obtained from the use of the plant for soiling, cutting four or five times during the year.

"The plant stools well, continually sending up new shoots or stems, thereby renewing itself, and lasting here for some years. In temperate climates it would be an annual, as is the case with teosinte and maize. Its favorite habitat is a low, moist, or even marshy soil, but it will grow successfully in dry soils also. I have seen it growing luxuriantly in very wet localities, even in water." (*Day.*)

47618. VIGNA SINENSIS (Torner) Savi. Fabaceæ. Cowpea.

From Zamboanga, Philippine Islands. Presented by Mr. P. J. Wester, agricultural adviser. Received June 23, 1919.

"The *sitao*, a climbing vine with long, slender pods that may be eaten as string beans and are very good when picked tender." (*Wester.*)

47619 and 47620.

From Los Banos, Philippine Islands. Presented by Prof. C. F. Baker, dean, College of Agriculture, University of the Philippines. Received June 24, 1919. Quoted notes by Prof. Baker.

47619. ABECA IPOT Beccari. Phœnicaceæ. Palm.

"An ornamental palm, about 20 feet high; collected by M. Villaraza, in March, 1919, from cultivated plants at Majayjay, Province of Laguna. Local name, *bunga*."

47620. PYGEUM PRESLI Merr. Amygdalaceæ.

"A tree about 50 feet in height; collected by Nem. Catalan, March 26, 1919, from trees growing on the college farm. Local name, *lago*. Used for lumber."

47621 and 47622. ORYZA SATIVA L. Poaceæ. Rice.

From Clenaga, Magdalena, Colombia. Presented by Mr. A. Palacio. Received June 25, 1919.

Introduced for the use of Department specialists studying different varieties of rice.

47621. Canilla.

47622. Criollo.

47623. ACTINIDIA KOLOMIKTA (Maxim.) Rupr. Dilleniaceæ.

Grown at the Yarrow Plant-Introduction Field Station, Rockville, Md., and numbered in June, 1919, for convenience in distribution.

"A large-growing, deciduous, ornamental climber, native to Amur, China, and Japan. The flowers are one-half to five-eighths of an inch in diameter, white with purple stamens, and are produced in abundance. The fruit is the size of a gooseberry or small plum, and has somewhat the flavor of the former. The foliage is deep green, tinted with red, and is very ornamental." (*J. H. Johnson.*)

47624. CASIMIROA EDULIS La Llave. Rutaceæ. White sapote.

Plants growing at the Plant-Introduction Field Station, Chico, Calif. Numbered in June, 1919, for convenience in recording distribution.

Grown from seed collected by Mr. G. P. Rixford on the William A. Spinks place, Duarte, Calif.

47625 to 47628. ZEA MAYS L. Poaceæ. Corn.

From Kirin, China. Presented by Mr. Joseph Bailie. Received June 30, 1919.

"Corn from four separate ears. They may be all the same variety, but the ears looked different." (*Bailie.*)

47625. No. 1.

47627. No. 3.

47626. No. 2.

47628. No. 4.

47629 to 47830.

From Darjiling, Bengal, India. A collection of seeds presented by Mr. G. H. Cave, curator, Lloyd Botanic Garden. Received May 1, 1919.

47629. ACER CAMPBELLII Hook. f. and Thoms. Aceraceæ. Maple.

This is the principal maple of the northeastern Himalayas, where it grows at an altitude of 7,000 feet and more. The leaves are a beautiful green with red petioles. The grayish white close-grained wood is moderately hard and is extensively used for planking and for tea boxes. The tree reproduces freely by seed or by coppice and plays an important part in the regeneration of the hill forests. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 1, p. 69.*)

47630. ACER HOOKERI Miquel. Aceraceæ. Maple.

A tree about 45 feet in height, with undivided heart-shaped leaves; native to Sikkim, India, where it grows at altitudes of 8,000 to 10,000 feet. The wood is gray, and weighs 37 pounds to the cubic foot. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 1, p. 69,* and *Hooker, Flora of British India, vol. 1, p. 694.*)

47631. ACER LAEVIGATUM Wall. Aceraceæ. Maple.

A handsome tree with a broad, oval crown, native to the Himalayas from the Jumna eastward to Bhutan. The leaves are undivided and

47629 to 47830—Continued.

green on both surfaces. The wood is white, shining, hard, and close grained. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 1, p. 70.*)

47632. ACER THOMSONI Miquel. Aceraceæ. **Maple.**

A large tree, often 150 feet in height, found in the hills of Sikkim and Bhutan, India, at an altitude of 4,000 feet. The thick, coarse, 3-lobed leaves are a foot or more in length, and the wood is grayish white, soft, and very brittle. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 1, p. 71.*)

47633. ACTINIDIA STRIGOSA Hook. f. and Thoms. Dilleniaceæ.

A shrubby climber, native to Sikkim, India, with white flowers in axillary cymes and edible, ovoid, mucilaginous fruits a little more than an inch in length. (Adapted from *Hooker, Flora of British India, vol. 1, p. 286.*)

47634. TRICHOSPORUM BRACTEATUM (Wall.) Kuntze. Gesneriaceæ.
(*Aeschynanthus bracteata* Wall.)

An epiphytic shrubby plant, native to the temperate regions of the Himalayas at altitudes of 2,000 to 8,000 feet. The narrow, fleshy leaves are about 4 inches in length and the scarlet flowers are over an inch long. (Adapted from *Hooker, Flora of British India, vol. 4, p. 342.*)

47635. ALNUS NEPALENSIS D. Don. Betulaceæ. **Alder.**

A tall, sparsely branched, deciduous tree with dark-green bark which becomes brown and fissured with age. The bark is used in tanning and dyeing and is said to enter into the composition of native red inks. The wood is soft, close, and even grained, and is used for tea boxes. The tree grows rapidly, and in Nepal, where it is native, it thrives on the damp, uncultivable banks of rocky streams and river beds. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 1, p. 176.*)

47636. ALPINIA ALLUGHAS (Retz.) Roscoe. Zinziberaceæ.

A common plant in low, moist places in eastern India. It has polished, lanceolate leaves and large, numerous flowers of a beautiful rose color. The aromatic rhizomes are used by the Indians medicinally. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 1, p. 192,* and *Firminger, Manual of Gardening for India, p. 357.*)

47637. AMERIMNON SISSOO (Roxb.) Kuntze. Fabaceæ.
(*Dalbergia sissoo* Roxb.)

"The timber is very valuable and is one of the numerous kinds which are known in the timber trade as rosewood. The heartwood is brownish, and it possesses great strength and elasticity. It is also heavy, its weight being about 50 pounds to the cubic foot. The wood is used for all kinds of joinery and cabinetwork, carving, building material, gun carriages, etc. It requires a tropical or subtropical temperature." (*Gardeners' Chronicle, 3d ser., vol. 55, p. 82.*)

47638. ANEMONE RIVULARIS Buch.-Ham. Ranunculaceæ.

A woody ornamental plant from 1 to 3 feet in height, with the 3-parted basal leaves up to 6 inches in diameter, and white or bluish flowers, 1 to 1½ inches long, in compound cymes. It is a native of temperate regions in India and Ceylon above 5,000 feet altitude. (Adapted from *Hooker, Flora of British India, vol. 1, p. 9.*)

47629 to 47830—Continued.

47639. ANEMONE VITIFOLIA Buch.-Ham. Ranunculaceæ.

This Himalayan plant resembles in many respects the well-known Japanese anemone. The woolly foliage, however, is thicker and larger. The large flowers are pure white and are produced very freely during the summer months. This plant is not quite so hardy as its Japanese relative. (Adapted from *The Gardeners' Chronicle*, 3d ser., vol. 61, p. 88.)

47640. ARDISIA INVOLUCRATA Kurz. Myrsinaceæ.

A pink-flowered, evergreen shrub, 3 to 6 feet high, native to Sikkim, India. The globose berries are one-fourth of an inch in diameter. (Adapted from *Hooker, Flora of British India*, vol. 3, p. 528.)

47641. ARUNDINELLA HISPIDA (Humb. and Bonpl.) Kuntze. Poaceæ.

(*A. brasiliensis* Raddi.)

Grass.

A perennial grass with a stout, hard, creeping rootstock, and with a simple or branched stem from 1 to 5 feet in length. The leaves are from 6 to 12 inches long, and the panicles are 4 to 18 inches in length. This is an abundant grass throughout the hilly parts of India, and is distributed through the East Indies, South Africa, Australia, and tropical America. In Sao Paulo, Brazil, it is considered a good forage plant for dry lands. (Adapted from *Correa, Flora do Brazil*, p. 128, and *Hooker, Flora of British India*, vol. 7, p. 73.)

47642. ASTER HIMALAICUS C. B. Clarke. Asteraceæ.

Aster.

A small, robust Himalayan aster with rather hairy, leafy, ascending stems and solitary flower heads about 1½ inches in diameter. The 40 to 50 ligules are very narrow. In Sikkim, India, this aster is found at altitudes of 13,000 to 15,000 feet. (Adapted from *Hooker, Flora of British India*, vol. 3, p. 250.)

47643. ASTILBE RIVULARIS Buch.-Ham. Saxifragaceæ.

An erect, herbaceous plant with a perennial creeping rootstock, alternate compound leaves, and terminal panicles of small greenish flowers. It is very common in the temperate portions of the Indian Himalayas. (Adapted from *Hooker, Flora of British India*, vol. 2, p. 389.)

47644. BEGONIA AMOENA Wall. Begoniaceæ.

Begonia.

A stemless or short-stemmed tuberous-rooted plant, native to the temperate regions of the central and western Himalayas, with ovate or oblong acuminate leaves about 3 inches long. The few-flowered scape is from 3 to 6 inches in height. (Adapted from *Hooker, Flora of British India*, vol. 2, p. 642.)

47645. BERBERIS INSIGNIS Hook. f. and Thoms. Berberidaceæ. Barberry.

"This magnificent species forms a large bush, with deep-green leaves 7 inches long and bunches of yellow flowers." (*Hooker, Himalayan Journals*, vol. 1, p. 340.)

47646. BERBERIS NAPAULENSIS (DC.) Spreng. Berberidaceæ. Barberry.

A shrub or small tree, common in eastern India at altitudes above 5,000 feet. The wood is bright yellow and hard, is used to a small extent by the natives as a yellow dye, and because of its handsome color might be useful for inlaying. (Adapted from *Watt, Dictionary of the Economic Products of India*, vol. 1, p. 446.)

47629 to 47830—Continued.

- 47647. BETULA UTILIS** D. Don. Betulaceæ. **Birch.**
 A moderate-sized tree, 40 to 50 feet in height, with smooth shining whitish bark and irregularly serrate leaves. The tough hard wood is pinkish white and even grained. (Adapted from *Kirtikar, Indian Medicinal Plants, pt. 2, p. 1213.*)
- 47648. BRASSAIOPSIS SPECIOSA** Dec. and Planch. Araliaceæ.
 A small tree with the upper parts of the branches prickly and with digitate leaves. The panicle is large, sometimes more than a foot long. The tree is a native of Nepal, Assam, and Burma, India. (Adapted from *Hooker, Flora of British India, vol. 2, p. 737.*)
- 47649. BUCKLANDIA POPULNEA** R. Br. Hamamelidaceæ.
 A large evergreen tree, up to 80 feet in height, native to the eastern Himalayas at altitudes of 3,000 to 8,000 feet. The wood is grayish brown, close grained, and durable, and is very much used in Darjiling for planking and for doors and window frames. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 1, p. 545.*)
- 47650. BUDDLEIA ASIATICA** Lour. Loganiaceæ.
 A graceful, large shrub or small tree, common through India and the Malay Peninsula, ascending to 6,000 feet in the Nilghiri Hills. The lanceolate leaves are 4 to 8 inches long, and the small, white, sweet-scented flowers are borne in long, slender, spikelike racemes. This plant flowers continuously for three months in India. (Adapted from *Curtis's Botanical Magazine, pl. 6323.*)
- 47651. CALLICARPA RUBELLA** Lindl. Verbenaceæ.
 A small Chinese shrub, about 2 feet in height, entirely covered with short hairs. The flat, yellowish green leaves are 4 to 5 inches long, with strong dentations and cordate bases. The small pink flowers are borne in many-flowered cymes. (Adapted from *Botanical Register, vol. 11, p. 883.*)
- 47652. CALLICARPA VESTITA** Wall. Verbenaceæ.
 A medium-sized tree, often 30 feet high, with a thick trunk and ovate, acute leaves with silky white lower surfaces, 4 to 10 inches long. The lavender flowers are in axillary cymes. It is a native of Nepal and Sikkim, India, where it ascends to 4,000 feet. (Adapted from *Hooker, Flora of British India, vol. 4, p. 567.*)
- 47653. CAPPARIS OLACIFOLIA** Hook. f. and Thoms. Capparidaceæ.
 An erect thorny shrub, 6 to 8 feet tall, with shining leaves and large, axillary flowers, white, with blue anthers. The shrub is found in the tropical valleys of the Himalayas from Nepal to Assam. The wood is white and hard, and weighs about 44 pounds to the cubic foot. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 2, p. 132, and Hooker, Flora of British India, vol. 1, p. 178.*)
- 47654. CASSIA LAEVIGATA** Willd. Cæsalpiniaceæ. **Canudo de pito.**
 A tropical American ornamental shrub with panicles of whitish yellow flowers. The reedlike branches are used in Brazil for making smoking pipes. (Adapted from *Rodrigues, Hortus Fluminensis, p. 146.*)
- 47655. CASSIA TORA** L. Cæsalpiniaceæ.
 An annual shrub, common throughout the Tropics, the seeds of which have been recently used as an adulterant for coffee in Bombay, India.

47629 to 47830—Continued.

The aroma of the ground seeds is not unpleasant. The chemical analysis does not show any ingredients which are known to be harmful. (Adapted from *Poona Agricultural College Magazine*, vol. 9, p. 47.)

47656. CAUTLEYA LUTEA Royle. Zinziberaceæ.
(*Roscoea elatior* Smith.)

A slender herbaceous plant, native to the temperate regions of the Himalayas, 12 to 18 inches in height, with narrow, sessile leaves and loose spikes of yellow flowers with red calyces. The globose capsules are bright red. (Adapted from *Hooker, Flora of British India*, vol. 6, p. 208.)

47657. CELASTRUS PANICULATUS Willd. Celastraceæ. Bittersweet.

A climbing shrub of the Himalayan foothills, ascending to 4,000 feet. The seeds yield a deep-scarlet or yellow oil used medicinally as an external application. When subjected to destructive distillation, the seeds yield the oleum nigrum, an empyreumatic black oily fluid formerly employed in the treatment of beriberi. (Adapted from *Watt, Dictionary of the Economic Products of India*, vol. 2, p. 237.)

47658. CENTRANTHERA GRANDIFLORA Benth. Scrophulariaceæ.

A stiff, rough, yellow-flowered annual with narrow, rigid, sessile leaves about 2 inches long. The plant reaches a height of a foot or two and is a native of Sikkim, India. (Adapted from *Hooker, Flora of British India*, vol. 4, p. 301.)

47659. CLEMATIS GOURIANA Roxb. Ranunculaceæ. Clematis.

An extensive climber, found in the hilly districts of the western Himalayas and south to Ceylon, ascending to 3,000 feet. The leaves and stems abound in an acrid, poisonous principle which, when applied to the skin, causes vesication. The very small yellowish or greenish white flowers grow in dense panicles. (Adapted from *Watt, Dictionary of the Economic Products of India*, vol. 2, p. 369, and *Hooker, Flora of British India*, vol. 1, p. 4.)

47660. CLERODENDRUM INDICUM (L.) Druce. Verbenaceæ.
(*Clerodendron siphonanthus* R. Br.)

A large shrub with hollow herbaceous branches and whorls of 3 to 5 narrow leaves 6 to 9 inches long. The flowers, borne in loose terminal thyrsi, are white when first opening, gradually changing into cream color, and the calyces are red. The blue ovoid berries are supported by the enlarged, spreading calyces. This shrub is native to southeastern and southern India, where the roots and leaves are used by the natives medicinally. (Adapted from *Watt, Dictionary of the Economic Products of India*, vol. 2, p. 375, and *Brandis, Forest Flora of India*, p. 364.)

47661. COFFEA BENGALENSIS Roxb. Rubiaceæ.

This shrub, which is a close relative of the plant which furnishes the coffee of commerce, is a native of India and is remarkable for the number and beauty of its flowers. These flowers, which are large and white, are borne singly or in pairs at the ends of the branches. (Adapted from *Curtis's Botanical Magazine*, pl. 4917.)

47662. COMMELINA OBLIQUA Buch.-Ham. Commelinaceæ.

A tall, branched herb, common throughout the low moist regions of India, where the blue flowers appear chiefly during the rainy season.

47629 to 47830—Continued.

The root is said to be edible, and during times of scarcity the leaves and stems are used as greens. (Adapted from *Watt, Dictionary of the Economic Products of India*, vol. 2, p. 516, and *Hooker, Flora of British India*, vol. 6, p. 372.)

47663. *COTONEASTER ACUMINATA* Lindl. Malaceæ.

A deciduous shrub, native to the Himalayas of eastern India at altitudes of 4,500 to 10,000 feet. The white flowers are borne in compact cymes, and the hard white wood is used for making walking sticks. (Adapted from *Brandis, Forest Flora of India*, p. 209.)

47664. *COTONEASTER FRIGIDA* Wall. Malaceæ.

"Of the stronger growing Cotoneasters this is perhaps the best, for it grows into a very large bush, or sometimes a small tree, and rarely fails to fruit freely, the branches from and after late September being laden with large clusters of bright-red fruits. Moreover, it is more attractive when in flower than many of the Cotoneasters, the flowers being creamy white and produced in large heads. Although a deciduous species, the leaves are often retained until well into winter, and after a mild autumn it not infrequently happens that many leaves are left until January. The fruit also remains until well into the New Year if not troubled by birds. It is a Himalayan plant, and succeeds in a light and sunny position in good loamy soil." (*The Garden*, vol. 80, p. 555.)

47665. *COTONEASTER ROTUNDIFOLIA* Wall. Malaceæ.

One desirable feature of this Cotoneaster used as an ornamental plant is that the berries are less attractive to birds than those of any of the other kinds. This is a very important point, as some members of the genus are very quickly robbed of their beauty after the berries color. *Cotoneaster rotundifolia* is one of the Himalayan species, several of which run into each other by almost imperceptible gradations, so that, as might be expected, a certain amount of confusion attends their nomenclature. The true *Cotoneaster rotundifolia* is a beautiful shrub, usually forming a rather spreading bush 4 or 5 feet in height, clothed with small dark-green roundish leaves, many of which are retained throughout the winter unless the weather is particularly severe. The berries, which are about the size of peas, are very freely borne and of a deep-scarlet hue when ripe. (Adapted from *Journal of Horticulture and Home Farmer*, 3d ser., vol. 67, p. 599.)

47666. *CRACCA CANDIDA* (DC.) Kuntze. Fabaceæ.

(*Tephrosta candida* DC.)

A large shrub, native to Burma and Bengal, with hairy leaflets and pods, and white flowers, about an inch long, in terminal racemes. The leaves are used to poison fish. (Adapted from *Brandis, Forest Flora of India*, p. 138.)

47667. *CROTALARIA ALATA* Buch.-Ham. Fabaceæ.

A suberect perennial undershrub, 1 to 2 feet high, with the stem and lower foliage covered with short silky pubescence. The pale-yellow flowers are borne in 2 to 3 flowered racemes. This shrub is a native of eastern India, where it ascends to 5,500 feet in the Himalayas. (Adapted from *Hooker, Flora of British India*, vol. 2, p. 69.)

47629 to 47830—Continued.

47668. CROTALARIA TETRAGONA Roxb. Fabaceæ.

A stiff, very handsome shrub, often 6 to 8 feet in height, native to the lower altitudes of the Himalayas from Kumaon to Assam, India. The slender, silky branches and the long racemes of lemon-yellow flowers make this a very attractive shrub. (Adapted from *Hooker, Flora of British India, vol. 2, p. 78.*)

47669. CRYPTOLEPIS ELEGANS Wall. Asclepiadaceæ.

A slender, yellow-flowered climber, with oblong or linear-oblong leaves up to 2½ inches long. The fragrant flowers appear in axillary and terminal cymes. The plant is a native of eastern and northeastern India. (Adapted from *Hooker, Flora of British India, vol. 4, p. 6.*)

47670. CYNOGLOSSUM WALLICHII Don. Boraginaceæ.

An erect, hairy, herbaceous plant, with ovate or lanceolate leaves and elongated racemes of very small bluish or purplish flowers. It is very common in the western part of the temperate Himalayas. (Adapted from *Hooker, Flora of British India, vol. 4, p. 157.*)

47671. DATURA FASTUOSA L. Solanaceæ.

An ornamental herbaceous annual, common throughout India and the East Indies, which varies in height from 2 to 6 feet. It has entire or deeply toothed leaves about 6 inches long and flowers 7 inches or more in length, varying in color from white to lavender or rose. Propagation is by cuttings. (Adapted from *The Garden, vol. 46, p. 225.*)

47672. DEERINGIA BACCATA (Retz.) Moq. Amaranthaceæ.

(*D. celosioides* R. Br.)

A smooth, somewhat woody climber from Australia, with large, ovate, thin, dark-green leaves, long spikes of greenish white flowers, and bright-red fruits about three-eighths of an inch in diameter. (Adapted from *Curtis's Botanical Magazine, pl. 2717.*)

47673. DICELLOSTYLES JUJUBIFOLIA (Griffith) Benth. Malvaceæ.

(*Kydia jujubifolia* Griffith.)

A tree, more or less hairy throughout, with ovate leaves about 3 inches long and white flowers 1½ inches in diameter, in panicles. It is a native of the eastern tropical Himalayas. (Adapted from *Hooker, Flora of British India, vol. 1, p. 333.*)

47674. DICENTRA THALICTRIFOLIA (Wall.) Hook. f. and Thoms. Papaveraceæ.

A slender, climbing plant with a perennial root, native to the temperate regions of the Himalayas. It has decompound leaves and yellow or purple flowers, up to an inch in length. (Adapted from *Hooker, Flora of British India, vol. 1, p. 121.*)

47675. DICHROA FEBRIFUGA Lour. Hydrangeaceæ.

A tall shrub, abundant in the temperate Himalayas from 5,000 to 8,000 feet. It has narrow leaves 3 to 8 inches long, terminal panicles of blue or purplish flowers, and berries of an intense blue. (Adapted from *Hooker, Flora of British India, vol. 2, p. 406.*)

47676. ELAEOCARPUS SIKKIMENSIS Masters. Elaeocarpaceæ.

A tree with elliptic-acuminate serrate leaves about 8 inches long, small inconspicuous flowers in erect racemes, and tubercled ellipsoid drupes 2

47629 to 47830—Continued.

inches long. It is a native of Sikkim, India. (Adapted from *Hooker, Flora of British India, vol. 1, p. 402.*)

47677. EMBELIA FLOBIBUNDA Wall. Myrsinaceæ.

A large climbing shrub with narrow leaves over 8 inches long and large, much divided, axillary racemes of white flowers. It is a native of north-eastern India. (Adapted from *Hooker, Flora of British India, vol. 3, p. 514.*)

47678. ERAGROSTIS NUTANS (Retz.) Nees. Poaceæ. Grass.

A tall annual grass with long narrow spikes which often assume a pinkish tinge when mature. In India, where it is native, it is usually met with in heavy soils and along the banks of streams and borders of rice fields. Though not a first-class fodder grass, cattle eat it readily when other better kinds have failed. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 3, p. 255.*)

47679. ERIOBOTRYA PETIOLATA Hook. f. Malaceæ.

A stout tree with leathery leaves 6 to 9 inches long and white flowers, half an inch in diameter, appearing in panicles 3 to 6 inches long and broad. It is a native of Sikkim, India, and the eastern Himalayas, where it grows at altitudes of 5,000 to 9,000 feet. (Adapted from *Hooker, Flora of British India, vol. 2, p. 370.*)

47680. ERYTHRINA ARBORESCENS Roxb. Fabaceæ.

A small tree, native to the outer Himalayas from the Ganges to Sikkim, India, bearing erect, axillary racemes of large bright-scarlet flowers. (Adapted from *Brandis, Forest Flora of India, p. 140.*)

47681. EURYA ACUMINATA DC. Theaceæ.

A shrub, 10 to 12 feet high, with oblong leathery leaves and white flowers which are either solitary or in fascicles. The wood is reddish white, soft, and close grained. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 3, p. 302,* and *Brandis, Forest Flora of India, p. 24.*)

47682. EVODIA FRAXINIFOLIA (D. Don) Hook. f. Rutaceæ.

A small, densely leafy tree with bright-green compound leaves, 8 to 12 inches long, which when bruised, smell strongly like caraway. The white flowers are borne in axillary and terminal cymes; and the red fruits are about half an inch in diameter. In Sikkim, India, where this tree is native, the white soft wood is used for posts. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 3, p. 305,* and *Hooker, Flora of British India, vol. 1, p. 490.*)

47683. EVODIA MELIAEFOLIA (Hance) Benth. Rutaceæ.

A small slender tree, native to Assam, India, with cream-colored flowers borne in hairy cymes about 8 inches broad. (Adapted from *Hooker, Flora of British India, vol. 1, p. 490.*)

47684. EXACUM TERES Wall. Gentianaceæ.

A tall herbaceous plant, up to 4 feet in height, with narrow leaves 3½ inches long and rather large blue flowers which are borne in long lax panicles. This plant is common in the tropical regions of the Himalayas, ascending to 5,000 feet. (Adapted from *Hooker, Flora of British India, vol. 4, p. 95.*)

47629 to 47830—Continued.

47685. FICUS HOOKERI Miquel. Moraceæ.

A rather rare tree of the Himalayas of Sikkim, India, where it is found at altitudes of 1,000 to 6,000 feet. The broadly elliptic leaves are 4 to 11 inches in length, and the numerous male flowers are scattered, while the galls and female flowers are practically alike. (Adapted from *Hooker, Flora of British India, vol. 5, p. 505.*)

47686. FICUS NEMORALIS Wall. Moraceæ.

A moderate-sized tree of the outer Himalayas of Bhutan and Assam, India, where it ascends to 7,000 feet. The leaves are cut off for cattle feed. The white, close-grained wood weighs 38 pounds per cubic foot. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 3, p. 356.*)

47687. FRAXINUS FLORIBUNDA Wall. Oleaceæ. **Ash.**

A large, deciduous tree of the Himalayas, from the Indus to Sikkim, India, at altitudes of 5,000 to 8,500 feet. From the trunk is obtained by incision a saccharine exudation, called manna, used as a substitute for the officinal manna. The sugar contained in this exudation, called mannite, differs from cane and grape sugar in not being readily fermentable. Like the officinal manna, it is used for its sweetening and slightly laxative properties. The wood is white with a light-red tinge. It is valuable for oars, plows, spinning wheels, etc. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 3, p. 442.*)

47688. GOUANIA NAPAENSIS Wall. Rhamnaceæ.

An unarmed climbing shrub, belonging to the buckthorn family; native to Nepal and Sikkim, India. It has alternate leaves, and the small greenish flowers are in axillary or terminal spikes. (Adapted from *Hooker, Flora of British India, vol. 1, p. 644.*)

47689. GREWIA MULTIFLORA Juss. Tiliaceæ.

A shrub or small tree of eastern and western India, ascending to 4,000 feet. The white wood gives out an exceedingly unpleasant odor when cut. It is extensively used in making cot frames, ax handles, oars, etc. The plant is also much used for making hedges, for which its close growth and evergreen leaves make it especially suitable. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 4, p. 179.*)

47690. GYNURA ANGULOSA DC. Asteraceæ.

A succulent herbaceous plant, 3 to 10 feet or more in height, with large sessile acuminate stem leaves 6 to 12 inches long; the basal leaves are sometimes 2 feet long. The yellow or purplish flower heads are up to an inch in length. This plant is a native of the temperate regions of the Himalayas. (Adapted from *Hooker, Flora of British India, vol. 3, p. 334.*)

47691. HIBISCUS PUNGENS Roxb. Malvaceæ. **Mallow.**

An erect, bristly annual or perennial, native to the tropical Himalayas, with roundish heart-shaped, deeply lobed leaves 5 to 8 inches long and yellow flowers with purple centers, 5 inches in diameter. (Adapted from *Hooker, Flora of British India, vol. 1, p. 341.*)

47692. HOLARRHENA ANTIDYSENTERICA (Roth) Wall. Apocynaceæ.

A small pale-barked tree, 20 to 30 feet high, native to the tropical Himalayas. The foliage is bright pea green, and the white flowers are

47629 to 47830—Continued.

up to 1½ inches across. The wood is white, tinged with yellow or pink, easily worked, and is used for toys, combs, spoons, etc.; in Assam it is used for furniture. Under the name of *conessi*, the bark and leaves are used medicinally. (Adapted from *Brandis, Forest Flora of India*, p. 326.)

47693. HOLBOELLIA LATIFOLIA Wall. Lardizabalaceæ.

A vigorous, much-branched vine, native of India, bearing axillary racemes of delightfully fragrant green and violet flowers. The ovoid-oblong fruits are about 5 inches long, violet-rose on the outside, with a layer of white flesh just under the skin. This flesh is edible, tasting like the pulp of the granadilla, or passion fruit. (Adapted from *Revue Horticole*, vol. 62, p. 348.)

47694. HYDRANGEA ROBUSTA Hook. f. and Thoms. Hydrangeaceæ.

A small tree or spreading shrub, 8 to 15 feet high, with large ovate leaves up to 9 inches long and hairy corymbs of blue flowers. The white, close-grained wood is moderately hard and easily worked. (Adapted from *Watt, Dictionary of the Economic Products of India*, vol. 4, p. 310, and *Hooker, Flora of British India*, vol. 2, p. 404.)

47695. HYPERICUM PATULUM Thunb. Hypericaceæ. **St.-John's-wort.**

An ornamental, hardy, Japanese perennial shrub, from 1 to 3 feet in height, with red stems and branches. It has bright-green leaves and very large yellow flowers, about 2 inches across, borne in terminal, few-flowered cymes. (Adapted from *Curtis's Botanical Magazine*, pl. 5693.)

47696. HYPTIS SUAVEOLENS (L.) Poit. Menthaceæ.

A rigid annual of the mint family, which grows to a height of 2 to 3 feet, has a hairy stem, extremely variable leaves, and secund flower heads. It is a native of tropical America, although introduced into tropical Asia. In Brazil the flowers and leaves are used medicinally as an antispasmodic and as a remedy for gout. (Adapted from *Hooker, Flora of British India*, vol. 4, p. 630, and *Correa, Flora do Brazil*, p. 104.)

47697. ILEX FRAGILIS Hook. f. Aquifoliaceæ. **Holly.**

This holly, a native of the mountains of Sikkim and Bhutan, India, forms a small tree with bright deep-green leaves which are more membranous than any of the other Indian species. The fleshy, globular fruits are red. (Adapted from *Hooker, Flora of British India*, vol. 1, p. 602.)

47698. ILEX INSIGNIS Hook. f. Aquifoliaceæ. **Holly.**

A small shrub or tree with thick, grooved branches which are purplish when young; native to the Himalayas of Sikkim, India. The leaves are dark green, leathery, and pinnately lobed, with the lobes spine tipped and alternately raised and depressed. (Adapted from *The Gardeners' Chronicle*, 2d ser., vol. 14, p. 216.)

47699. ILEX INTRICATA Hook. f. Aquifoliaceæ. **Holly.**

A low, rigid, straggling shrub which forms matted masses with interlaced woody branches. The leaves are bright green, thick, leathery, and spreading, and the fruits are globular and red. The shrub is a native of Sikkim and eastern Nepal, India, where it grows at altitudes of 10,000 to 11,000 feet. (Adapted from *Hooker, Flora of British India*, vol. 1, p. 602.)

47629 to 47830—Continued.

47700. *IMPERATA CYLINDRICA* (L.) Beauv. Poaceæ.

Grass.

A small perennial grass inhabiting the plains and hills of central and western India, where, in April and May, the roadsides and fields become white with its silky heads. The natives use it as a source of fiber and also for thatching. The young succulent foliage which springs up after a fire is much relished by cattle. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 4, p. 336.*)

47701. *INULA EUPATORIODES* DC. Asteraceæ.

A shrubby composite from the eastern Himalayas, with narrow, leathery, irregularly toothed, sharp-pointed leaves and terminal corymbs of yellowish flower heads. (Adapted from *Hooker, Flora of British India, vol. 3, p. 295.*)

47702. *KYDIA CALYCINA* Roxb. Malvaceæ.

A small tree or large bush common in subtropical forests of India and Burma, ascending to 2,000 feet. The inner bark yields a bast fiber used for coarse ropes, etc. The bark is mucilaginous, and is used to clarify the juice of the cane in manufacturing sugar. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 4, p. 568.*)

47703. *LAGERSTROEMIA PARVIFLORA* Roxb. Lythraceæ.

A large deciduous tree met with in the sub-Himalayan tract in Bengal, Assam, and central and southern India. The gum which exudes from the bark is said to be sweet and edible, and the bark yields a fiber used in the making of ropes. The bark is also used in dyeing skins black and for tanning. The grayish brown wood is very hard and tough, seasons well, and is fairly durable. It is largely employed for agricultural implements, boats, buggy shafts, etc. It is one of the trees on which the tussah silkworm is fed. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 4, p. 584.*)

47704. *LASIANTHUS BIERMANNI* King. Rubiaceæ.

A slender-branched shrub with grayish green leaves 5 to 7 inches in length and axillary cymes of rosy or pale lilac flowers. The fruits are one-fourth of an inch in diameter, roundish, and blue. This shrub is a native of Sikkim, India, and also of the Khasia Mountains. (Adapted from *Hooker, Flora of British India, vol. 3, p. 190.*)

47705. *LAUROCERASUS ACUMINATA* (Wall.) Roemer. Amygdalaceæ.(*Prunus acuminata* Hook f.)

A slender-branched tree, 30 to 40 feet high, with smooth, flat, narrow leaves 4 to 7 inches long and many-flowered racemes of yellowish white flowers. It is a native of temperate regions of the central and eastern Himalayas. (Adapted from *Hooker, Flora of British India, vol. 2, p. 317.*)

47706. *LIGUSTRUM CONFUSUM* Decaisne. Oleaceæ.

Privet.

A small tree, sometimes attaining a height of 40 feet in Sikkim, India, where it is native. The leathery leaves are up to 3½ inches long and the white flowers appear in panicles from 1 to 5 inches in length. (Adapted from *Hooker, Flora of British India, vol. 3, p. 616.*)

47707. *LOBELIA PYRAMIDALIS* Wall. Campanulaceæ.

Lobelia.

A tall herbaceous plant, 2 to 7 feet in height, with narrow leaves 6 inches long and dense terminal racemes of purplish rose, sometimes nearly white, flowers. It is a native of the Himalayas of northern India. (Adapted from *Hooker, Flora of British India, vol. 3, p. 426.*)

47629 to 47830—Continued.

47708. *LONICERA MACRANTHA* (D. Don) Spreng. Caprifoliaceæ.

Honeysuckle.

A shrubby honeysuckle, from temperate parts of the Himalayas, with rather large white flowers which fade to yellow. It is closely allied to *L. japonica*. (Adapted from *Hooker, Flora of British India, vol. 3, p. 10.*)

47709. *LONICERA TOMENTELLA* Hook. f. and Thoms. Caprifoliaceæ.

Honeysuckle.

This white-flowered honeysuckle is a native of the interior valleys of the mountain region of northeastern India, where it forms a shrub 10 to 12 feet high. The leaves are dark dull green, and the paired flowers hang from the axils of the leaves. The blue-black berries are about the size of a pea. (Adapted from *Curtis's Botanical Magazine, pl. 6496.*)

47710. *LUCULIA GRATISSIMA* (Wall.) Sweet. Rubiaceæ.

A tree or a spreading shrub, native to the temperate Himalayas, where it attains a height of 10 to 16 feet. It is a very attractive ornamental, because of the gorgeous rounded mass of pink or rose-colored flowers. It is said to make an excellent table plant when grown in a pot and treated somewhat similarly to a gardenia. (Adapted from *American Gardening, vol. 28, p. 22,* and *Bailey, Standard Cyclopædia of Horticulture, vol. 4, p. 1918.*)

47711. *MAESA CHISIA* D. Don. Myrsinaceæ.

An evergreen tree, up to 30 feet in height, or sometimes a shrub, native to the Himalayas from Nepal to Bhutan at altitudes of 2,000 to 6,000 feet. The white flowers appear in compound racemes. (Adapted from *Johnson's Gardeners' Dictionary, p. 487,* and *Hooker, Flora of British India, vol. 3, p. 509.*)

47712. *MAESA INDICA* (Roxb.) Wall. Myrsinaceæ.

An evergreen shrub or small tree, common throughout India at altitudes of 6,000 feet or less. The small, white berries are used as food in Nepal, and the leaves are used in Kanara to poison fish. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 5, p. 107,* and *Brandis, Forest Flora of India, p. 283.*)

47713. *MAESA MACROPHYLLA* Wall. Myrsinaceæ.

A large shrub or small tree, native to the eastern Himalayas. When the bark is cut a resinous substance exudes. The wood is light brown and moderately hard. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 5, p. 107.*)

47714 to 47718. *MAGNOLIA CAMPBELLII* Hook. f. and Thoms. Magnoliaceæ.

Magnolia.

A beautiful, deciduous magnolia from the Himalayas, where it ascends to 8,000 feet above sea level. It reaches a height of 80 feet, has very dark bark, large elliptical dark-green leaves, and white to purple flowers 10 inches in diameter. (Adapted from *Curtis's Botanical Magazine, pl. 6793.*)

For illustrations of this tree and of a single flower, see Plates III and IV.

47714. Purple flowered.

47717. Light-red flowered.

47715. Pink flowered.

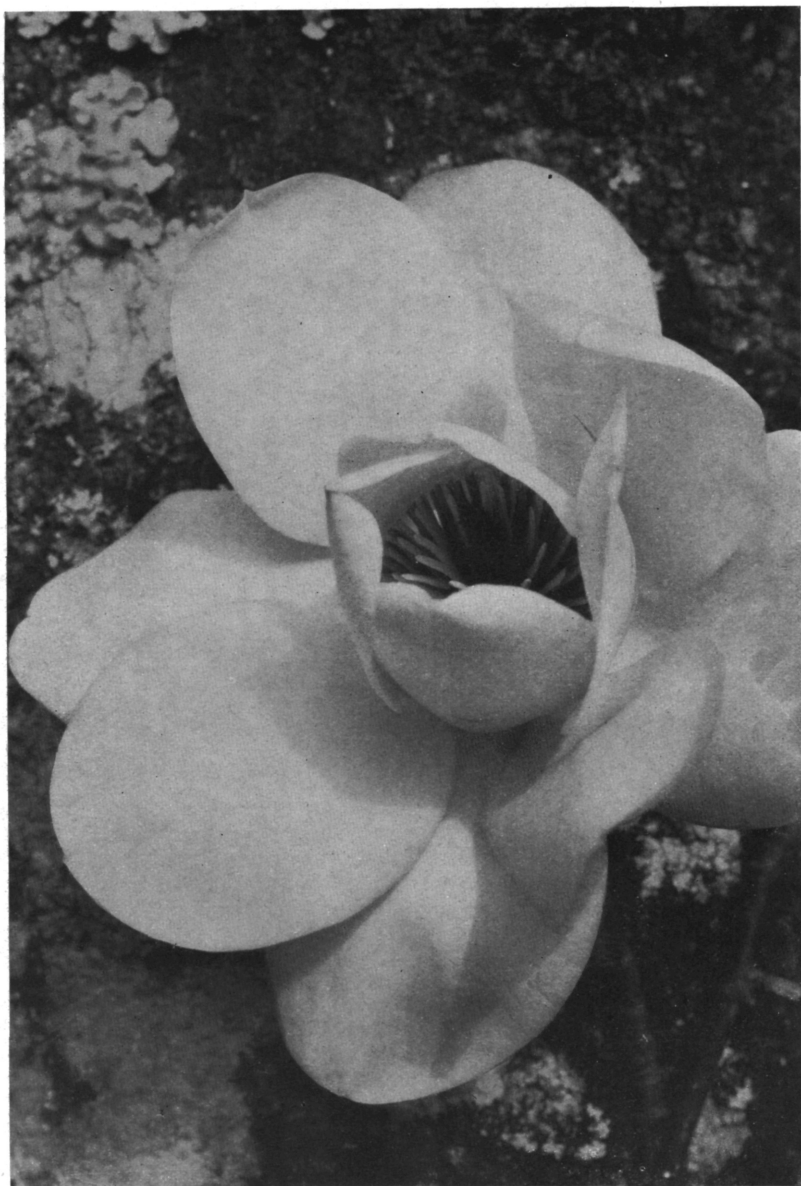
47718. Dark-red flowered.

47716. White flowered.



THE QUEEN OF MAGNOLIAS AS IT GROWS AT DARJILING, INDIA. (MAGNOLIA CAMPBELLII HOOK. F. AND THOMS., S. P. I. No. 47714.)

Campbell's magnolia, considered the handsomest of that whole genus of beautiful trees, grows 80 feet or more in height and makes, as this picture shows, a wonderful display with its mammoth flowers just before the leaves appear. It is native to the Himalayas, where it ascends to an altitude of 8,000 feet. It has been grown successfully in the milder sections of England and will probably prove hardy only in our Southern States. (Photographed by Joseph F. Rock, Darjiling, India, March 4, 1921; P22743FS.)



A SINGLE FLOWER OF CAMPBELL'S MAGNOLIA, MUCH REDUCED. (MAGNOLIA CAMPBELLII HOOK. F. AND THOMS., S. P. I. NO. 47714.)

The huge flowers of this gorgeous magnolia are from 10 to 14 inches across and range in color from pure white through dark red to purple. The flower here shown was 14 inches across, according to Mr. Rock. (Photographed by Joseph F. Rock, Darjiling, India, March 4, 1921; P22742FS.)

47629 to 47830—Continued.

47719. MAOUTIA PUYA (Hook.) Wedd. Urticaceæ.

A shrub, native to the tropical Himalayas and distributed throughout the Straits Settlements and Japan. It is not cultivated, but from the bark is obtained a fiber which is much used for fishing nets, game bags, etc. The dark-green, serrate leaves have silvery lower surfaces. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 5, p. 177.*)

47720. MEIBOMIA CEPHALOTES (Roxb.) Kuntze. Fabaceæ.

(*Desmodium cephalotes* Wall.)

A tall shrub, with densely silky, acutely angled, zigzag branches and dense umbels of deep-red flowers. It is native to the eastern Himalayas. The Santals of Bengal eat the pods. Cattle and goats are said to be fond of the leaves. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 3, p. 81*, and *Hooker, Flora of British India, vol. 2, p. 161.*)

47721. MEIBOMIA FLORIBUNDA (D. Don) Kuntze. Fabaceæ.

(*Desmodium floribundum* Don.)

A woody, densely pubescent Himalayan plant with very copious axillary and terminal racemes of red flowers. (Adapted from *Hooker, Flora of British India, vol. 2, p. 167.*)

Received as *Desmodium sambucense*, which is now referred to *Meibomia floribunda*.

47722. MEIBOMIA GYROIDES (DC.) Kuntze. Fabaceæ.

(*Desmodium gyroides* DC.)

A shrubby plant, 8 to 10 feet in height, with obtuse, pubescent leaves and axillary and terminal racemes of red flowers. It is a native of the tropical regions of the central and eastern Himalayas. (Adapted from *Hooker, Flora of British India, vol. 2, p. 175.*)

47723. MEIBOMIA HETEROCARPA (L.) Kuntze. Fabaceæ.

(*Desmodium polycarpum* DC.)

An erect or suberect undershrub found throughout the Himalayas and in Burma. All of the bushy species of this genus are said to contain good fibers used in some cases for paper making. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 3, p. 83.*)

47724. MEIBOMIA PULCHELLA (L.) Kuntze. Fabaceæ.

(*Desmodium pulchellum* Benth.)

An erect pubescent shrub, with trifoliolate leaves and red flowers in spikelike axillary and terminal racemes. It is a native of southern India, Bengal, and Burma. (Adapted from *Brandis, Forest Flora of India, p. 145.*)

47725. MEIBOMIA SEQUAX (Wall.) Kuntze. Fabaceæ.

(*Desmodium sequax* Wall.)

A shrub, 2 to 20 feet in height, with the branches clothed with dense gray or brown pubescence, and with red flowers in copious racemes. It is a native of the Himalayas from Simla and Kumaon to Sikkim, India. (Adapted from *Hooker, Flora of British India, vol. 2, p. 170.*)

47726. MEIBOMIA TILIAEFOLIA (D. Don) Kuntze. Fabaceæ.

(*Desmodium tiliaefolium* Don.)

A large deciduous shrub of the Himalayas, from the bark of which is obtained an excellent fiber used extensively in rope making and also in

47629 to 47830—Continued.

paper manufacture. The roots are used medicinally in bilious complaints, and the leaves are used as fodder. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 3, p. 83.*)

47727. MEIBOMIA TRIQUETRA (L.) Kuntze. Fabaceæ.
(*Desmodium triquetrum* DC.)

A shrub with triangular branches, stiff leathery leaflets, and very long, axillary and terminal racemes of red flowers. It is found in moist places in eastern and southern India, and also in China and the Philippines. (Adapted from *Hooker, Flora of British India, vol. 2, p. 163.*)

47728. MELOTHRIA MADERASPATANA (L.) Cogn. Cucurbitaceæ.

A rough, climbing cucurbitaceous plant with 3 to 7 angled leaves, small yellow flowers, and bright-red fruits up to half an inch in diameter. The leaves are used medicinally as a gentle aperient, and a decoction of the seeds is used as a sudorific. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 5, p. 287,* and *Hooker, Flora of British India, vol. 2, p. 623.*)

Received as *Mukia scabrella*, which is now referred to this species.

47729. MELOTHRIA ODORATA Hook. f. and Thoms. Cucurbitaceæ.

A climbing herbaceous plant with leaves more or less heart shaped and white axillary flowers. It is native to East Bengal and the northwestern Himalayas, ascending to 7,000 feet. (Adapted from *Hooker, Flora of British India, vol. 2, p. 626.*)

47730. MICHELIA CATHCARTII Hook. f. and Thoms. Magnoliaceæ.

A lofty tree, native to the Himalayas of Sikkim, India, at altitudes ranging from 5,000 to 6,000 feet. The oblong leaves are pale and thin, and the white flowers are an inch in diameter. The sapwood is white and the heartwood dark olive-brown; used for planking. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 5, p. 241.*)

47731. MICHELIA EXCELSA Blume. Magnoliaceæ.

A tall deciduous tree, with oblong acute leaves and silky flowers 4 to 5 inches in diameter. It is a native of the temperate Himalayas at altitudes of 5,000 to 8,000 feet. The olive-brown, glossy heartwood is used for furniture and for building purposes. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 5, p. 243,* and *Hooker, Flora of British India, vol. 1, p. 43.*)

47732. MICHELIA LANUGINOSA Wall. Magnoliaceæ.

A Himalayan tree of variable height, whose leaves are white and fuzzy beneath and whose white flowers are 3 to 4 inches in diameter. In Sikkim it forms a large bush, flowering in autumn. (Adapted from *Hooker, Flora of British India, vol. 1, p. 43.*)

47733. MICROGLOSSA ALBESCENS (DC.) Benth. Asteraceæ.

An erect, slender, shrubby composite with narrow sharp-pointed leaves with whitish lower surfaces. Originally a native of temperate regions of the Himalayas, it is now cultivated in China and also in southern Europe. It is very ornamental, bearing lilac flowers in large corymbs often 8 inches in diameter. (Adapted from *Revue Horticole, vol. 79, p. 522,* and *Hooker, Flora of British India, vol. 3, p. 257.*)

47629 to 47830—Continued.

47734. MIMOSA RUBICAULIS Lam. Mimosaceæ.

A large, straggling, prickly shrub found throughout the greater part of India, ascending to 5,000 feet in the western Himalayas. The leaves, seeds, pods, and powdered roots are used by the natives medicinally. It is said to be a valuable hedge plant. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 5, p. 249.*)

47735. MISCANTHUS NEPALENSIS (Trin.) Hack. Poaceæ. **Grass.**

A tall, perennial, ornamental grass from the temperate regions of the Himalayas. It grows from 3 to 6 feet high and has many densely crowded flower spikes with purplish or golden-yellow, shining spikelets. (Adapted from *Hooker, Flora of British India, vol. 7, p. 107.*)

47736. MUCUNA MACROCARPA Wall. Fabaceæ.

A woody, purple-flowered climbing plant from the Himalayas of north-eastern India, where it grows at altitudes of 1,000 to 6,000 feet. (Adapted from *Hooker, Flora of British India, vol. 2, p. 186.*)

47737. MUSSAENDA INCANA Wall. Rubiaceæ.

An erect herbaceous plant, 2 to 3 feet high, covered with soft, shining hairs. The stiff, ovate leaves are 5 to 6 inches long and the leafy, white calyx lobe is pubescent. The plant is a native of the tropical Himalayas. (Adapted from *Hooker, Flora of British India, vol. 3, p. 87.*)

47738. MUSSAENDA MACROPHYLLA Wall. Rubiaceæ.

A large shrub, native to the tropical Himalayas, with stout branches, slightly hairy leaves up to 10 inches in length, and cymes of flowers with orange-lobed corollas and white-lobed calyces. (Adapted from *Hooker, Flora of British India, vol. 3, p. 89.*)

47739. NEILLIA THYRSIFLORA D. Don. Rosaceæ.

A sparingly branched rosaceous shrub, about 3 feet in height, with deeply 3-lobed dentate leaves and terminal thyrsoid racemes of white flowers which appear at the beginning of autumn. It comes originally from the mountains of Nepal, India. (Adapted from *Revue Horticole, vol. 60, p. 415.*)

47740. NOTOCHAETE HAMOSA Benth. Menthaceæ.

An erect, branched herb, 2 feet and more in height, with ovate acuminate leaves 3 to 5 inches long and dense globular whorls of purple flowers. It is a native of the Himalayas of northeastern India. (Adapted from *Hooker's Icones Plantarum, vol. 13, pl. 1217.*)

47741. NYSSA SESSILIFLORA Hook. f. and Thoms. Cornaceæ.

A large tree, found in the forests of the Himalayas of Sikkim, India. The soft, gray, even-grained wood is used for house building and other purposes. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 5, p. 438.*)

47742. OLEA GAMBLEI C. B. Clarke. Oleaceæ.

A wild relative of the cultivated olive, from Sikkim, India, where it grows in the Himalayas. The leathery leaves are oblong and acuminate, and the fruit is sometimes nearly an inch long. (Adapted from *Hooker, Flora of British India, vol. 3, p. 613.*)

47629 to 47830—Continued.

47743. OPHIOPOGON INTERMEDIUS D. Don. Liliaceæ.

A hardy perennial, indigenous to Ceylon, with grasslike leaves and white flowers. It reaches a height of about a foot, and is suited to moist, shady places. (Adapted from *Macmillan, Handbook of Tropical Gardening and Planting*, p. 393.)

47744. OSBECKIA NEPALENSIS Hook. Melastomaceæ.

A handsome plant, native to the Himalayas, with a rough, erect stem 1½ feet high, opposite, lanceolate, rigid leaves, and large purplish rose flowers in terminal and axillary panicles or corymbs. (Adapted from *Hooker, Exotic Flora*, vol. 1, pl. 31.)

47745. OSBECKIA NUTANS Wall. Melastomaceæ.

A woody, branching, small shrub with narrow leaves and small clusters of mauve-purple flowers. It is a native of the subtropical regions of the Himalayas from Sikkim, India, eastward. (Adapted from *Hooker, Flora of British India*, vol. 2, p. 521.)

47746. OSBECKIA ROSTRATA D. Don. Melastomaceæ.

An erect, unbranched plant with broadly lanceolate leaves 3 to 8 inches long and terminal corymbs of rose-purple flowers. It is a native of swampy places at the foot of the Himalayas from Nepal to Burma. (Adapted from *Hooker, Flora of British India*, vol. 2, p. 517.)

47747. OSTODES PANICULATA Blume. Euphorbiaceæ.

A large evergreen tree, native to the forests of Sikkim, India. It yields a gum which is used as sizing in paper manufacture. (Adapted from *Watt, Dictionary of the Economic Products of India*, vol. 5, p. 654.)

47748. OXYSPORA PANICULATA (D. Don) DC. Melastomaceæ.

A large spreading shrub, with drooping branches terminated by large, lax, almost naked, panicles of rose-purple flowers. The opposite leaves are ovate-acuminate and 4 to 5 inches in length, rarely longer. This shrub is a native of the subtropical and tropical Himalayas from Nepal to Bhutan. (Adapted from *Hooker, Flora of British India*, vol. 2, p. 525.)

47749. PAVETTA INDICA L. Rubiaceæ.

Pawatta.

A very variable bush or small tree, common throughout most of India, ascending to 4,000 feet in Gurhwal. The powdered root is used as a laxative in native medicine, and the fruit, a 2-seeded berry, is picked and eaten in Madras. The white flowers, which occur in broad flat corymbs, are said to be used as food by the hill people of Matheran. (Adapted from *Watt, Dictionary of the Economic Products of India*, vol. 6, pt. 1, p. 114, and *Brandis, Forest Flora of India*, p. 275.)

47750. PENTAGONIA PHYSALODES (L.) Hiern. Solanaceæ.

(Nicandra physaloides Gaertn.)

A very attractive annual, 2 or 3 feet high, with ovate-oblong, unevenly cut leaves and rather large, bell-shaped, lavender flowers. It is a native of Peru and Chile. (Adapted from *Curtis's Botanical Magazine*, pl. 2458.)

47751. PHYLLANTHUS EMBLICA L. Euphorbiaceæ.

Nelli.

"A moderate-sized deciduous tree found throughout the tropical forests of India, either wild or planted. It has gray bark and feathery light-green foliage and yields a gum of which little is known. The trunk is often crooked or gnarled. The hard, close-grained wood is used for agri-

47629 to 47830—Continued.

cultural implements, and is much valued for its durability. The fruit, a fleshy berry two-thirds of an inch in diameter, is the emblic myrobalan used in medicine and for dyeing and tanning; it is also pickled and eaten." (*Brandis, Forest Flora of India, p. 454.*)

47752. PHYLLANTHUS RETICULATUS Poir. Euphorbiaceæ.

A large, often scandent shrub, common throughout tropical India, especially on moist ground. In Madras the root is used as a dye for producing a red color, and the leaves are employed as a diuretic in Sind. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 1, p. 223.*)

47753. PHYLLANTHUS WIGHTIANUS Muell. Arg. Euphorbiaceæ.

A shrubby plant with close-set, drooping leaves which are pale green when dry, and solitary axillary flowers. It is a native of the Nilghiri and Pulney Hills, India. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 5, p. 303.*)

Received as *Phyllanthus obliquum* Wall., which is now referred to this species.

47754. PICEA SMITHIANA (Wall.) Boiss. Pinaceæ.

(*P. morinda* Link.)

A shapely evergreen, native to Nepal, India, sometimes 150 feet tall. It has widespreading branches, bright or dark-green crowded leaves, purple flowers (pistillate), and dark-brown, glossy cones. It is hardy as far north as New York. (Adapted from *The Gardeners' Chronicle, 3d ser., vol. 38, p. 395*, and *Bailey, Standard Cyclopedia of Horticulture, vol. 5, p. 2618.*)

47755. PIERIS OVALIFOLIA (Wall.) D. Don. Ericaceæ.

(*Andromeda ovalifolia* Wall.)

A shrub or small tree with ovate or somewhat oblong leathery leaves 3 to 6 inches long, and racemes of white or bluish or sometimes flesh-colored flowers. Because of a poisonous principle the young leaves and buds are a useful insecticide. It is a native of the temperate parts of the Himalayas. (Adapted from *Brandis, Forest Flora of India, p. 280*, and *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 1, p. 229.*)

47756. PIPTANTHUS NEPALENSIS (Hook.) Sweet. Fabaceæ.

A shrub with alternate trifoliolate leaves and short hairy racemes of large bright-yellow flowers. It is a native of the Himalayas, growing in shady woods at altitudes of 7,000 to 9,000 feet. In England grown against walls it has proved hardy. (Adapted from *Brandis, Forest Flora of India, p. 132.*)

47757. PITTOSPORUM FLORIBUNDUM Wight and Arn. Pittosporaceæ.

A handsome tree with a short straight trunk and spreading branches, numerous yellowish flowers in terminal panicles, and light-colored strong tough wood. The tree yields an aromatic, yellow resin or oleoresin having very tenacious properties. It is a native of the outer Himalayas, ascending to 3,500 feet. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 1, p. 283*, and *Brandis, Forest Flora of India, p. 19.*)

47629 to 47830—Continued.

47758. PLECTRANTHUS COETSA Buch.-Ham. Menthaceæ.

A tall, erect, strong-smelling shrubby ornamental plant of the mint family, with very numerous cymes of lavender-blue flowers. It is a native of the temperate regions of the Himalayas at altitudes of 3,000 to 8,000 feet. (Adapted from *Hooker, Flora of British India, vol. 4, p. 619.*)

47759. POGOSTEMON PARVIFLORUS Benth. Menthaceæ.

A small bush found in the subtropical portions of the Himalayas. The entire plant has a strong, black-currant odor, and the bruised leaves are used as a poultice for wounds. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 1, p. 306.*)

47760. POLYGONUM CHINENSE L. Polygonaceæ.

A rambling or erect shrub, up to 5 feet in height, with very variable foliage and white, pink, or purplish flower heads in corymbs or panicles. It is a native of the subtropical and temperate Himalayas, and is distributed throughout the East Indies and tropical Asia. (Adapted from *Hooker, Flora of British India, vol. 5, p. 44.*)

47761. PORANA RACEMOSA Roxb. Convolvulaceæ. **Snow creeper.**

One of the most beautiful of Himalayan plants, occurring in dense, not lofty, masses, climbing over other plants in the jungle, with the closely massed, dazzling white flowers resembling patches of snow. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 1, p. 327.*)

47762. POTENTILLA FRUTICOSA L. Rosaceæ.

A much-branched, rigid, robust shrub, native to the temperate and sub-alpine parts of the Himalayas, ascending to 16,000 feet. The fragrant leaves when dried are used in the upper parts of the Chenab basin as a substitute for tea. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 1, p. 332.*)

47763. POTENTILLA MOONIANA Wight. Rosaceæ.

A tall, erect-branched, leafy plant from Ceylon and the lower altitudes of northern India. The narrow leaves are 5 to 10 inches long, and the flowers are in panicles or corymbs. (Adapted from *Hooker, Flora of British India, vol. 2, p. 349.*)

47764. PRATIA MONTANA (Reinw.) Hassk. Campanulaceæ.

A tall, rambling, herbaceous plant with long branches, narrow leaves about 4 inches long, and axillary green flowers marked with purple. It has globular black-purple berries. This plant is a native of the temperate parts of the Himalayas. (Adapted from *Hooker, Flora of British India, vol. 3, p. 423.*)

47765. PRIOTROPIS CYTISOIDES (Roxb.) Wight and Arn. Fabaceæ.

A low shrub with slender, glabrous branches, trifoliolate leaves, and copious racemes of pale-yellow flowers. It is a native of the tropical parts of the eastern Himalayas. (Adapted from *Hooker, Flora of British India, vol. 2, p. 65.*)

47629 to 47830—Continued.

47766. PRUNUS CERASOIDES D. Don. Amygdalaceæ. **Himalayan cherry.**
(*P. puddum* Roxb.)

A moderate-sized or sometimes large tree, native to northeastern India, known as the "wild cherry of the Himalayas." The rose-red or white flowers give the tree a brilliant appearance in the late fall, and the small, oblong fruits, with scanty flesh, are little used as food. The wood is reddish and beautifully mottled, and is used for walking sticks, furniture, etc. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 1, p. 350.*)

47767. PRUNUS NAPAULENSIS (Seringe) Steud. Amygdalaceæ.
Nepal cherry.

A small tree with narrow acuminate leaves 4 to 6 inches long and axillary racemes of white flowers. The drupes are about twice the size of a large pea and acid. This tree is a native of the temperate Himalayas at altitudes of 4,000 to 10,000 feet. (Adapted from *Hooker, Flora of British India, vol. 2, p. 316.*)

47768. PSYCHOTRIA ERRATICA Hook. f. Rubiaceæ.

A shrubby plant, native to Nepal and Sikkim, India, where it ascends from 4,000 to 6,000 feet above the sea. The rather thin leaves are elliptic or lance shaped and up to 7 inches in length, and the very small fruits are red and yellowish. (Adapted from *Hooker, Flora of British India, vol. 3, p. 168.*)

47769. RANDIA ULIGINOSA (Retz.) Poir. Rubiaceæ.

A small deciduous tree of eastern, central, and southern India, with shining leaves and large, showy, white or cream-colored flowers. The succulent fruit is used in dyeing as an intensifier, and also in medicine as an astringent. Boiled or roasted, it is often eaten by the natives as a vegetable. The leaves are boiled and eaten as greens. When unripe, the fruit is used to poison fish. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 1, p. 391*, and *Brandis, Forest Flora of India, p. 273.*)

47770. RHAMNUS NAPAULENSIS (Wall.) M. Laws. Rhamnaceæ.

A rambling or somewhat erect shrub with long slender branches, dark-green shining leaves, small green flowers, and blackish red fruits. It is a native of the Himalayas of northeastern India. (Adapted from *Hooker, Flora of British India, vol. 1, p. 640.*)

47771. RHODODENDRON ARBOREUM J. E. Smith. Ericaceæ.

This Himalayan rhododendron is variable both in its foliage and in the color of its flowers. In one form the leaves are silvery on the lower surface, while in another they are covered with a brownish red down. The bell-shaped flowers, borne in dense trusses, vary from deep crimson to pure white. The tree sometimes reaches a height of 35 feet, with a trunk 4 feet in circumference. (Adapted from *Flora and Sylva, vol. 3, p. 34.*)

47772. RHODODENDRON CILIATUM Hook. f. Ericaceæ.

A somewhat dwarf growing Himalayan rhododendron, bearing many small, loose trusses of pinkish white flowers less than 3 inches wide. It rarely exceeds 6 feet in height. (Adapted from *Flora and Sylva, vol. 3, p. 35.*)

47629 to 47830—Continued.

47773. RHODODENDRON DALHOUSIAE Hook. f. Ericaceæ.

This is said to be the finest rhododendron from northeastern India, chiefly because of the great size and beauty of the fragrant flowers which resemble those of a large lily. It is a straggling shrub, 6 to 8 feet high, with smooth dark-green leaves. The flowers, which grow in terminal clusters of three to five, are about 4½ inches across. (Adapted from *Curtis's Botanical Magazine*, pl. 4718.)

47774. RHODODENDRON FALCONERI Hook. f. Ericaceæ.

This shrub or tree, which attains a height of 30 feet, is a native of northeastern India. Because of the large deep-green leaves, sometimes a foot long, and the whitish, densely clustered flowers, this is a very fine ornamental. (Adapted from *Curtis's Botanical Magazine*, pl. 4924.)

47775. RHODODENDRON GRANDE Wight. Ericaceæ.

A handsome shrub about 15 feet high, native to the Himalayas. It bears numerous loose trusses of bell-shaped flowers about 2½ inches in diameter. These are at first suffused with a faint rose tint which later changes to white. (Adapted from *Flora and Sylva*, vol. 3, p. 36.)

47776. RHODODENDRON MADDENI Hook. f. Ericaceæ.

An ornamental Himalayan shrub 6 to 8 feet high. The dark-green leaves are from 4 to 7 inches long, with deep-red petioles. The large, delicate, fragrant flowers, white tinged with rose, occur in threes at the ends of the branches. (Adapted from *Curtis's Botanical Magazine*, pl. 4805.)

47777. RHODODENDRON ROYLEI Hook. f. Ericaceæ.

(*R. cinnabarinum* Hook. f.)

An evergreen shrub, 6 to 10 feet high, with smooth grayish green leaves, and very attractive flowers. Ordinarily the flowers, produced in terminal heads of 5 to 8, are of a dull cinnabar red. In some forms the corolla is orange-red outside and yellowish within. This shrub is a native of Sikkim and Bhutan, India. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles*, vol. 2, p. 351.)

47778. RHUS SUCCEDANEA L. Anacardiaceæ.

Sumach.

A tree about 30 feet in height with a short trunk 3 feet in circumference and compound leaves up to a foot in length. The greenish yellow flowers appear on numerous lateral panicles, and the yellow or light-brown drupes inclose large oily seeds. In Japan a beautiful white wax, suitable for making candles, is prepared from the seeds. The tree also yields a small supply of varnish. It is a native of many parts of the Himalayas at altitudes ranging from 2,000 to 8,000 feet. (Adapted from *Brandis, Forest Flora of India*, p. 121.)

Received as *Rhus acuminata*, which is now referred to this species.

47779. ROSA MACROPHYLLA Lindl. Rosaceæ.

Rose.

This rose, a native of the northwestern Himalayas, ascending to 10,000 feet, is erect, often unarmed, and has large red flowers, 1½ to 2 inches long, either solitary or in terminal corymbs. The large, soft, turbinate fruit is an inch long, and is eaten. This rose is hardy in England. (Adapted from *Brandis, Forest Flora of India*, p. 203.)

47629 to 47830—Continued.

47780. RUBIA CORDIFOLIA L. Rubiaceæ. **Madder.**

A climbing, woody, white-barked perennial, found throughout the hilly districts of India, with whorls of prickly leaves and purplish black fruits about one-third of an inch in diameter. The fruits and roots are used in native medicine, chiefly as an astringent. (Adapted from *Kirtikar, Indian Medicinal Plants, pt. 1, p. 663.*)

47781. RUBUS ELLIPTICUS J. E. Smith. Rosaceæ. **Raspberry.**

A tall suberect bush, native to the temperate and subtropical Himalayas. The fruit is yellow and has the flavor of a raspberry. In the Himalayas it is commonly eaten either raw or made into a preserve and is said to be one of the best wild fruits of India. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 1, p. 581.*)

47782. RUBUS MOLUCCANUS L. Rosaceæ.

An East Indian Rubus with ornamental and very variable foliage. It is a climber with fuzzy stems and heart-shaped, 5-lobed, deep-green leaves whose lower surfaces are thickly covered with cream-colored down. (Adapted from *The Gardeners' Chronicle, 3d ser., vol. 33, p. 308.*)

47783. RYTILIX GRANULARIS (L.) Skeels. Poaceæ. **Grass.**
(*Manisuris granularis* L.)

An annual, erect, much-branched grass found throughout the hotter parts of India. The stem is from 1 to 2 feet or more in length, and it and the flaccid flat leaves are softly hairy. (Adapted from *Hooker, Flora of British India, vol. 7, p. 159.*)

47784. SAURAUJA NAPAULENSIS DC. Dilleniaceæ.

A large shrub or tree, native to the Himalayas from Bhutan to Gurhwal, India, at altitudes of 2,400 to 7,000 feet. The narrow hairy leaves are 7 to 14 inches long, the pink flowers occur in axillary panicles, and the green mealy sweet fruit is edible. (Adapted from *Brandis, Forest Flora of India, p. 25,* and *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 3, p. 479.*)

47785. SAUROPUUS ALBICANS Blume. Euphorbiaceæ.

An erect, somewhat shrubby plant with terete green branches, small greenish red flowers, and small fleshy fruits. It is a native of the hot valleys of the Himalayas of Sikkim, India, and is distributed southward to Ceylon and eastward to the Philippines. (Adapted from *Hooker, Flora of British India, vol. 5, p. 332.*)

47786. SAUSSUREA DELTOIDES (DC.) C. B. Clarke. Asteraceæ.

A tall composite, 4 to 8 feet in height, having large leaves with cottony lower surfaces. The extremely variable heads are often tipped with purple and the corollas are white. It is a native of the central and eastern Himalayas, growing at altitudes of 6,000 to 11,500 feet. (Adapted from *Hooker, Flora of British India, vol. 3, p. 374.*)

47787. SCHEFFLERA IMPRESSA (C. B. Clarke) Harms. Araliaceæ.
(*Heptaplcurum impressum* C. B. Clarke.)

A handsome tree of the northeastern Himalayas at altitudes of 6,000 to 11,000 feet, where it commonly attains a height of 60 feet, and is easily recognized by its woolly leaves. The thick brown bark yields a copious gum and the wood is white or gray and soft. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 4, p. 222.*)

47629 to 47830—Continued.

- 47788.** SCHEFFLERA VENULOSA (Wight and Arn.) Harms. Araliaceæ.
(*Heptapleurum venulosum* Seem.)

A small glabrous tree or climbing shrub frequent in the mixed forests throughout tropical and subtropical India. The light-brown soft wood is used as lumber. (Adapted from Watt, *Dictionary of the Economic Products of India*, vol. 4, p. 222.)

- 47789.** SCHIMA WALLICHII (DC.) Choisy. Theaceæ.

A large evergreen tree, 80 to 100 feet in height, native to the eastern Himalayas at altitudes of 2,000 to 5,000 feet. The wood, which is rough, red, close grained, and moderately hard, is used for many purposes, chiefly building. The bark causes itching of the skin. (Adapted from Watt, *Dictionary of the Economic Products of India*, vol. 6, pt. 2, p. 485.)

- 47790.** SELINUM TENUIFOLIUM Wall. Apiaceæ.

A highly ornamental Himalayan plant with very finely divided fernlike leaves. When the plant is isolated on a lawn and not allowed to flower, the effect is very striking because of the fresh green color of the leaves. It is perfectly hardy in England. (Adapted from *The Garden*, vol. 38, p. 221.)

- 47791.** SENECIO SCANDENS Buch.-Ham. Asteraceæ.

A beautiful autumn-flowering senecio from the Himalayas, with a woody stem and climbing habit. The yellow flowers are in few-flowered loose paniclelike clusters. Because of its rustic beauty and its habit of flowering in October, this plant is a very desirable ornamental. (Adapted from *Revue Horticole*, vol. 81, p. 407.)

- 47792.** SENECIO UNCINELLUS DC. Asteraceæ.
(*S. densiflorus* Wall.)

A tall, shrubby plant, native to the central and eastern Himalayas at altitudes of 4,000 to 6,000 feet. In the district of Huzara the leaves are applied to boils. (Adapted from Watt, *Dictionary of the Economic Products of India*, vol. 6, pt. 2, p. 500.)

- 47793.** SHUTERIA HIRSUTA Baker. Fabaceæ.

A densely hairy, trifoliolate climber with lax racemes of purple flowers and recurved hairy pods. It is a native of Sikkim and Khasia, India, where it grows at altitudes of 3,000 to 5,000 feet. (Adapted from *Hooker, Flora of British India*, vol. 2, p. 182.)

- 47794.** SIDA ACUTA Burm. f. Malvaceæ.

A shrubby perennial distributed generally throughout the hotter portions of India, from whose stems a good fiber is obtained. From the long cylindrical root is obtained by decoction a remedy for stomach troubles. The expressed juice of the root is also employed as a vermifuge. (Adapted from Watt, *Dictionary of the Economic Products of India*, vol. 6, pt. 2, p. 679.)

Received as *S. carpinifolia*, which is now referred to this earlier species.

- 47795.** SKIMMIA LAUREOLA (DC.) Sieb. and Zucc. Rutaceæ.

An evergreen, strongly aromatic shrub, found throughout the temperate Himalayas at altitudes ranging from 6,000 to 10,000 feet. The white flowers are crowded into terminal panicles, and the red fleshy fruits are ellipsoid and up to three-fourths of an inch in length. The

47629 to 47830—Continued.

timber is used to make hoe and ax handles. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 3, p. 244*, and *Hooker, Flora of British India, vol. 1, p. 499*.)

47796. SMILAX ASPERICAULIS Wall. Smilacaceæ. **Smilax.**

A climbing shrub having roughish stems, thin leaves with rounded or clawed tips, many-flowered umbels, and globular berries nearly half an inch in diameter. It is a native of the Sikkim Himalayas, India. (Adapted from *Hooker, Flora of British India, vol. 6, p. 306*.)

47797. SOLANUM CRASSIPETALUM Wall. Solanaceæ.

A Himalayan shrub, 2 to 9 feet in height, with narrow leaves acute at both ends. In Sikkim the leaves are cooked and eaten. (Adapted from *Hooker, Flora of British India, vol. 4, p. 232*.)

47798. SOLANUM KHASIANUM C. B. Clarke. Solanaceæ.

A stout plant with a stem densely yellow hirsute, armed with straight prickles two-thirds of an inch long. The deeply lobed leaves are 7 inches in length, and the berries are an inch in diameter. This plant is a native of the Khasia Mountains, India. (Adapted from *Hooker, Flora of British India, vol. 4, p. 234*.)

47799. SOLANUM MACRODON Wall. Solanaceæ.

An erect shrubby plant covered with bristly glistening hairs, with leaves 2 to 6 inches in length and purple-rose or nearly white flowers. It is a native of the temperate regions of the Himalayas. (Adapted from *Hooker, Flora of British India, vol. 4, p. 232*.)

47800. SOLANUM VERBASCIFOLIUM L. Solanaceæ.

A shrub or small tree frequently encountered throughout tropical and subtropical India. In the southern part of India it is cultivated for its fruit, which is small and is eaten in curries. The wood is light yellow and soft. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 3, p. 273*.)

47801. SPIRAEA BELLA Sims. Rosaceæ. **Spirea.**

A low shrub with oval, acute, finely serrate leaves with whitish lower surfaces and terminal panicles of bright-purple flowers. It is a native of Nepal, and appears to be hardy in England. (Adapted from *Curtis's Botanical Magazine, pl. 2426*.)

47802. SPIRAEA MICRANTHA Hook. f. Rosaceæ. **Spirea.**

A shrub found on the temperate slopes of the Himalayas in north-eastern India at altitudes of 6,000 to 10,000 feet. It is closely related to *Spiraea bella*, but is more lax in habit. The ovate-lanceolate leaves are sometimes 7 inches long, and the pale-pink flowers, often one-fourth of an inch across, are borne in long, spreading panicles. (Adapted from *Hooker, Flora of British India, vol. 2, p. 325*.)

47803. SPOROBOLUS INDICUS (L.) R. Br. Poaceæ. **Grass.**

A grass found on the plains of India and generally distributed over the tropical and subtropical parts of the world. It is considered to be a good fodder grass, especially when young. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 3, p. 341*.)

47629 to 47830—Continued.

47804. STEPHANIA ROTUNDA Lour. Menispermaceæ.

A large climber, native to the northwestern Himalayas, with tuberous roots, large peltate leaves up to 7 inches in width, and axillary umbels of yellow flowers. (Adapted from *Brandis, Forest Flora of India, p. 571.*)

47805. STIZOLOBIUM PRURITUM BIFLORUM (Trimen) Piper. Fabaceæ.

This 2-flowered variety of *Stizolobium pruritum* has leaflets which are very silky beneath and sickle-shaped pods, about 2 inches long, covered with red, erect, stinging hairs. It is a native of Ceylon. (Adapted from *Piper, Proceedings of the Biological Society of Washington, vol. 30, p. 60.*)

47806. STYRAX SERRULATUM Rozb. Styraceæ.

A bush or small tree common in southern Japan, where it is much cultivated on account of its ornamental appearance. The leaves are very variable in size and form, usually elliptic or narrower; and the white flowers, three-fourths of an inch in diameter, are in drooping cymes. This plant is also found in the Himalayas of northeastern and eastern India. (Adapted from *Curtis's Botanical Magazine, pl. 5950.*)

47807. SWERTIA BIMACULATA (Sieb. and Zucc.) Hook. f. and Thoms. Gentianaceæ.

An erect annual, 2 to 6 feet in height, with numerous white or yellowish green flowers in panicles. This plant is a native of the eastern Himalayas at altitudes of 5,000 to 8,000 feet. (Adapted from *Hooker, Flora of British India, vol. 4, p. 123.*)

47808. SWERTIA PURPURASCENS (D. Don) Wall. Gentianaceæ.

This species differs from *Swertia bimaculata* in having purple flowers with reflexed corolla lobes. It grows on the western Himalayas at altitudes ranging from 5,000 to 12,000 feet. (Adapted from *Hooker, Flora of British India, vol. 4, p. 121.*)

47809. SWERTIA TONGLUENSIS Burkill. Gentianaceæ.

An erect herbaceous perennial, 10 inches or more in height, with ovate, sessile leaves and panicles of inconspicuous greenish flowers. It is a native of Darjiling and Sikkim, India. (Adapted from *Kirtikar, Indian Medicinal Plants, vol. 2, p. 851,* and *Journal of the Asiatic Society of Bengal, vol. 2, p. 319.*)

47810. TAMARIX DIOICA Roxb. Tamaricaceæ.

A gregarious shrub or small tree found near rivers and on the sea-coast throughout India, where it is often planted for ornament on account of its spikes of pink flowers and attractive foliage. A peculiar bittersweet gum, or manna, is obtained from this plant, which is used in some places for making confections. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 3, p. 410,* and *Hooker, Flora of British India, vol. 1, p. 249.*)

47811. TETRASTIGMA BRACTEOLATUM (Wall.) Planch. Vitaceæ.
(*Vitis bracteolata* Wall.)

A slender-branched sarmentose shrub with smooth stems, cymes of very small green flowers, and dry 2 to 4 seeded fruits. It is a native of Bhutan and Assam, India. (Adapted from *Hooker, Flora of British India, vol. 1, p. 654.*)

47629 to 47830—Continued.

- 47812. THEMEDA TRIANDRA** Forsk. Poaceæ. **Grass.**
(*Anthistiria imberbis* Retz.)

A tall perennial grass with the spikes in globose or fan-shaped fascicles and rather rigid, very narrow leaves 3 to 10 inches long. It reaches a height of 1 to 6 feet, is a native of the hotter and drier parts of India, and is distributed throughout the warmer regions of the Old World. (Adapted from *Hooker, Flora of British India, vol. 7, p. 211.*)

- 47813. TODDALIA ASIATICA** (L.) Lam. Rutaceæ.
(*T. aculeata* Pers.)

A rambling shrub, native to the subtropical Himalayas. This is perhaps one of the most valuable of Indian medicinal plants. The unripe fruit and root are mixed with oil to form a stimulant liniment for rheumatism; the fresh leaves are eaten raw for pains in the intestines, and the fresh bark of the root is considered an excellent febrifuge. The ripe berries are fully as pungent as black pepper, and they are pickled by the natives with excellent results. Upon distillation the leaves yield a pale yellowish green oil having the odor of citron peel and a bitter aromatic taste. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 4, p. 58.*)

- 47814. TRACHYCARPUS MARTIANA** (Wall.) Wendl. Phœnicaceæ. **Palm.**

A tall, unarmed palm, 20 to 50 feet high, clothed beneath the crown with persistent leaf sheaths. The rigid leathery leaves are 4 to 5 feet in diameter and cut half way down into linear 2-lobed segments. The flowers are yellow and the fruits bluish. This palm is a native of the temperate Himalayas at altitudes of 6,000 to 8,000 feet. (Adapted from *Hooker, Flora of British India, vol. 6, p. 436.*)

- 47815. TRICHOLEPIS FURCATA** DC. Asteraceæ.

A slender yellow-flowered composite, 2 to 6 feet in height, with the flowers in nodding heads. It is a native of the temperate parts of the Himalayas. (Adapted from *Hooker, Flora of British India, vol. 3, p. 380.*)

- 47816. TRICHOSANTHES HIMALENSIS** C. B. Clarke. Cucurbitaceæ.

A climber with hairy, palmately 3-lobed leaves 5 inches wide, white flowers, and fruits 3 to 4 inches long. It is a native of Sikkim, India, where it grows at altitudes of 2,000 to 5,000 feet. (Adapted from *Hooker, Flora of British India, vol. 2, p. 608.*)

- 47817. TRIDAX PROCUMBENS** L. Asteraceæ.

A perennial trailing composite, with short bristly hairs covering the branches and the deeply toothed, rhomboid leaves. The yellowish flowers appear in dense heads. This plant is a native of tropical America. (Adapted from *Queensland Agricultural Journal, vol. 25, p. 484.*)

- 47818. TRIUMFETTA RHOMBOIDEA** Jacq. Tiliaceæ.

A herbaceous or somewhat woody plant, common in tropical and subtropical India and Ceylon up to 4,000 feet above the sea. It has dense cymes of yellow flowers and burlike fruits. The plant yields a soft, glossy fiber. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 4, p. 202,* and *Hooker, Flora of British India, vol. 1, p. 395.*)

47629 to 47830—Continued.

47819. *TSUGA BRUNONIANA* (Wall.) Carr. Pinaceæ.

A tall evergreen tree, sometimes attaining 120 feet in height, with spreading branches and pendulous branchlets. It is a native of north-eastern India, but is said to be not quite hardy in England. The wood is soft and white, and the bark is used for roofing. (Adapted from *Brandis, Forest Flora of India, p. 527.*)

47820. *DESMOS CHINENSIS* Lour. Annonaceæ.

(*Unona discolor* Vahl.)

A spreading shrub with slender leafy branches, shining oblong leaves up to 8 inches in length, and yellow odorous flowers. It is found in the tropical forests of northeastern and eastern India. (Adapted from *Hooker, Flora of British India, vol. 1, p. 59.*)

47821. *VACCINIUM DUNALIANUM* Wight. Vacciniaceæ.

A large erect shrub, with angular, leafy branches, oblong-lanceolate slender-tipped leaves, and axillary racemes of small inconspicuous flowers. It is a native of Sikkim, Bhutan, and the Khasia Mountains, India. (Adapted from *Hooker, Flora of British India, vol. 3, p. 453.*)

47822. *VACCINIUM NUMMULARIA* Hook. f. and Thoms. Vacciniaceæ.

A small, rigid, epiphytic plant with densely hairy, almost bristly branches, leathery leaves, and small racemes of rose-colored flowers. It is a native of Sikkim and Bhutan, India, growing at altitudes of 8,000 to 10,000 feet. (Adapted from *Hooker, Flora of British India, vol. 3, p. 451.*)

47823. *VACCINIUM SERRATUM* (Don) Wight. Vacciniaceæ.

A shrub, often epiphytic, found in Sikkim, Bhutan, and the Khasia Hills, India. The flowers have an acid taste and are used by the natives of the Garo Hills in their curries. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 4, p. 218.*)

47824. *VERNONIA VOLKAMERIAEFOLIA* DC. Asteraceæ.

A small robust tree with large leaves up to 12 inches in length, and very numerous flower heads in terminal leafless panicles. The persistent pappus is whitish. The tree is a native of Sikkim and the Khasia Mountains. (Adapted from *Hooker, Flora of British India, vol. 3, p. 240.*)

47825. *VIBURNUM COLEBROOKEANUM* Wall. Caprifoliaceæ.

A large spreading shrub, 6 to 15 feet in height, with large oblong leaves and large corymbs of very small white flowers. It is common in the subtropical Himalayas. (Adapted from *Hooker, Flora of British India, vol. 3, p. 5.*)

47826. *VIBURNUM CYLINDRICUM* Buch.-Ham. Caprifoliaceæ.

A large shrub or small tree, common in the Himalayas of northeastern India at altitudes of 4,000 to 8,000 feet. The natives of Nepal are said to extract from the seeds an oil which they use for food and also for burning. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 4, p. 232.*)

47827. *VIBURNUM ERUBESCENS* Wall. Caprifoliaceæ.

A shrub or small tree with slender, ash-colored branches, drooping panicles of white or yellowish white flowers, and red ovoid fruits one-quarter of an inch long. The very hard, reddish wood is close and even grained and could be used as a substitute for boxwood and for carving.

47629 to 47830—Continued.

(Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 4, p. 233*, and *Brandis, Forest Flora of India, p. 259*.)

47828. ZANTHOXYLUM ACANTHOPODIUM DC. Rutaceæ.

A small tree, native to the hot valleys of the subtropical Himalayas, ascending to 7,000 feet. The berries are about the size of peas and contain one black seed. From these berries is extracted an essential oil, isomeric with oil of turpentine. The natives use the seeds and bark for dyspepsia, fever, cholera, etc. The wood is close grained and yellow and is used for walking sticks, pestles, etc. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 4, p. 323*.)

47829. ZANTHOXYLUM OVALIFOLIUM Wight. Rutaceæ.

A large shrub found in the Nilgiri Hills, Khasia Mountains, Assam, etc., in India, and also in Singapore, whose fruit and bark probably possess medicinal properties similar to those of other members of this genus. The light yellowish white wood is very hard and close grained. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 4, p. 325*.)

47830. ZANTHOXYLUM OXYPHYLLUM Edgeworth. Rutaceæ.

A climbing prickly shrub found at altitudes of 6,000 to 9,000 feet in the Himalayas from Gurhwal to Bhutan. The fruits are used medicinally, being supposed to have astringent, stimulative, and digestive properties. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 4, p. 325*.)

47831 to 47858.

From Darjiling, Bengal, India. Presented by Mr. G. H. Cave, curator, Lloyd Botanic Garden. Received June 11, 1919.

47831. ACER SIKKIMENSE Miquel. Aceraceæ.**Maple.**

A small tree, native to the hills of Sikkim and Bhutan, India, with heart-shaped green leaves and spikelike racemes which appear with the leaves. The wood is shining and gray. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 1, p. 71*.)

47832. ALBIZZIA PROCERA (Roxb.) Benth. Mimosaceæ.

A large tree, often 60 to 80 feet high, sometimes more, with yellowish or greenish white bark and large compound leaves composed of 6 to 8 pairs of leaflets. The yellowish white flowers are borne in heads in terminal panicles. The heartwood is light or dark brown, and is largely used for agricultural implements, wheels, etc. The tree is a native of moist places in Burma, Bengal, and southern India. (Adapted from *Brandis, Forest Flora of India, p. 175*.)

47833. ARTOCARPUS LAKOOCHA Roxb. Moraceæ.

A large evergreen tree, native to the foothills of eastern and southern India, with leathery oval or ovate leaves up to 10 inches in length and irregularly roundish edible acid fruits, which are 3 to 4 inches in diameter and velvety yellow when ripe. The bark yields a resinous gum, and from the bark also is prepared a fiber which is used for cordage. The root yields a yellow dye, and the hard, yellow heartwood is used for making furniture. The fruit and also the spadix of the flowers are used in curries. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 1, p. 333*.)

47831 to 47858—Continued.

47834. *BALBERIA STRIGOSA* Willd. Acanthaceæ.

A shrubby plant, much cultivated in India, but wild in the lower hills of Bengal, Orissa, etc. It is 2 to 4 feet in height, has large ovate leaves, and dense spikes of blue flowers. From the root is prepared a native medicine used as an antispasmodic. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 1, p. 401*, and *Hooker, Flora of British India, vol. 4, p. 489*.)

47835. *BISCHOFIA TRIFOLIATA* (Roxb.) Hook. Euphorbiaceæ.
(*B. javanica* Blume.)

A large tree, found in shady ravines in the hills of Kumaon, Gurhwal, India, south to Ceylon, and also in southern Asia. It is very handsome, attaining a height of 70 feet, with a dense oval crown and deep-green foliage which turns red before falling. The pale-red fine-grained wood is used for furniture. (Adapted from *Brandis, Forest Flora of India, p. 446*.)

47836. *BOEHMERIA MACROPHYLLA* D. Don. Urticaceæ.

A broad-leaved shrub, native to northern and northeastern India, where it ascends to 4,000 feet. The bark yields a beautiful fiber, much prized for fishing nets. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 1, p. 467*.)

47837. *BOEHMERIA PLATYPHYLLA* D. Don. Urticaceæ.

A large shrub or small tree with opposite, broadly ovate leaves, native to the Khasi Hills, eastern Bengal and southern India. The wood is moderately hard and reddish brown. All of the species of this genus are said to yield good fibers. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 1, p. 481*.)

47838. *CALLICARPA MACROPHYLLA* Vahl. Verbenaceæ.

A tall shrub with the branches and stems thickly covered with gray woolly felt. The narrow wrinkled leaves are 6 to 10 inches long, and the small rose-colored flowers are in much-branched cymes. The shrub is a native of Bengal and Burma, India. The heated leaves are applied to rheumatic joints. (Adapted from *Brandis, Forest Flora of India, p. 368*.)

47839. *CITRUS SINENSIS* (L.) Osbeck. Rutaceæ. Orange.
"Sikkim orange." (*Cavc.*)47840. *DYSOXYLUM BINECTARIFERUM* (Roxb.) Hook. f. Meliaceæ.

An evergreen tree, 30 feet or more in height, with compound leaves 9 to 18 inches long, composed of 5 to 9 leaflets, and panicles of pale-green flowers. The leathery reddish fruits are 2½ inches long, and the seeds are dark purple and polished. This tree is a native of the Khasia Hills and Assam, India. (Adapted from *Hooker, Flora of British India, vol. 1, p. 546*.)

47841. *ELAEAGNUS PYRIFORMIS* Hook. f. Elæagnaceæ.

A shrubby plant with oblong or elliptic, somewhat silvery leaves, clustered flowers, and small turgid fruits, one-third of an inch long, covered with brown, hardly shining scales. The plant is a native of the Mishmi Hills, India. (Adapted from *Hooker, Flora of British India, vol. 5, p. 202*.)

47831 to 47858—Continued.

47842. *ENGELHARDTIA SPICATA* Leschen. Juglandaceæ.

A large handsome tree, belonging to the walnut family, native to the foothills of the eastern Himalayas. The thick brown bark contains much tannin; the wood shows a beautiful grain and is said not to warp. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 3, p. 244.*)

47843. *FICUS ALTISSIMA* Blume. Moraceæ.

A large, spreading tree, native to the tropical Himalayas. It is said to yield as good caoutchouc as its relative, *Ficus elastica*. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 3, p. 342.*)

47844. *GYNOSTEMMA PEDATUM* Blume. Cucurbitaceæ.

A climbing herbaceous plant with leaves composed of three to five membranous leaflets up to 5 inches in length and globose fruits about the size of a pea. It is a native of northeastern India. (Adapted from *Hooker, Flora of British India, vol. 2, p. 633.*)

47845. *IPOMOEA KINGII* Prain. Convolvulaceæ. **Morning-glory.**

A large white-flowered climber belonging to the morning-glory family, with narrow heart-shaped leaves up to 6 inches in length. It is a native of northeastern India at altitudes of 2,000 to 5,000 feet. (Adapted from *Journal of the Asiatic Society of Bengal, vol. 63, p. 110.*)

47846. *LEONOTIS NEPETAEFOLIA* (L.) Ait. Menthaceæ.

An annual, 4 to 6 feet high, with a stem as thick as one's finger, thin crenate leaves, and whorls of orange-red flowers. It is native to the hotter parts of India, and is distributed to tropical Asia, Africa, and America. (Adapted from *Hooker, Flora of British India, vol. 4, p. 691.*)

47847. *MANISURIS STRIATA* (Nees) Kuntze. Poaceæ. **Grass.**

A tall slender grass, with a stem 3 to 4 feet long, very narrow, flat leaves 2 to 4 feet in length, and pale, slender spikes about 2 inches long. It is a native of the Sikkim Himalayas, India, where it ascends to 4,000 feet. (Adapted from *Hooker, Flora of British India, vol. 7, p. 157.*)

47848. *PANICUM PATENS* L. Poaceæ. **Grass.**

A creeping grass, found throughout India, with a leafy stem 1 to 3 feet long, leaves 2 to 6 inches in length, and spreading panicles. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 7, p. 57.*)

47849. *PHLOGACANTHUS PUBINERVIUS* T. Anders. Acanthaceæ.

A much-branched shrub, 3 to 8 feet in diameter, with numerous axillary cymes of red flowers. It is a native of Sikkim, Bhutan, and Assam, India. (Adapted from *Hooker, Flora of British India, vol. 4, p. 513.*)

47850. *PUERARIA PHASEOLOIDES* (Roxb.) Benth. Fabaceæ.

A twining, scarcely woody plant, clothed with dense, spreading, brown hairs; native to the tropical regions of the eastern Himalayas. The leaflets are green above and densely matted with gray hairs beneath. The reddish flowers are borne in copious long-stemmed racemes. (Adapted from *Hooker, Flora of British India, vol. 2, p. 199.*)

47851. *RHODODENDRON CAMELLIAEFLOSUM* Hook. f. Ericaceæ.**Rhododendron.**

A Himalayan rhododendron, 2 to 6 feet tall. It has very thick deep-green leathery leaves and pure white or faintly pinkish flowers about 1½ inches wide. (Adapted from *Curtis's Botanical Magazine, pl. 4932.*)

47831 to 47858—Continued.**47852. RHYNCHOTECHUM VESTITUM** Wall. Gesneriaceæ.

An erect, simple, shrubby plant, about 3 feet high, with yellow-hairy, elliptic leaves 9 inches in length, many-flowered axillary cymes of rose-purple flowers, and globose, glistening-white berries more than a quarter of an inch in diameter. The plant is a native of Sikkim, Bhutan, and Assam, India. (Adapted from *Hooker, Flora of British India, vol. 4, p. 373.*)

47853. RUBIA SIKKIMENSIS Kurz. Rubiaceæ.

A stout, handsome, creeping plant, native to Sikkim and Bhutan, India. The stem and root of this plant yield the brilliant red dye used by the natives of Naga Hills and Manipur, India. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 1, p. 577.*)

47854. SALIX TETRASPERMA Roxb. Salicaceæ.

Willow.

This willow is a native of India, where it grows at altitudes of 2,000 to 7,000 feet and reaches a height of 40 feet. The twigs are useful for basketry, and the foliage as forage. (Adapted from *Mueller, Select Extra-Tropical Plants, p. 488.*)

47855. TERMINALIA MYRIOCARPA Huerck and Muell. Arg. Combretaceæ.

A very large evergreen tree, abundant in the subtropical valleys of Sikkim and Bhutan, India. The heartwood is brown, beautifully mottled with dark streaks, and is used for building purposes and for boxes. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 4, p. 37.*)

47856. TERMINALIA TOMENTOSA (Roxb.) Wight and Arn. Combretaceæ.

A large deciduous tree, 80 to 100 feet tall, common throughout the moister parts of India. It yields copiously a transparent gum which is eaten by the Santals. The bark is used for tanning. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 4, p. 37.*)

47857. URARIA LAGOPUS DC. Fabaceæ.

A woody, densely cespitose, perennial leguminous plant, reaching 10 to 12 feet in height, with trifoliolate leaves and copious terminal and axillary racemes of purple flowers. It is a native of India from the Punjab to Assam. (Adapted from *Hooker, Flora of British India, vol. 2, p. 156.*)

47858. WALLICHIA DENSIFLORA Mart. Phœnicaceæ.

Palm.

A palm with a very short stem or even stemless, found throughout the tropical Himalayas from Kumaon eastward. The leaves are 8 to 10 feet long, the spathes are purple, and the male and female flowers are yellow and purplish, respectively. The dull-purple fruits are about half an inch in length. The leaves are sometimes used for fodder, and also for thatching. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 6, pt. 4, p. 299.* and *Hooker, Flora of British India, vol. 6, p. 419.*)

47859. AMARANTHUS PANICULATUS L. Amaranthaceæ. **Huauhtli.**

From the City of Mexico, Mexico. Presented by Dr. A. L. Herrera, Director de Estudios Biológicos. Received June 30, 1919.

"Seeds of the edible plant popularly called *alegría*, cultivated in the Federal District." (*Herrera.*)

The seed is roasted or popped, ground into meal, and made into sweet cakes. The meal is also said to be eaten with sugar and milk.

For previous introduction see S. P. I. Nos. 45811 and 46310.

47860. AMHERSTIA NOBILIS Wall. Cæsalpiniaceæ.

From Sibpur, near Calcutta, India. Presented by the curator, Royal Botanic Garden. Received June 30, 1919.

Named in honor of Lady Amherst. A medium-sized tree, native to Burma, and considered the most beautiful of all flowering trees. Its immense condalabrumlike sprays of red and yellow flowers drooping from every branch among the handsome foliage present an appearance of astonishing elegance and loveliness. It is in flower during the greater part of the year, but its chief flowering season in Ceylon is from January to April, i. e., the dry season. It produces seed very scantily anywhere, a pod or two occasionally being all that can be obtained, and even these are often infertile. Propagation by layering, therefore, has to be adopted. (Adapted from Macmillan, *Handbook of Tropical Gardening and Planting*, p. 291.)

47861 to 47864. CITRUS spp. Rutaceæ.

From Buitenzorg, Java. Presented by Dr. P. J. S. Cramer, chief, Plant-Breeding Station. Received June 30, 1919.

47861. CITRUS GRANDIS (L.) Osbeck.
(*C. decumana* Murr.)

Pummelo.

47862. CITRUS sp.
Djeroek nipis.

47864. CITRUS sp.
Djeroek manis.

47863. CITRUS sp.
Djeroek garoet.

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