Issued November, 1923.

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 JANUARY 1 TO MARCH 31, 1922.

(No. 70; Nos. 54677 to 54968.)

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
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INTRODUCTORY STATEMENT.

Although a small inventory, as inventories go, this seventieth one has many new plants which are worthy of mention.

The ka-á he-é (*Stevia rebaudiana*, No. 54677) of Paraguay seems to merit serious consideration as a new source of sweetening, particularly for diabetics, since its glucosid has a sweetening power 150 to 200 times greater than that of sugar. The fact that it has never been cultivated should not deter us from attempting its culture, and since it grows somewhat like our ironweeds it might be harvested by machinery. Glucosids differ from sugars in that they are not foods.

The jaragua grass from Brazil (*Cymbopogon rufus*, No. 54679) is a tall, leafy bunch-grass which can be grazed or cut for hay. It is already being extensively tried in southern Florida.

The molasses grass (*Melinis minutiflora*, No. 54680) of Brazil, one of the best forage grasses of that country, appears to have a great future on the sandy lands of Florida. At first, cattle there refused to eat it, but it has been learned that they were turned out to pasture on it after it had become old and coarse. When this grass is young, cattle are very fond of it.

The chirimoriñon (*Annona* sp., No. 54682) according to H. Pittier, of Caracas, is by far the most delicious of the anonas, and it may become another delicate fruit for southern Florida and our island possessions.

Mesua ferrea (No. 54687), a large, handsome tropical tree with blood-red young foliage, large white scented flowers, and seeds which yield a perfumed oil, may easily add another glory to the tropical vegetation of southern Florida.

Solanum pierreanum (No. 54695), the olombé of French Equatorial Africa, whose fire-red fruits the size of walnuts are eaten by the Pahouins, or natives of Gabon colony, might possibly be crossed with the tomato.

The chilacayote (*Cucurbita ficifolia*, No. 54700), a member of the cucumber family from Mexico, the fruits of which resemble small watermelons and are used for pie and for making conserves, may be well worth growing in the vegetable gardens of the South.

Eugenia klotzschiana (No. 54702), the pera do campo, is a pear-shaped fruit which was first featured by Dorsett and Popenoe in their introductions from Brazil because of its most unusual fragrance,

which attracted their attention hundreds of yards away when found on the prairies of Brazil. It should be brought into cultivation because of its fragrant edible fruits.

Aleurites montana (No. 54703), the mu-oil tree of southern China, from which a part of the wood oil of commerce is derived, is a more tropical tree than the tung-oil tree (*A. fordii*) and may prove more productive in parts of Florida than the latter, which is being exploited there.

The Sumatra Casuarina (No. 54705) is a more attractive-looking tree than the ordinary Australian one, and if it proves as hardy and as rapid a grower it may take the place of this so-called Australian pine in southern Florida as a street tree.

The pink shower (*Cassia grandis*, No. 54706), although an exceedingly handsome tree 50 feet or more in height, with abundant clusters of deep-pink flowers which open in early spring, seems curiously enough never to have been naturalized in southern Florida. Its advent there may cause a sensation among amateur horticulturists.

A superb collection of 17 varieties of *Prunus mume* (Nos. 54709 to 54725) has been sent us by Prof. T. Onda for propagation and trial. It seems strange that so little has been done in America with these remarkable Japanese dooryard trees, especially when one considers their fragrance, their picturesque habit, and the exquisite varieties still in existence which were produced by the gardeners of the feudal days of Japan.

From Chiengmai, Siam, J. F. Rock, our agricultural explorer, sends in a quantity of seeds of another source of chaulmoogric acid, *Hydnocarpus anthelminthica* (No. 54726), which may prove more adaptable for cultivation than the true chaulmoogra tree, *Taraktogenos kurzii*.

Rosa gentiliana (No. 54735) was first introduced by us several years ago for the use of the late Dr. Walter Van Fleet, and it has done remarkably well on his place at Bell, Md. When Doctor Van Fleet started for Florida last winter, he took with him a cutting from his bush, thinking that it would be particularly adapted to the South. After the doctor's death, Mrs. Van Fleet gave the slip to Mr. Simmonds, who reports that it is growing well at the Miami Garden.

Danthonia setacea (No. 54736) is one of the pasture grasses of Tasmania and New South Wales. The established value of these danthonias as pasture grasses in Australia makes them worthy of special trial in our own Southwest where, like so many of the introduced grasses, they may prove superior to our native species because of their resistance to drought.

The kangaroo grass of Australia (*Themeda australis*, No. 54737), though coarse, is liked by cattle and sheep. It may seed better in this country than in its native land and prove a valuable addition to southern pastures.

Mr. Popenoe's description of the pejibaye (*Guilielma utilis*, No. 54776) should appeal to horticulturists throughout the Tropics, for it describes a valuable food plant which appears to have been strangely overlooked by the inhabitants of the Tropics of South

America, Africa, and the Orient. It deserves, in Mr. Popenoe's opinion, to rank with the date as a food-producing palm.

A single bush of the grumichama of Brazil has proved hardy in southern Florida, withstanding the freeze of 1917, and it has bloomed profusely there. Its excellent cherrylike fruits and its dark-green foliage and white flowers will probably make it very popular wherever it can be grown. It is interesting to get seeds of it (*Eugenia dombeyi*, No. 54777) and a favorable opinion regarding it from Mr. Regnard, of Mauritius.

Davidsonia pruriens (No. 54785), from Queensland, with acid, plumlike purple fruits the size of a goose egg, used by the settlers for jams and jellies, may prove to be a useful fruit tree in southern Florida and California.

The walnuts (*Juglans regia*, Nos. 54788 to 54790) from the lower Himalayas in the Northwest Provinces of India, according to Howard Spence who sends them, have special vigor and hardiness and on account of the ease with which they can be transplanted are believed valuable as a stock.

Through Henry S. Wellcome we received from Kordofan seeds of the hashab (*Acacia verek*, No. 54799), the acacia which furnishes the finest quality of gum arabic.

A variety of sugar cane (*Saccharum officinarum*, No. 54902) which originated in the Shahjahanpur Sugar-Experiment Station of British India and has shown a remarkable resistance to frost in Queensland may prove of unusual value to sugar-cane growers in Florida and Louisiana.

A wild apple (*Malus doumeri*, No. 54903), sent by Mr. Miéville from the mountains of French Indo China, which, according to Chevalier, was probably cultivated there in ancient times and is now preserved as one of the sacred trees around Laos pagodas, can hardly fail to attract the attention of apple breeders and those who are hunting for the best stock on which to grow our cultivated varieties.

Three strains of the ma-yuen, or adlay (*Coix lacryma-jobi ma-yuen*, Nos. 54906 to 54908), a soft-shelled variety of Job's tears, which, according to Wester, has decided advantage over upland rice for tropical agriculture, being more drought resistant, a much heavier yielder, and requiring not over half the cost of cultivation, deserve an extensive trial throughout the Tropics. Demonstrations have shown that the adlay can be used in most of the ways in which we use corn.

E. W. Davy sends us from the dense humid forests of tropical Africa *Myrianthus arboreus* (No. 54910), which bears edible fruits 4 inches in diameter that are much appreciated by the natives. It should be tried in those regions in the Tropics inhabited by people with discriminating palates and might prove to be a valuable fruit.

A collection of early-ripening, stiff-stemmed varieties of oats and barley (Nos. 54911 to 54917), sent by Haakon Foss, should prove useful in the regions of the United States having high altitudes.

Dr. E. O. Fenzi has sent from the northern slope of the Cyrenaican plateau of Tripoli seeds of the wild forms of *Cupressus sempervirens* and *Juniperus phoenicea* (Nos. 54918 and 54919) which

may, he thinks, differ from the varieties of these species that have been so long in cultivation.

A collection by Miss Ola Powell of the remarkable pimientos (*Capsicum annuum*) of southeastern Spain, which are so mild that they can be eaten like apples, is represented by Nos. 54959 to 54962. They are grown, dried, ground, and used for their characteristic pimiento flavor and not for their peppery character.

Mr. Rock has suggested *Barringtonia asiatica*, which forms extensive beach forests on the Pacific islands, for use as a beach tree for the sandy keys of Florida; and Doctor Lyon, of Honolulu, has sent in a quantity of the large pyramid-shaped seeds for trial (No. 54963).

The interest in carob culture in southern California makes the introduction by Sr. Liro Oritz of three varieties (*Ceratonia siliqua*, Nos. 54964 to 54966) from Malaga of importance, as we do not yet know which of the superior varieties from the Mediterranean region is going to prove most productive in America.

The botanical determinations of seeds introduced have been made and the botanical nomenclature revised by H. C. Skeels, and the descriptive and botanical notes arranged by G. P. Van Eseltine, who has had general supervision of the work.

DAVID FAIRCHILD,
Agricultural Explorer in Charge.

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION,
Washington, D. C., January 18, 1923.

INVENTORY.[1]

54677. STEVIA REBAUDIANA Bertoni. Asteraceæ.

From Buenos Aires, Argentina. Seeds presented by D. S. Bullock, Agricultural Commissioner, Bureau of Agricultural Economics. Received January 12, 1922.

"*Ka-á he-é* (sweet herb) is native to Paraguay, growing on the high ground where the yerba maté flourishes. The plant is ordinarily about 20 inches in height with leaves about an inch long. In its wild state the plant is very rare, and no planting of the seeds has ever produced results. It is now believed that the seed is fertile but takes several years to germinate. Propagation is by cuttings. Analyses of the leaves made in Germany show the 'sugar' to be a glucosid in combination with soda and an aromatic resin. It has a sweetening power from 150 to 200 times greater than cane sugar and is soluble in water. It does not ferment and is nontoxic. It is claimed that there is nothing injurious in the leaves and that they can be used for sweetening directly in the natural state, drying and grinding only being required. The aromatic resin gives an additional slight pleasant taste. Since the 'sugar' is soluble, it can be extracted, and it can be used in the liquid form for preserves. It is also claimed that *ka-á he-é* is an ideal and safe sugar for diabetics.

"A German scientist now in Paraguay claims that the plant can be cultivated in fields in a manner similar to alfalfa and cuttings made each year. If the truth of this is demonstrated the plant *ka-á he-é* should be a profitable commercial sugar producer." (*George S. Brady.*)

"George S. Brady, American trade commissioner here, tells me that after being started, the plants can possibly be cut with machinery, as peppermint is cut in Michigan.

"The seeds, I understand, are very small and difficult to grow. It is possible, however, that by treating them as the natives in Paraguay do the maté seed, allowing it to soak in water and wood ashes for 36 or 48 hours, they might germinate." (*Bullock.*)

54678. ECHINOCHLOA COLONUM (L.) Link. Poaceæ. Grass.

From Khartum. Anglo-Egyptian Sudan. Seeds presented by R. E. Massey, Government botanist, Department of Agriculture. Received December 27, 1921. Numbered January, 1922.

Received as *Brachiaria isachne* and sent in response to a request for *Difra* (*Panicum breviradiatum* Hochst.).

54679 and 54680.

From Lavras, Minas Geraes, Brazil. Seeds presented by B. H. Hunnicutt. Received January 14, 1922.

54679. CYMBOPOGON RUFUS (Nees) Rendle. Poaceæ. Jaragua grass. (*Andropogon rufus* Kunth.)

A perennial grass native to Brazil and cultivated there and at various other places in the American Tropics. This leafy bunch-grass, the tussocks of which become a foot or so in diameter and the numerous leafy culms 6 to 10 feet high, is primarily a hay grass and yields the best

[1] 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.

54679 and 54680—Continued.

quality if cut when 3 feet high, so that from two to six cuttings may be made in a year. The hay is considered excellent for fattening and particularly desirable as horse feed. Previous introductions have been tested in the South and in California with promising results, though the grass is killed at temperatures of about 25° F. In Brazil the grass is also grazed, but it must not be overgrazed, as under such treatment it is killed. At the present time it is being extensively tested in Florida and Texas." (*C. V. Piper.*)

54680. MELINIS MINUTIFLORA Beauv. Poaceæ. **Molasses grass.**

"John Morley, of Lake Alfred, Fla., informed me that the molasses grass (*Melinis minutiflora*) was so successful on his place that he is going to get a large quantity of seed for the planting of a very considerable area of it. He said the trouble experienced by other people who had tried to use this grass was, apparently, that they did not keep it closely enough grazed or cut. When permitted to grow unmolested it is likely to get rank." *(David Fairchild.)*

"I am immensely pleased to learn of the success that Mr. Morley has had in pasturing this plant (*M. minutiflora*). While it grew extremely well at various places in Florida, everyone else has reported that the cattle would not eat it. Apparently they must be educated to it. At Mr. Burguieres's place, West Palm Beach, Fla., the grass behaves as a weed, being abundant everywhere along the fence rows." *(C. V. Piper.)*

For previous introduction, see S. P. I. No. 50162.

54681. DIOSPYROS KAKI L. f. Diospyraceæ. **Kaki.**

From Canton, Kwangtung, China. Seeds presented by C. O. Levine, acting Director of Agriculture, Canton Christian College, through F. A. McClure. Received January 24, 1922.

Kai sam tsz (chicken-heart persimmon).

A variety of kaki from southern China which may be capable of cultivation in southern Florida.

54682. ANNONA sp. Annonaceæ.

From Caracas, Venezuela. Seeds presented by H. Pittier. Received January 27, 1922.

"Seeds of the so-called *chirimoriñon*. The fruit is small for its kind, about 12 centimeters (5 inches) long, ovoid-oblique, and almost pointed at the apex. At the base the scales are very numerous, imbricate, and mostly small; toward the apex they are much larger and scattered in the shape of rounded protuberances. It is by far the most delicious among the sweetsops, the fiberless flesh having just the consistence of thickish cream and a delightful flavor suggestive of strawberry ice cream without any of the 'goût de pommade' of either *Annona reticulata* or *A. cherimola*. The seeds seem to be very few in each fruit." (*Pittier.*)

"Probably tropical in its requirements, and suited for cultivation in the United States only in southern Florida." (*Wilson Popenoe.*)

54683 and 54684. COFFEA spp. Rubiaceæ. **Coffee.**

From Tananarive, Madagascar. Seeds presented by the Nanisans Experiment Station through James J. Carter, American consul. Received January 23, 1922.

"Species of coffee cultivated in the center of the island of Madagascar. Furnished by the Nanisans Experiment Station upon the order of the inspector general of the Agricultural and Forestry Service."

54683. COFFEA ARABICA L.

"*Café vondrona à grains allongés* (long-grain, small-leaf, tufted coffee)."

54683 and 54684—Continued.

54684. COFFEA LIBERICA Bull.

"*Café lava-tanana à gros grains* (large-grain, large-leaf, and long-branch coffee)."

54685. GOSSYPIUM NANKING Meyen. Malvaceæ. **Cotton.**

From Unsan, Pingyang Province, Chosen. Seeds presented by A. Welhaven, Oriental Consolidated Mining Co., through Ransford S. Miller, American consul general, Seoul. Received February 7, 1922.

"This seed was grown in Pukchin Myon, Unsan, northern Pingyang Province (40° 10′ N., 125° 55′ E.), and is supposed to be the best produced locally." (*Welhaven.*)

54686. DIOSCOREA TRIFIDA L. f. Dioscoreaceæ. **Yampi.**

From Gatun, Canal Zone. Tuber presented by A. V. Mitchell, through the Federal Horticultural Board. Received February 13, 1922.

"A pink-skinned, white-fleshed *yampi* of good quality. The tubers are long-oval to club shaped and from 3 to 8 ounces each in weight." (*R. A. Young.*)

For previous introduction, see S. P. I. No. 42053.

54687. MESUA FERREA L. Clusiaceæ.

From Buitenzorg, Java. Seeds presented by Dr. W. M. Docters van Leeuwen, director, Botanic Garden. Received February 3, 1922.

A very handsome, pyramidal tree native to the hot moist regions of Ceylon, India, and the Malay Peninsula. The young leaves which appear twice a year are intense blood red at first, passing through delicate shades of pink into dark green. The large, white, delicately scented flowers are produced profusely in April and May. The kernels yield as much as 70 per cent of very rich, clear, red-brown, somewhat perfumed oil which might be used for confectionery. The oil is used medicinally as a lotion. The dark-red wood is extremely hard and heavy and when well seasoned is used for beams, masts, tool handles, in bridge construction, etc. Railway ties made of this wood were not attacked by white ants and were quite sound after four years of use. (Adapted from *Macmillan, Handbook of Tropical Gardening and Planting, p. 260,* and *Pearson, Commercial Guide to the Forest Economic Products of India, p. 68.*)

54688. GOSSYPIUM BARBADENSE L. Malvaceæ. **Cotton.**

From Cairo, Egypt. Seeds presented by James A. Prescott, Sultanic Agricultural Society. Received January 19, 1922.

Pilion.

Introduced for department specialists engaged in cotton breeding.

54689. OPUNTIA FICUS-INDICA (L.) Mill. Cactaceæ. **Indian fig.**

From Valetta, Malta. Cuttings presented by Società Economica Agraria, through Cary Loop, American consul. Received February 3, 1922.

These cuttings were received in response to a request for propagating material of a nearly spineless variety introduced from Malta in 1903 (under S. P. I. No. 9352) and said to bear yellowish orange fruits the size of a goose egg, of good flavor, and containing less than a dozen seeds.

For previous introduction, see S. P. I. No. 9352.

54690. MANGIFERA INDICA L. Anacardiaceæ. **Mango.**

From Honolulu, Hawaii. Plants presented by J. M. Westgate, agronomist in charge, Agricultural Experiment Station. Received January 17, 1922.

"*Victoria.* The original tree, Victoria No. 9, is a seedling growing on the residence property of Thomas G. Thrum, 1508 Thurston Avenue, Honolulu. During the eighties a number of mango seeds were brought from the West Indies

by Joseph Marsden, a Government official of Hawaii. Among the seedlings developed from the introduced seeds was one known as No. 9. In 1897 a seed of this No. 9 was given to Mr. and Mrs. George Ashley, who then lived at 1508 Thurston Avenue. Mrs. Ashley germinated this seed, setting it in the front yard in its present location on June 20, 1897, the date of the Diamond Jubilee of Queen Victoria of England. For this reason the tree was called 'Victoria No. 9.' When it fruited it was discovered that the fruit was different from any of the mangos growing in Hawaii, particularly in color. Its qualities are superior to any of those mangos formerly brought to Hawaii by Mr. Marsden.

"The tree has proved to be very prolific, often producing as many as three distinct crops per year. The fruits are but little clustered, generally hanging singly on individual stems. From the time the fruits set they are red, becoming more brilliant on ripening. Like some other mangos, the Victoria No. 9 reproduces its quality of fruit fairly accurately on seedling trees. There are a number of seedlings in various parts of the islands which are reported as being fairly true in fruit production to the parent tree. The variety may be perpetuated without question by grafting.

"Description of the fruit: Size medium; weight about 9 ounces; shape oblong, slightly -shaped and necked somewhat at stem end; apex broadly rounded with curve ending in a small blunt beak which sometimes contains a small holelike depression; color when ripe brilliant vermilion shaded over yellow ground color; yellow ground color most evident at apex. Surface marked with small yellow dots which become overcast where red is deepest. Shoulder of fruit has delicate powdery bloom. Skin is of medium thickness, tough so as to peel well. Odor a pleasing fragrance. Ripe flesh of deep rich yellow color, good texture; juice sweet acid and of flavor of the Pirie mango. Seed small, weight three-fourths of an ounce. Marketing qualities ranking among best varieties in Hawaii." (*Willis T. Pope.*)

54691. FLACOURTIA EUPHLEBIA Merr. Flacourtiaceæ.

From Manila, Philippine Islands. Seeds presented by P. J. Wester, agricultural adviser, Bureau of Agriculture, through Sr. Adn. Hernandez, Secretary of Agriculture and Natural Resources. Received January 27, 1922.

"*Lanagon.* A small tree, native to these islands, bearing in profusion fruits very similar in appearance and flavor to those of *Flacourtia cataphracta.* They can probably also be used in the same way as those of the latter, i. e., for jelly making." (*Wester.*)

54692 to 54698.

From Nice, France. Seeds presented by Dr. A. Robertson Proschowsky. Received January 31, 1922.

54692. BUCKLANDIA POPULNEA R. Br. Hamamelidaceæ.

One of the most beautiful of the forest trees of the Sikkim Himalayas at altitudes of 4,000 to 6,000 feet. The glossy green leathery leaves are red veined and red petioled. The young leaves are more or less deep blood red, unspotted beneath, but shot with green above. The remarkable long red stipules resemble those of Liriodendron. (Adapted from *Curtis's Botanical Magazine, pl. 6507.*)

54693. BUPLEURUM FRUTICOSUM L. Apiaceæ.

"An evergreen, quite hardy shrub." (*Proschowsky.*)

This ornamental European shrub is interesting because of its densely leafy branches and continuous bloom. The persistent leathery leaves resemble those of some of the shrubby Hypericums in appearance and arrangement. The ends of the branches are tipped with broad umbels of yellow flowers that are in bloom more or less continuously from late April to September. In southern Europe, Syria, and northern Africa this plant is found growing wild in sterile soil on dry hills. (Adapted from *Bonnier, Flore Complète de France, Suisse, et Belgique, vol. 4, p. 13.*)

For previous introduction, see S. P. I. No. 27189.

54692 to 54698—Continued.

54694. PISTACIA LENTISCUS L. Anacardiaceæ.

"This shrub is common in southern Europe, forming most of the Mediterranean 'maquis.' It produces a gum used by the Arabs as a perfume. It is always a shrub in the wild state, but I have seen a garden specimen which formed a very beautiful tree 7 to 8 meters (23 to 26 feet) in height, with a large, dense, rounded crown of beautiful evergreen foliage. The plant will grow in the worst soil and stands any amount of drought." (*Proschowsky.*)

An edible oil, known as shinia oil (used as a substitute for olive oil), is obtained from the berries. As prepared by the usual primitive methods the oil does not retain its sweetness for longer than three months after its extraction. The yield is said to be very satisfactory, being about 18 per cent. (Adapted from *Cyprus Agricultural Journal, vol. 13, pt. 1, p. 28.*)

For previous introduction, see S. P. I. No. 51698.

54695. SOLANUM PIERREANUM Paill. and Bois. Solanaceæ.

"A species with beautiful, large, fire-red, long-lasting fruits." (*Proschowsky.*)

Olombé. The Pahouins, of Gabon Colony, French Equatorial Africa, eat the brilliant-red fruits which are the size of a small walnut and are borne singly or in pairs. The plant is a good ornamental for southern climates. (Adapted from *Bulletin de la Société d'Acclimatation de France, vol. 37, p. 483,* and from *Revue Horticole, vol. 62, p. 343.*)

54696. SOLLYA HETEROPHYLLA Lindl. Pittosporaceæ.

"A beautiful blue-flowered climber." (*Proschowsky.*)

This handsome Australian climbing shrub somewhat resembles bittersweet (*Solanum dulcamara*) in habit, but much surpasses that plant in its larger and more beautiful lilac or purple bell-shaped blossoms in few-flowered clusters, which cover the plant with a profusion of bloom in June and July. The red calyxes and pedicels and the persistent dark-green lanceolate leaves form a charming contrast with the flowers. Propagation is by cuttings, layering, and seeds, the last being very numerous in the long spindle-shaped pods. (Adapted from *Revue d'Horticulture Belge et Étrangère, vol. 21, p. 253.*)

54697. THRYALLIS BRASILIENSIS L. Malpighiaceæ.
(*Galphimia brasiliensis* Juss.)

An ornamental Brazilian shrub, 12 to 18 inches in height, with opposite leaves and terminal racemes of small yellow flowers. The plant bears a superficial resemblance to some of the small Hypericums. The species of Thryallis are cultivated to some extent in Europe, but are little known in America.

54698. ZANTHOXYLUM ALATUM PLANISPINUM (Sieb. and Zucc.) Rehd. and Wils. Rutaceæ.

A Japanese shrub 7 to 13 feet high, much branched at the base, sometimes with a short trunk. The dark-brown spreading branches, drooping a little at the tips, bear stout, straight spines in pairs and evergreen pinnate leaves dark green above and paler beneath. The small red fleshy fruits are persistent and emit a very agreeable aromatic odor when bruised. The shrub should be more extensively planted as an ornamental; in addition it makes a very formidable hedge. Propagation is by seeds or cuttings. (Adapted from *Revue Horticole, vol. 85, p. 17.*)

54699. CITRUS SINENSIS (L.) Osbeck. Rutaceæ. Orange.

From Paramaribo, Dutch Guiana. Budwood presented by W. L. Kann, Pittsburgh, Pa. Received February 7, 1922.

"Budwood of a very good orange from the Fernandez estate, La Liberté. According to Mr. Kann, one tree bore 700 fruits. The trees are now 7 or 8 years old and have borne for four or five years. The fruit ripens in July and August." (*David Fairchild.*)

54700. CUCURBITA FICIFOLIA Bouche. Cucurbitaceæ. **Chilacayote.**

From San Jacinto, Distrito Federal, Mexico. Seeds presented by Sr. A. Brambila, Department of Agriculture. Received February 14, 1922.

"The *chilacayote*, often called *chiberre* in Costa Rica, is cultivated in various parts of Mexico and Central America, where it is also native. The stems spread to a considerable distance (20 feet or more) from the main plant, the leaves are roundish kidney shaped, and the flowers are pale yellow. The fruits resemble in a general way small watermelons; the white flesh is edible only after cooking and is used for conserves and pies." (*P. G. Russell.*)

For previous introduction, see S. P. I. No. 42970.

54701. RUBUS MACROCARPUS Benth. Rosaceæ. **Colombian berry.**

From Bogota, Colombia. Seeds presented by E. O. Wolcott. Received February 15, 1922.

For description and previous introduction, see S. P. I. No. 51706. Also see article by Wilson Popenoe in the Journal of Heredity, vol. 11, pp. 194 to 202.

54702. EUGENIA KLOTZSCHIANA Berg. Myrtaceæ. **Pera de campo.**

From Lavras, Minas Geraes, Brazil. Seeds presented by Benjamin H. Hunnicutt, director, Instituto Evangelico, Escola Agricola de Lavras. Received February 7, 1922.

For description and previous introduction, see S. P. I. No. 37492; for further description see Dorsett, Shamel, and Popenoe, The Navel Orange of Bahia; with Notes on Some Little-Known Brazilian Fruits (U. S. Department of Agriculture Bulletin No. 445, p. 32.)

54703. ALEURITES MONTANA (Lour.) Wilson. Euphorbiaceæ. **Mu-oil tree.**

From Hongkong, China. Seeds presented by H. Green, superintendent, Botanical and Forestry Department. Received February 28, 1922.

"This is the *mu-yu-shu* (literally, wood-oil tree), of southern China. It is less hardy than the tung-oil tree, *Aleurites fordii*, and 2-year-old specimens growing at Tallahassee, Fla., were killed by cold in February, 1917. The oil is practically identical with tung oil. The fruit and leaves are different in appearance from those of *A. fordii*." (*R. A. Young.*)

For previous introduction, see S. P. I. No. 50353.

54704. VOANDZEIA SUBTERRANEA (L.) Thouars. Fabaceæ.

From Algiers, Algeria. Seeds presented by Dr. L. Trabut. Received February 15, 1922.

Obtained originally from the colony of Senegal, French West Africa.

For description and previous introduction, see S. P. I. No. 49881.

54705. CASUARINA SUMATRANA Jungh. Casuarinaceæ.

From Singapore, Straits Settlements. Seeds presented by I. Henry Burkill, director, Botanic Gardens, through Dr. P. J. S. Cramer, chief, Plant-Breeding Station, Buitenzorg. Received February 18, 1922.

"The most beautiful of the Casuarinas and one of the most decorative of tropical trees. It has a thick pyramidal habit and is a beautiful shade of green." (*Cramer.*)

For previous introduction and description, see S. P. I. No. 37119.

54706. CASSIA GRANDIS L. f. Cæsalpiniaceæ.

From Honolulu, Hawaii. Seeds presented by Dr. H. L. Lyon, in charge, Department of Botany and Forestry, Experiment Station of the Hawaiian Sugar-Planters' Association. Received February 15, 1922.

The South American *pink shower*, an exceedingly handsome tree 50 feet or more in height, which is cultivated in many tropical countries for its beautiful blooms. The abundant racemes of deep-pink flowers, an inch across, are produced in February and March, during which time the tree is deciduous, or partly so. The pinnate leaves and young branches are covered with fine, soft, copper-colored hair. (Adapted from *Rock, The Ornamental Trees of Hawaii, p. 104.*)

For previous introduction, see S. P. I. No. 52401.

54707 and 54708. TRIFOLIUM PRATENSE L. Fabaceæ. **Red clover.**

From Helsingfors, Finland. Seeds purchased by Leslie A. Davis, American consul. Received February 21, 1922.

54707. *Punga-apila*, from Suomi. From Keskusosuusliike Hankkija, r. l.

54708. *Sydfinskt*, from Centralandelslaget Labor m. b. t.

54709 to 54725. PRUNUS MUME Sieb. and Zucc. Amygdalaceæ. **Japanese apricot.**

From Okitsu, Shizuokaken, Japan. Budwood presented by Prof. T. Onda, Bureau of Horticulture, Imperial Agricultural Experiment Station. Received February 24, 1922. Quoted notes by Professor Onda.

The "mume," or Japanese apricot, is found throughout the Japanese Empire, where it is both wild and cultivated. In height it ranges from 10 to 25 feet, reaching its maximum development in the northern parts of its native country. Before the leaves appear in the spring the tree is covered with a profusion of attractive blossoms which are white in the wild forms, while in the cultivated varieties the color varies from white to pink, with occasional tinges of green or yellow. The most desirable varieties are those with double flowers and dwarf habit; the latter characteristic is of much importance among the Japanese because of their well-known liking for dwarf trees.

In favorable seasons the "mume" blooms at the beginning of February, and one may see the altars and homes decorated with flowering branches as a symbol of approaching spring. Pilgrimages are made to certain trees which are considered sacred because of associations with divine princes or national heroes, and cuttings from these trees accordingly assume great value in all parts of the land. The tree also plays an important rôle in Japanese literature.

The fruits ripen in June; they are exceedingly sour and are eaten only in the form of pickles. These are consumed in large quantities in Japan, being prepared with the leaves of a mint, *Perilla arguta.* which gives them a reddish color and an aromatic taste. (Adapted from *Revue Horticole, vol. 57, p. 564,* and *note under S. P. I. Nos. 9211 to 9216.*)

"The 15 'mume' trees at my home in Maryland are among the most admired plants which I have. Since this species is early flowering and perfectly hardy, it should have a great future in this country. If we can propagate it as we are now propagating the Japanese flowering cherries, I believe we can make it quite as popular in America as the latter have become. The fact that the 'mume' blossoms earlier than the cherry, that the tree does not grow quite so large, and that the flowers are fragrant, adapts it particularly for planting in dooryards." (*David Fairchild.*)

54709. "*Beni Kaga.* An early-flowering variety with medium-sized white flowers followed by medium-sized fruits."

54710. "*Beni Sashi.* An early-flowering variety with small white flowers and small red fruits."

54711. "*Bungo.* A late-flowering variety with large light-red flowers and large fruits."

For previous introduction, see S. P. I. No. 45878.

54712. "*Hanakami.* A midseason variety with rather small light-red flowers and medium-sized light-brown fruits."

For previous introduction, see S. P. I. No. 45879.

54709 to 54725—Continued.

54713. "*Inkyo.* An early-flowering variety with medium-sized white flowers and large fruits."

54714. "*Joshu.* A midseason variety, with small, light-red, double flowers and large fruits."

54715. "*Kichirobei.* A midseason variety with medium-sized white flowers followed by large fruits."

53716. "*Ko mume.* A midseason variety with rather small white flowers and very small fruits."

For previous introduction, see S. P. I. No. 45881.

54717. "*Koshu.* A rather late-flowering variety producing small white flowers and very small fruits."

54718. "*Masui.* A late-flowering variety with rather small white flowers; the fruits are large."

54719. "*Rinshu.* A double-flowered variety, with medium-sized, light-red flowers produced late in the season. The fruits are large."

For previous introduction, see S. P. I. No. 45876.

54720 and 54721. "*Shidare.*"

54720. "A red-flowered form with drooping branches and rather small light-red flowers produced late in the season."

54721. "A white-flowered midseason form with drooping branches, rather small flowers, and small fruits."

54722. "*Shira Kaga.* A variety with medium-sized, clear-white flowers produced rather late in the season. The fruits are large."

For previous introduction, see S. P. I. No. 45880.

54723. "*Tama mume.* A midseason variety producing medium-sized white flowers with green calyxes. The rather large fruits are clear green."

54724. "*Unryu.* An early-flowering double variety suitable as an ornamental pot plant. The very crooked branches bear medium-sized white flowers."

54725. "*Yoro.* A rather late-flowering variety producing rather small light-red flowers and medium-sized fruits."

For previous introduction, see S. P. I. No. 45877.

54726. Hydnocarpus anthelminthica Pierre. Flacourtiaceæ.

Maikrabao.

From Chiengmai, Siam. Seeds collected by J. F. Rock, Agricultural Explorer of the United States Department of Agriculture. Received February 25, 1922.

"(December 29, 1921.) This is a large tree about 50 to 80 feet in height, found along stream beds north of Chiengmai in northern Siam, and is apparently a new variety. It differs from the southern Siamese form in the fruit, which is chestnut brown and neither velvety nor strongly lenticellate. The staminate flowers are on long pedicels and have no rudimentary ovary, but the pistillate flowers, which are on shorter pedicels and occur in the axils of young (this year's) shoots, have five short sterile anthers. The fruits are from 11 to 12 inches in circumference and contain from 20 to 35 seeds. They ripen in November, but fruits may be found on the trees all the year round." (*Rock.*)

This tree yields an oil similar to that of *Taraktogenos kurzii;* the latter is, however, the source of the true chaulmoogra oil.

54727. Ampelocissus imperialis (Miquel) Planch. Vitaceæ.

(*Vitis imperialis* Miquel.)

From Buitenzorg, Java. Seeds presented by Dr. W. M. Docters van Leeuwen, director, Botanic Gardens. Received February 18, 1922.

"The small spherical 2-seeded berries are sour, but good for jelly; however, the yield is so small that the plant has no cultural interest as a fruiting vine." (*G. C. Husmann.*)

An ornamental vine from tropical and subtropical Asia, with thick heart-shaped leaves resembling those of a begonia, and long-stalked clusters of deep-violet flowers.

54728. TRIFOLIUM PRATENSE L. Fabaceæ. **Red clover.**

From Naples, Italy. Seeds purchased from the Agenzia Agraria, Nappi & Masca, of Naples, through Homer M. Byington, American consul. Received February 20, 1922.

Medium red-clover seed known as *double cut* or *early clover*, introduced for growing in comparison with American-grown seed.

For previous introduction, see S. P. I. No. 54708.

54729 to 54731. MEDICAGO SATIVA L. Fabaceæ. **Alfalfa.**

From Valence, France. Seeds presented by Téziér Frères. Received February 18, 1922. Quoted notes by Téziér Frères.

"Alfalfas from the principal producing districts of France. These strains are all more or less similar, but the difference in climate of the sections in which they are grown has slightly altered their characters, and some are a little more hardy than the others."

54729. "*Alps.* We consider the *Alps* strain, which is grown in the mountains, especially noteworthy."

54730. "*Poitou.*"

54731. "*Provence.*"

54732 to 54734.

From Okitsu, Shizuokaken, Japan. Seeds presented by Prof. T. Onda, Bureau of Horticulture, Imperial Agricultural Experiment Station. Received February 24, 1922.

Introduced for experiments by department specialists.

54732. AMARANTHUS CAUDATUS L. Amaranthaceæ. **Love-lies-bleeding.**

Himogeito.

54733. AMARANTHUS GANGETICUS MELANCHOLICUS (L.) Voss. Amaranthaceæ. **Joseph's-coat.**

Hageito.

54734. KOCHIA SCOPARIA (L.) Schrad. Chenopodiaceæ. **Belvedere.**

Hahakigusa.

54735. ROSA GENTILIANA Lev. and Van. Rosaceæ. **Rose.**

From Witcombe, Gloucester, England. Seeds presented by Lady Harriet Thiselton-Dyer. Received March 1, 1922.

A vigorous bush rose from western China, which makes tangled bunches 12 to 15 feet high and 15 to 20 feet in diameter. The 5-foliolate leaves are dark glossy green; the pure-white single flowers, about an inch in diameter and delightfully fragrant, are borne in broad clusters and unless damaged by storms will continue to bloom for nearly two months. The bush should be given an isolated position where it can be left to develop; it should not be pruned. (Adapted from *The Garden Magazine, vol. 23, p. 339.*)

Received as *Rosa cerasocarpa*, which is now referred to *R. gentiliana.*

For previous introduction, see S. P. I. No. 47359.

54736 and 54737.

From Hobart, Tasmania. Seeds collected by Victor O. Fletcher, Newnham, near Launceston, and presented by L. A. Evans, Acting Director of Agriculture. Received March 9, 1922.

54736. DANTHONIA SETACEA R. Br. Poaceæ. **Wallaby grass.**

"A good native grass." (*Evans.*)

A valuable perennial pasture grass frequently less than a foot high, common in many localities in Australia and New Zealand. The soft narrow leaves are mostly short and erect and either smooth or somewhat pubescent with spreading hairs. In the spring the dense, narrow, branching panicles glisten with white-haired flowering glumes.

The species of Danthonia are probably the most important economic grasses of New South Wales. In New Zealand they are recommended only for the poorer soils of the South Island; but in the North Island they are considered very valuable pasture grasses and are credited with carrying two sheep to the acre. In New South Wales the Danthonia grasses are commonest on the table-lands and slopes, where they constitute about 90 per cent of the dominant grasses in well-managed pasture, sometimes, indeed, monopolizing the whole situation. In coastal districts they are common in newly cleared areas, in scrub lands, and very often in well-worked fallowed fields. In the western districts they are just a little less abundant than on the slopes and table-lands. The Danthonia grasses can therefore be termed the commonest and most widely distributed grasses of New South Wales, and without them our pastoral industry would suffer considerably.

The danthonias are tussocky in habit, but they stool considerably and will stand a great amount of grazing. Some of the species are rather hairy, particularly those of the western plains, but evidently this is no drawback as far as palatability is concerned. During the hot summer months the grass dies off considerably, but can be revived in a wonderful manner by rain.

The value of the Danthonia grasses in respect to palatability, both for cattle and sheep, has been well proved by every stockman. The forms that grow abundantly in the coastal districts (*Danthonia longifolia* and *D. racemosa* types) fatten horses and dairy stock very quickly; while on the table-lands and slopes and in the interior some of the best sheep in New South Wales are raised on Danthonia grasses alone. Even when other grasses are completely dried up, the danthonias will produce a fair amount of greenness in the bottom growth, and it is due to such feed that the Riverina can carry excellent sheep during a dry spring and summer. (Adapted from *Bentham, Flora Australiensis, vol. 7, p. 595,* and *Agricultural Gazette of New South Wales, vol. 31, p. 24.*)

For previous introduction, see S. P. I. No. 53115.

54737. THEMEDA AUSTRALIS (R. Br.) Stapf. Poaceæ. **Kangaroo grass.**

"*Kangaroo* grass is common in many places in Australia and grows to a great height when left unmolested for a time. A peculiarity of this grass, and one which seriously hinders its multiplication, is the fact that it bears in its large ornamental flower heads very few fertile seeds. If the farmer would only recognize this and remove his stock during spring and summer from the fields in which kangaroo grass has a hold, a valuable fodder grass would be conserved; otherwise, there is a serious danger of its being eaten out. The proof of this assertion can be seen by observing the rich growth of kangaroo grass within many railway inclosures, while without not a blade is to be seen. One would infer from its height (it sometimes grows tall enough to hide sheep) and consequent coarseness that it would not be favored by stock, but they are extremely partial to it." (*Journal of the Department of Agriculture of Victoria, vol. 15, p. 713,* under *Anthisteria imberbis.*)

54738. ALEURITES FORDII Hemsl. Euphorbiaceæ. **Tung-oil tree.**

From Pineville, La. Seeds presented by Albert R. Arey, superintendent, Alexandria National Cemetery. Received February 27, 1922.

Seeds of the tung-oil tree, grown at Pineville, La., and numbered for convenience in distribution.

For previous introduction, see S. P. I. No. 50635.

54739. TRIFOLIUM PRATENSE L. Fabaceæ. **Red clover.**

From Copenhagen, Denmark. Seeds presented by H. N. Knudsen, Secretary, Danish Royal Agricultural Society. Received March 6, 1922.

Tystofte No. 40 originated in a 2-year plat of *Rosendal* clover. Seed of this variety was sown in 1900, and the clover was thus subjected to the hard winter of 1901. In 1902 the strongest plants from this test were selected, one of which was *No. 40*. Later this strain was compared with others in several tests. In three of our tests, all the clovers made vigorous growth during the first year, and in this respect *No. 40* averaged well above the others. In all four tests *No. 40* gave the largest crop, fully 20 per cent better than that of the next best. These results agree well with the results of earlier tests at Lyngby and Tystofte in which this strain decidedly surpassed all others. (Adapted from *Beretning fra Statens Forsögsvirksomhed i Plantekultur, No. 95, p. 401.*)

54740. ROSA GENTILIANA Lev. and Van. Rosaceæ. **Rose.**

From Witcombe, Gloucester, England. Cuttings presented by Lady Harriet Thiselton-Dyer. Received March 1, 1922.

Received as *Rosa cerasocarpa*, which is now referred to *R. gentiliana*.

For previous introduction, see S. P. I. No. 54735.

54741. DIOSPYROS KAKI L. f. Diospyraceæ. **Kaki.**

From Summerville, S. C. Scion presented by John B. Gadsden. Received March 2, 1922.

"The finest variety of persimmon I have ever seen. The fruit is conical, deep orange, with a small smudge of black near the point, seedless, of excellent flavor, and ripening about December 1. Our specimens weigh from 14 to 17 ounces." (*Gadsden.*)

54742 to 54747.

From Chefoo, Shantung, China. Seeds presented by A. Sugden. Received February 27, 1922. Quoted notes by Mr. Sugden.

54742. HORDEUM VULGARE COELESTE L. Poaceæ. **Barley.**

"Winter-sown barley used in the manufacture of straw braid. Grown 200 to 300 miles west of Chefoo."

54743 and 54744. ORYZA SATIVA L. Poaceæ. **Rice.**

54743. "Winter-sown glutinous rice grown at Wenteng, 60 miles from Chefoo."

54744. "Winter-sown glutinous rice grown at Chefoo."

54745 to 54747. TRITICUM AESTIVUM L. Poaceæ. **Common wheat.**
(*T. vulgare* Vill.)

54745. "Wheat grown 200 to 300 miles west of Chefoo, used in the manufacture of straw braid."

54746. "Wheat from the far western part of the Province of Shantung."

54747. "Winter-sown local wheat which makes good flour."

54748 to 54760.

From Harbin, Manchuria. Seeds purchased by B. W. Skvortzow. Received February 28, 1922. Quoted notes by Mr. Skvortzow.

Introduced for experimental work by specialists of the Department of Agriculture.

54748 to 54760—Continued.

54748. ABUTILON THEOPHRASTI Medic. Malvaceæ.
(*A. avicennae* Gaertn.)

"Manchurian jute."

For previous introduction, see S. P. I. No. 39361.

54749 and 54750. ECHINOCHLOA CRUSGALLI EDULIS Hitchc. Poaceæ. **Barnyard millet.**

54749. A large-seeded variety.

54750. A small-seeded variety.

For previous introduction, see S. P. I. No. 54440.

54751. MEDICAGO FALCATA L. Fabaceæ.

"Found growing wild."

For previous introduction, see S. P. I. No. 42018.

54752 to 54755. PANICUM MILIACEUM L. Poaceæ. **Proso.**

54752. Straw-colored variety.

54753. White variety.

54754. Light-brown variety.

54755. Dark-brown variety.

For previous introduction, see S. P. I. No. 48724.

54756. PRUNUS SALICINA Lindl. Amygdalaceæ. **Japanese plum.**

"Cultivated by Chinese."

This is a strong-growing small tree, native to China but cultivated in Japan, with showy white flowers and rather pointed fruits which are usually yellow or light red. Because of its great hardiness, vigor, and fruiting qualities, it is introduced for experimental work by specialists of the Department of Agriculture.

For previous introduction, see S. P. I. No. 41257.

54757. PRUNUS TOMENTOSA Thunb. Amygdalaceæ. **Bush cherry.**

"Cultivated by Chinese."

"A very vigorous bush cherry which flowers much earlier than other cherries and bears when very young. Selected seedlings 3 to 4 years old have borne 15 to 20 quarts of fruits which make very fine jelly. In regard to the hardiness of this species, it may be stated that trees have successfully withstood seven winters in North Dakota. The tree is somewhat susceptible to brown-rot on the twigs." (*George M. Darrow.*)

For previous introduction, see S. P. I. No. 46534.

54758 and 54759. VITIS AMURENSIS Rupr. Vitaceæ. **Amur grape.**

Apparently two wild forms of the Amur grape.

54758. No. 1. 54759. No. 2.

For previous introduction, see S. P. I. No. 36753.

54760. VIGNA SINENSIS (Torner) Savi. Fabaceæ. **Cowpea.**

For previous introduction, see S. P. I. No. 48793.

54761. ZIZANIA LATIFOLIA (Griseb.) Stapf. Poaceæ. **Wild rice.**

From Kew, Surrey, England. Roots presented by Sir David Prain, director, Royal Botanic Garden. Received February 23, 1922.

Introduced for special experimental work in connection with *Zizania aquatica.*

For previous introduction, see S. P. I. No. 44069.

54762 to 54766. PANICUM MILIACEUM L. Poaceæ. **Proso.**

From district of Iwate, Japan. Seeds presented by Prof. Takeo Kusano, Kagoshima Imperial College of Agriculture and Forestry, Kagoshima, Japan. Received March 8, 1922. Quoted notes by Professor Kusano.

54762. Mixture of four varieties of millet.

54763. "*Hoten-kuro-kibi.* Black millet originally from Mukden, Manchuria."

54764. "*Ki-kibi.* Yellow millet."

54765. "*Shiro-kibi.* White millet."

54766. "*Zairai-kuro-kibi.* Black millet, much used for planting in this district."

54767. PHOENIX OUSELEYANA Griffith. Phœnicaceæ. **Palm.**

From Calcutta, India. Seeds presented by Percy Lancaster, secretary, Agricultural and Horticultural Society of India. Received March 7, 1922.

An armed palm with a short stem up to 12 feet in height and 9 inches in diameter, densely covered with the stumps of leafstalks. The edible fruits are orange colored until fully ripe, when they become black. The pinnate leaves are 4 to 8 feet long with pliable clustered leaflets more or less four ranked. Native to the southern slopes of the Himalayas and to the East Indies. (Adapted from *Brandis, Indian Trees, p. 645.*)

54768. EUGEISSONA TRISTE Griffith. Phœnicaceæ. **Palm.**

From Buitenzorg, Java. Seeds presented by Dr. W. M. Docters van Leeuwen, director, Botanic Garden. Received March 10, 1922.

A stemless, tufted palm common in the hill forests of Malakka. The numerous spreading leaves, 15 to 20 feet long, are occasionally used for thatching and for making mats; the long petioles are armed with brown ascending spines. The terminal panicle, 4 to 6 feet long, is furnished below with much-armed sheaths, and even the long-pointed, often whiplike spathes are armed. The densely scaly, ovate fruits are generally rough with the recurved edges of the dark-brown scales. Malayan name, *bertam.* (Adapted from *Calcutta Journal of Natural History, vol. 5, p. 10.*)

54769. UAPACA KIRKIANA Muell. Arg. Euphorbiaceæ.

From Mount Silinda, Southern Rhodesia, Africa. Seeds presented by Dr. W. L. Thompson, Africa Inland Mission. Received January 4, 1922.

"*Majanji,* an indigenous fruit of great value to our natives here which perhaps saves many lives in famine times. It is of delicious flavor and very healthful, so far as I am aware. The great drawback to its use by Europeans is that the seeds occupy so large a part of the bulk of the fruit. Still we often enjoy eating them. The trees grow about 20 feet high, often on rocky hillsides not well adapted to cultivation. The fruit of each tree has its own peculiarities of shape and size, as well as in size of seeds as compared with size of fruit, etc. If they could be improved to make the fruit larger and seeds smaller, I think they would be quite attractive." (*Thompson.*)

54770 to 54775. RIBES VULGARE Lam. Grossulariaceæ. **Garden currant.**

From Barnham, England. Plants purchased from The Barnham Nurseries, Ltd. Received January 5, 1922.

54770. *Comet* (red). Said to be a very fine new variety, of large size, robust habit, and an immense cropper; not so acid as some of the older sorts.

54771. *New Red Dutch.* Said to be a most reliable sort, spreading habit, very fine bearing; late.

For previous introduction, see S. P. I. No. 41988.

54770 to 54775—Continued.

54772. *Perfection* (Laxton, new). Reported as a remarkably fine red variety of exceptionally vigorous growth; a very heavy cropper, with long bunches of large berries.

54773. *Raby Castle* (May's Victoria, or Cherry). Reported to be a large-fruited strong grower.

For previous introduction, see S. P. I. No. 42245.

54774. *Red Dutch.* Said to be the variety usually grown.

For previous introduction, see S. P. I. No. 42240.

54775. *Red Grape.* Reported a very fine berry and heavy cropper.

For previous introduction, see S. P. I. No. 42244.

54776. GUILIELMA UTILIS Oerst. Phœnicaceæ. Pejibaye.

(*Bactris utilis* Benth. and Hook.)

From San Jose, Costa Rica. Seeds purchased through Sr. Otón Jimenez. Received January 3, 1922.

"In Costa Rica the pejibaye has been cultivated by the Indians since remote antiquity. In the lowlands of Colombia, Venezuela, and Ecuador it forms a staple foodstuff of numerous aboriginal tribes. The Jíbara Indians of Ecuador hold the fruit in such esteem that the ripening season is celebrated annually by a feast of several days' duration.

"This palm is pinnate leaved and reaches a maximum height of about 60 feet. Its straight, slender stem, commonly about 6 inches thick, is armed from the ground upward with stiff, very sharp black spines about 2 inches long. The leaves, which are graceful in appearance, especially when the plant is young, are commonly 8 to 12 feet in length and deep green.

"The species is monœcious, the staminate and pistillate flowers being produced upon the same raceme; the latter occur scattered among the former, and both are small, sessile, and yellow-white. The racemes, which are produced from the trunk of the palm immediately below or among the lower leaves and are protected by erect spathes, are stout and 18 to 24 inches long.

"The flowers usually appear during April, May, and June in the lowlands of Costa Rica, somewhat later in the highlands. The first fruits mature in September; and from this month until March or April there are usually ripe fruits on the plant, provided the racemes are not cut when the first fruits reach maturity. The long time which the fruits will remain on the palm in good condition is a noteworthy feature of the pejibaye.

"Racemes of mature fruits sometimes weigh 25 pounds or more, and five or six such racemes are often produced by the palm in a single crop. The maximum production of one palm (or, more properly speaking, one stem, since four or five stems are often allowed to grow from a common base) is about 150 pounds of fruit. It is seen, therefore, that the productiveness of the pejibaye is similar to that of the date palm.

"The individual fruits are top-shaped, conical, or ovoid, and vary from 1 to 2 inches in length. There is a wide range of variation in color, some varieties being clear light yellow, while others are deep orange or reddish orange, sometimes shading to brown. The flesh is dry and mealy, yet firm, and pale orange to yellow. The single seed is conical, about three-quarters of an inch long.

"The relatively small proportion of water contained in the fruit, the large amount of carbohydrates (mainly starch), the considerable quantity of fat, and the small size of the seed compared to the bulk of the edible portion combine to place the pejibaye among the most noteworthy of the tropical fruits. And it is not only a fruit of high food value, but it is delicious as well. We believe that it is destined to become a food plant of great importance in many tropical countries.

"Like the chestnut, which the boiled fruit strikingly resembles in texture and flavor, the pejibaye is used as a stuffing for turkey and chicken. Dried, it might be reduced to a flour which would serve various culinary uses. But to one who has eaten the freshly boiled pejibaye there is no incentive for seeking new ways of preparing the fruit for the table.

"The pejibaye is a plant adapted to tropical conditions, preferring a region where the rainfall is not excessive (75 inches annually or less). It is more adaptable than the breadfruit tree. The latter rarely succeeds in the Tropics

at altitudes greater than 2,500 feet, while the pejibaye fruits successfully in Costa Rica at all altitudes from sea level to 4,000 feet, though it is said not to bear well in the cool climate of the latter altitudes.

"It is doubtful if the species will grow successfully in a cool subtropical climate, such as that of southern California. In extreme southern Florida, however, there are probably regions where it will succeed.

"In Cuba, Porto Rico, and the other West Indian islands it should find itself entirely at home, and we recommend it for cultivation in these islands. In many parts of Brazil it should also succeed, while the Asiatic Tropics undoubtedly offer immense regions where it could be cultivated to great advantage.

"When grown from seed the pejibaye comes into bearing at an age of 6 to 8 years, and its life is considered to be 50 to 75 years or perhaps more.

"In commercial plantings pejibayes should be spaced 20 feet apart. Carlos Wercklé considers that the best system is to allow two or four suckers to develop around the base of each palm, thus forming a clump of three to five stems. Suckers invariably develop after the palm has attained a few years' growth. Some of them may be removed to extend the plantation. The finest varieties are seedless and must therefore be propagated by vegetative means." (*Wilson Popenoe* and *Otón Jimenez.*)

For a more thorough discussion of this palm, see the Journal of Heredity, vol. 12, pp. 154 to 166, April, 1921.

For illustrations of this palm and its fruit, see Plates I and II.

54777. EUGENIA DOMBEYI (Spreng.) Skeels. Myrtaceæ.
(*E. brasiliensis* Lam.) **Grumichama.**

From Port Louis, Mauritius. Seeds presented by G. Regnard. Received January 16, 1922.

"A very fine shrub, 10 to 15 feet high, with large glazed leaves and white blossoms. Fruit similar to the cherry, red, becoming black when fully ripe, with sweet, soft flesh." (*Regnard.*)

A shapely, attractive tree, the size of an orange tree, with elliptic, glossy, deep-green leaves 2 to 3 inches long. The small white flowers are followed in a month by mature fruits which are pendent, deep crimson, and the size of a cherry, with persistent green sepals. The skin is thin and delicate, and the soft melting flesh, mildly subacid like that of the Bigarreau cherry, is usually eaten fresh but may also be used to make jam or preserves. Seedlings bear when 4 or 5 years old, and the tree withstands 26° F. without injury. (Adapted from *Popenoe, Manual of Tropical and Subtropical Fruits, p. 303.*)

54778. CAPSICUM ANNUUM L. Solanaceæ. **Red pepper.**

From Orangedale, Fla. Seeds presented by J. C. Klein. Received January 19, 1922.

"*Datil* pepper, found in the neighborhood of St. Augustine, where it was grown almost exclusively in the gardens of the Minorcans who told me it was originally native to the island of Minorca and brought from there by the early Minorcan colonists, in 1767, to New Smyrna, St. Johns County.

"I have grown this pepper very successfully for several years. The plant is of sturdy habit, attaining a height of from 4 to 6 feet under favorable conditions. It is a most prolific bearer, next to the *Tabasco* in pungence, and an excellent variety for pepper sauce or for any purpose for which hot peppers are desired.

"Plants can be easily kept from year to year in climates where frosts are liable to occur by covering with bagging or litter, or in the North in greenhouses if only a few plants are desired. Some of my plants are nearly 5 years old." (*Klein.*)

54779. TRIFOLIUM PRATENSE L. Fabaceæ. **Red clover.**

From Rome, Italy. Seeds purchased from Sr. Alberto Vivanti, through Francis B. Keene, American consul. Received January 17, 1922.

Introduced for experimental use by the Office of Forage-Crop Investigations.

54780 and 54781.

From Yokohama, Japan. Seeds purchased from the Yokohama Nursery Co. Received January 9, 1922.

Introduced for experimental use as a stock by specialists in the United States Department of Agriculture.

54780. PRUNUS MUME Sieb. and Zucc. Amygdalaceæ. Japanese apricot.

For previous introduction, see S. P. I. No. 45523.

54781. PRUNUS SERRULATA Lindl. Amygdalaceæ. Flowering cherry.

For previous introduction, see S. P. I. No. 38206.

54782 and 54783.

From Pajahmundry, Nilgiri Hills, India. Seeds presented by William Bembower, agricultural adviser, American Evangelical Lutheran Mission. Received January 4, 1922.

54782. OLEA sp. Oleaceæ. Wild olive.

Wild olive collected in the hills of southern India.

54783. PSIDIUM sp. Myrtaceæ.

"Seeds of a small Psidium which grows wild in the Nilgiri and Pulney Hills of southern India. These were collected at Kotagiri, May, 1921, from a shrub 6 feet high. The plant is abundant around Coonoor." (*Bembower.*)

54784. PAHUDIA RHOMBOIDEA (Blanco) Prain. Cæsalpiniaceæ.

(*Afzelia rhomboidea* Vidal.)

From Manila, Philippine Islands. Seeds presented by Arthur T. Fischer, director of forestry, through Sr. Adn. Hernandez, secretary of Agriculture and Natural Resources. Received January 6, 1922.

"A tree up to 120 centimeters (4 feet) in diameter, straight but not tall. The wood is hard, heavy, seasons well, and is rarely attacked by termites. It is a well-known Philippine cabinet wood." (*Fischer.*)

For previous introduction, see S. P. I. No. 47210.

54785. DAVIDSONIA PRURIENS F. Muell. Cunoniaceæ.

From Brisbane, Queensland. Seeds presented by C. T. White, Government botanist. Received January 9, 1922.

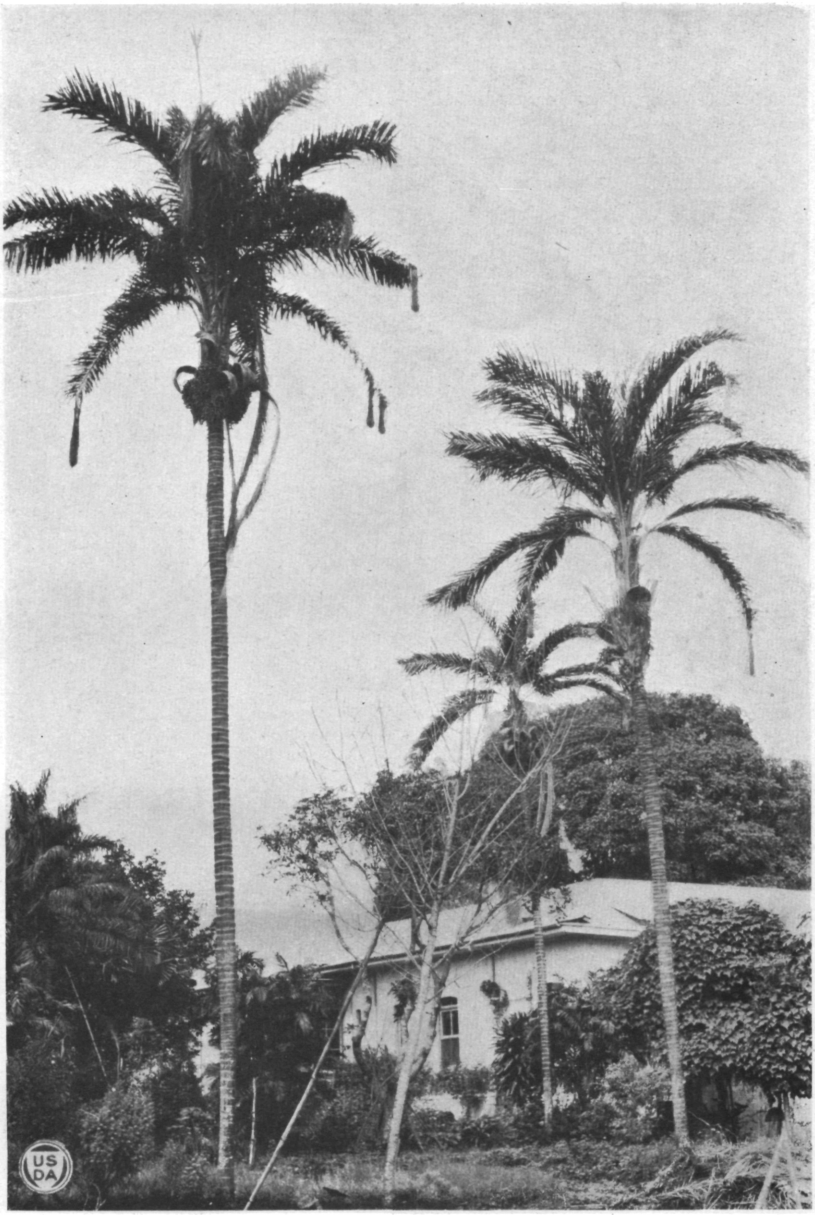
A small (30 to 40 foot) tree of graceful, erect habit with long, drooping pinnate leaves and pendulous clusters of reddish flowers. The oval fruit about the size of a goose egg is covered with short stiff hairs. Rubbing with a rough cloth quickly and easily removes these and exposes the smooth, plumlike, purple skin. The soft, fleshy pulp has a rich purple color and a sharply acid flavor; it contains a few flat, irregularly shaped seeds, which are small for the size of the fruit, a feature not frequently occurring in wild fruits. This "plum," as it is called, is largely used by settlers in Queensland for making jam and jelly. The hard, dark-brown, close-grained wood is tough and durable and is used for tool handles and mallets. This tree is native to tropical Queensland, and a smaller form is found in southern Queensland and adjoining parts of New South Wales. (Adapted from *F. M. Bailey, Queensland Agricultural Journal, vol. 1, p. 471,* and from *The Queensland Flora, p. 538.*)

54786 and 54787. RIBES VULGARE Lam. Grossulariaceæ.

Garden currant.

From Hereford, England. Plants purchased from King's Acre Nurseries. Received January 14, 1922.

Introduced for experimental work by Department of Agriculture specialists.



THE PEJIBAYE PALM, THE SOURCE OF A STAPLE FOOD IN COSTA RICA. (GUILIELMA UTILIS OERST., S. P. I. No. 54776.)

The date palm, on whose fruit with the addition of a few other foodstuffs thousands of Arabs subsist for a large portion of the year, finds a tropical American counterpart in the pejibaye, which since pre-Columbian days has yielded the principal food of the Indians inhabiting southern Costa Rica. Though its cultivation is now restricted to the region between Lake Nicaragua and Ecuador, it can undoubtedly be grown in many portions of the tropical world. (Photographed by Wilson Popenoe, San Jose, Costa Rica, June 17, 1920; P17936FS.)

A BUNCH OF SEEDLESS PEJIBAYES. (GUILIELMA UTILIS OERST., S. P. I. No. 54776.)

Though it has been likened to the date palm because of its ability to produce large quantities of nourishing food, the pejibaye differs from the date in that its chestnut-flavored fruits contain starch instead of sugar. Don José Zeledon, of San José, Costa Rica, to whom the Department of Agriculture is indebted for the gift of plants of the seedless pejibaye, a rare and superior variety, is here shown holding a bunch that weighs about 25 pounds. A mature palm frequently bears five or six bunches in a single crop. (Photographed by Wilson Popenoe, San Jose, Costa Rica, June 17, 1920; P17941FS.)

54786 and 54787—Continued.

54786. *Raby Castle.*

For previous introduction, see S. P. I. No. 54773.

54787. *Little Croft Beauty.*

54788 to 54790. JUGLANS REGIA L. Juglandaceæ. Walnut.

From Eskdale, Knutsford, Cheshire, England. Seeds presented by Howard Spence. Received January 20, 1922.

"Walnuts from the lower Himalayas, Northwest Provinces, India, which appear to be similar to those which gave very vigorous, unusually well-rooted plants. If they are of the original type they will be of especial vigor, much more easily transplanted without injury than is the ordinary type, and therefore of value as a stock.

"In this country the growth of these walnuts is much more rapid than either the ordinary *Juglans regia* or *J. nigra;* they appear to suffer much less from leaf attack of various kinds, withstand frost much better than the ordinary *J. regia* or *Royal* or *Paradox*, and have a dense mass of fibrous rootlets with marked absence of excessive taproot. The thick shell safeguards their viability. I have kept some a year unstratified, simply in a drawer, and obtained germination." (*Spence.*)

54788. No. 1. 54790. No. 8.

54789. No. 5.

54791 to 54795.

From Luxey, Landes, France. Seeds presented by L. Rouest, agronomist, Experimental Farm. Received January 17, 1922. Quoted notes by M. Rouest.

54791. DOLICHOS LABLAB L. Fabaceæ. Bonavist bean.

"A Dolichos with violet flowers and black seeds, which is interesting for its resistance to drought; it produces excellent ensilage. This plant, of Egyptian origin, is of the second generation cultivated in France."

54792. LATHYRUS SATIVUS L. Fabaceæ. Bitter vetch.

"*Tangier* vetch, a legume resistant to drought, with a growing period of about 80 days. The forage is much valued for sheep, and the seeds are eaten by the Arabs of Tangier and northern Africa and by the Sicilians."

For previous introduction, see S. P. I. No. 45927.

54793. RAPHANUS SATIVUS L. Brassicaceæ. Radish.

"*Daikon* (Chinese forage crop) useful either for ensilage or as a root crop. Here we sow the seed in July and August. The roots weigh several kilos and can be kept well in winter. They make a good food for milch cows."

54794 and 54795. SOJA MAX (L.) Piper. Fabaceæ. Soy bean.
(*Glycine hispida* Maxim.)

54794. "*Very early Japanese.* A variety growing even farther north than Paris, very productive, and maturing in 90 to 100 days."

54795. "*Very early brown.* A variety growing in Pas de Calais and in eastern France."

54796 and 54797. SORBUS TORMINALIS (L.) Crantz. Malaceæ.

From Elstree, Herts, England. Seeds and plants presented by Hon. Vicary Gibbs. Received January 23, 1922.

This handsome European tree, 30 to 40 (rarely 70 or more) feet in height, is apparently seldom found as a wild tree and is very rare in cultivation. It is said to be very drought resistant; this introduction was made for the purpose of testing its use as an apple and pear stock for dry regions.

For previous introduction, see S. P. I. No. 49432.

54796. Seeds. 54797. Plants.

54798. BROMELIA PINGUIN L. Bromeliaceæ.

From Juan Mina, Canal Zone. Seed collected by Dr. David Fairchild, Agricultural Explorer in Charge of the Office of Foreign Seed and Plant Introduction, Bureau of Plant Industry. Received January 19, 1922.

"Seeds from fruits collected on the Jungle Trail, on the Chagres River, Juan Mina, Canal Zone. September 7, 1921. A wild species of Bromelia, 5 or more feet in height, producing very showy heads of deep-orange flowers the size of a globe artichoke. The individual fruits are easily detached from the head, and when crushed between the teeth provide a small quantity of pleasantly flavored juice." *(Fairchild.)*

For previous introduction, see S. P. I. No. 32382.

54799. ACACIA VEREK Guill. and Perr. Mimosaceæ.

From Khartum, Anglo-Egyptian Sudan. Seeds presented by Maj. R. G. Archibald, Wellcome Tropical Research Laboratories, through Henry S. Wellcome. Received January 19, 1922.

"*Hashab* from Kordofan, which yields the finest qualities of gum arabic." (*Archibald.*)

For experimental growing in the southwestern United States.

For previous introduction, see S. P. I. No. 38524.

54800. COFFEA AMARA Bruijning. Rubiaceæ. **Coffee.**

From Port Louis, Mauritius. Seeds presented by G. Regnard. Received January 13, 1922.

The name *Coffea amara* has been assigned to the *Mautsaka* variety, a caffeine-free coffee from Madagascar, to show that it has characters which distinguish it from other caffeine-free species of Coffea. It has a pleasant aroma but a bitter taste which may be dispelled by cultivation. The disk at the top of the fruit resembles that of *C. libirica* more closely than it does that of *C. arabica.* (Adapted from *Bruijning, Verslagen van Landbouwkundige Onderzoekingen der Rijkslandbouw Proefstations, Netherlands, vol. 18, p. 115.*)

Introduced for the use of specialists in the Department of Agriculture.

For previous introduction, see S. P. I. No. 43073.

54801 to 54804. RIBES VULGARE Lam. Grossulariaceæ. **Garden currant.**

From Woking, Surrey, England. Plants purchased from George Jackson & Son. Received January 21, 1922.

Introduced for experimental work by specialists in the Department of Agriculture.

54801. *Raby Castle.*
54802. *Victoria.*
54803. *White Dutch.*
54804. *White Grape.*

54805. CAMOENSIA MAXIMA Welw. Fabaceæ.

From Cienfuegos, Cuba. Seeds presented by Robert M. Grey, Harvard Experiment Station. Received January 13, 1922.

A delicately beautiful tropical-African leguminous vine with fragrant gold-margined white flowers 8 inches long.

These seeds came from a plant sent Mr. Grey in 1908 under S. P. I. No. 7344.

For previous introduction and description, see S. P. I. No. 49280.

54806 to 54888. SOJA MAX (L.) Piper. Fabaceæ. **Soy bean.**
(*Glycine hispida* Maxim.)

From Harbin, Manchuria. Seeds presented by B. W. Skvortzow. Received February 28, 1922.

Introduced for experimental work by department specialists.

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54881. No. 217.
54882. No. 219.
54883. No. 220.
54884. No. 224.
54885. No. 225.
54886. No. 227.
54887. No. 298.
54888. No. 421.

54889. TRIFOLIUM PRATENSE L. Fabaceæ. **Red clover.**

From Groningen, Netherlands. Seeds purchased from C. Broekema. Received March 2, 1922.

Rozendaal red clover.

For previous introduction, see S. P. I. No. 49884.

Introduced for specialists of the Department of Agriculture.

54890 to 54895.

From Honolulu, Hawaii. Seeds presented by Dr. H. L. Lyon, in charge, Department of Botany and Forestry, Experimental Station of the Hawaiian Sugar-Planters' Association. Received March 2, 1922. Quoted notes by Doctor Lyon.

54890. ELAEOCARPUS ANGUSTIFOLIUS Blume. Elæocarpaceæ.

"*Djanitri*, from Buitenzorg, Java."

A tall, handsome tree with a lofty crown, from the primeval evergreen forests of Java, where it is found from sea level to an altitude of approximately 4,000 feet. The narrow, partly evergreen leaves become brilliant orange-red before they drop, and the clusters of greenish, silky fringed flowers appear in December. In the late summer the tree bears beautiful blue fruits the size of marbles; the edible portions of these is thin but pleasant flavored and is eaten by the natives. The knobby, grooved stones are exported in large quantities for rosaries.

This tree is useful not only as an ornamental, but also in reforesting denuded mountain sides. (Adapted from *Koorders en Valeton, Mededeelingen uit 's Lands Plantentuin No. 11, p. 260.*)

For previous introduction, see S. P. I. No. 51817.

54891. FICUS EHRETIOIDES F. Muell. Moraceæ.

"Seeds of a tree 60 to 70 feet tall with fruits borne in clusters on the trunk and larger branches, collected in Queensland by C. E. Pemberton."

Magura. A medium-sized Australian tree, 40 to 60 feet in height, having somewhat heart-shaped, globular, edible fruits an inch in diameter. (Adapted from *Bailey, Queensland Flora, pt. 5, p. 1473.*)

54892. FICUS HISPIDA L. f. Moraceæ.

"A hardy shrub, or small tree, collected in Queensland by C. E. Pemberton."

A moderate-sized, rapid-growing tree, native throughout India from the Punjab to Malakka and Ceylon. The somewhat pear-shaped, paired or clustered fruits are yellowish when ripe; they sometimes hang on elongated branches and often reach or even penetrate the soil. The fruit, seeds, and bark are valuable medicinally, and the foliage is used for fodder. (Adapted from *Kirtikar, Indian Medicinal Plants, vol. 2, p. 1196.*)

54893. GREWIA STYLOCARPA Warb. Tiliaceæ.

"Collected in the Philippine Islands by F. X. Williams."

Muling. This Philippine tree, usually small but sometimes more than 50 feet high, bears terminal or axillary clusters of yellowish, pear-shaped, fleshy fruits of a subacid applelike flavor, said to be of excellent quality. It is not cultivated. (Adapted from *Philippine Agricultural Review, vol. 9, No. 3, p. 238.*)

54894. SESBAN AEGYPTIACUM Poir. Fabaceæ.

A stout shrubby plant 6 to 10 feet in height, native to tropical Asia and northern Australia. The yellow flowers, spotted with purple, are borne in axillary clusters about 4 inches long. In Australia the leaves are much relished by live stock, and the wood is used in making charcoal for gunpowder. (Adapted from *Rock, Leguminous Plants of Hawaii, p. 154.*)

54890 to 54895—Continued.

54895. SIDEROXYLON MACRANTHUM Merr. Sapotaceæ.

"Collected in the Philippine Islands by F. X. Williams."

A large Philippine tree with somewhat leathery, shining leaves up to 7 inches in length and small creamy white flowers which are crowded in clusters at the tips of the branches. The roundish fruits, slightly over an inch in diameter, are two to three seeded. (Adapted from *Merrill, New or Noteworthy Philippine Plants No. 4, Manila Bureau of Government Laboratories, No. 35, p. 56.*)

54896 to 54898. ERYTHRINA spp. Fabaceæ.

From Honolulu, Hawaii. Seeds presented by Dr. H. L. Lyon, in charge, Department of Botany and Forestry, Experiment Station of the Hawaiian Sugar-Planters' Association. Received March 7, 1922.

"Seeds collected in Honolulu, February, 1922." (*Lyon.*)

54896. ERYTHRINA VARIEGATA Stickm.
(*E. indica* Lam.)

For description, see S. P. I. No. 54898.

54897. ERYTHRINA MONOSPERMA Gaud.

Wiliwili. A tree 6 to 10 meters (20 to 33 feet) in height, with a spreading crown of stiff, gnarled branches and terminal clusters of brick-red, orange, or pale-yellow flowers. The pods contain scarlet or dark-red seeds. The wood is soft and very light and was used by the Hawaiians for the float on the outrigger of their dugout canoes. The tree inhabits dry regions on all the Hawaiian Islands, though cattle have nearly exterminated it on Kauai, Molokai, and Oahu. (Adapted from *Rock, Leguminous Plants of Hawaii, p. 181.*)

54898. ERYTHRINA VARIEGATA Stickm.
(*E. indica* Lam.)

Indian coral tree, or *tiger's-claw.* A moderate-sized, quick-growing, deciduous tree, native throughout India from the foot of the Himalayas into Burma, but cultivated all over the Tropics. The clusters of large, bright-red flowers appear before the leaves. The pods, 4 to 8 inches long, contain several dark-carmine seeds. The flowers are dried for use as a dye; the bark is used for tanning and dyeing and yields an excellent, pale straw-colored fiber. The leaves are used as cattle fodder; the bark and leaves are also used medicinally. The open-grained, light wood is durable and does not split or warp; it is used for boxes, toys, trays, and also for firewood. Much of the lacquered ware of India is made of the wood of this tree. (Adapted from *Rock, Ornamental Trees of Hawaii, p. 119.*)

54899. ZINZIBER sp. Zinziberaceæ. Ginger.

From Canton, China. Seeds presented by F. A. McClure, instructor, Canton Christian College. Received February 20, 1922.

"*Ye Kaung.* A species of ginger with deep-yellow flowers borne on leafless stalks and black seeds in a red receptacle. Found at the edge of a thicket at Patkaleng." (*McClure.*)

54900 and 54901.

From Mayaguez, Porto Rico. Tubers presented by T. B. McClelland, horticulturist, Porto Rico Agricultural Experiment Station. Received March 16, 1922.

54900. DIOSCOREA ALATA L. Dioscoreaceæ. Greater yam.

Purple Ceylon. This yam, so called because of the purple color of its flesh, was imported in 1908 from Ceylon for the experiment station, and, on account of its pleasing flavor, has become a favorite variety. Any part of the tuber may be utilized for planting with the assurance that it will yield a profitable crop. At the experiment station half-pound seed pieces cut from the lower part of the root produced an average of nearly 5 pounds per plant. This is a splendid weight for a

54900 and 54901—Continued.

root of the *Purple Ceylon* variety and compares favorably with that produced by equal-sized pieces of the basal, or upper, part of the root.

The vines of this variety are long, large, vigorous, and four sided. The blade of the leaf is 6 by 4 or 5 inches, and it is dark green. A few small air tubers 2 by 1½ inches develop on the vines of this variety. The edible root is almost spherical or made up of two or three large round lobes. It never forms long, deep-growing roots. The starch content in the fresh root is about 20 per cent. After being cooked this yam has a smooth, even texture and retains its dark-purple color. Its flavor is rich and pleasing and has been highly complimented by all who have tested it. (Adapted from *C. F. Kinman* in *Bulletin 27, Porto Rico Agricultural Experiment Station, pp. 16 and 17.*)

For an illustration of tubers of the Purple Ceylon yam, see Plate III.

54901. DIOSCOREA CAYENENSIS Lam. Dioscoreaceæ. **Yellow Guinea yam.**

Congo. In Mayaguez this is called *Congo amarillo,* but in the San Juan market, where it is found in greater abundance than other kinds, it is known as *Yellow Guinea.* It thrives much better in sandy soil than most yams. The large roots attain a length of a foot, are rather cylindrical, and average a weight of 4 to 5 pounds in favorable seasons. The interior of the starchy root is a rich light yellow and turns dark brown when exposed to the air. It is smoother and more even grained than the water yams and not less so than the roots of the *White Guinea* or the *Potato* yams. It is rich yellow and of good texture when cooked. The flavor is pleasant and compares favorably in richness with the best yams. The vines of this variety are not angled; they are small and very strong and make a moderately vigorous growth. (Adapted from *C. F. Kinman* in *Bulletin 27, Porto Rico Agricultural Experiment Station, pp. 20 and 21.*)

"In addition to the data on quality given by Mr. Kinman, it may be noted that this yam has a slightly bitter taste; on this account special methods of cooking may sometimes be required. It is said that the bitterness is more noticeable in immature tubers than in fully mature ones." (*R. A. Young.*)

For an illustration of tubers of the Congo yam, see Plate IV.

54902. SACCHARUM OFFICINARUM L. Poaceæ. **Sugar cane.**

From Brisbane, Queensland, Australia. Cuttings presented by H. T. Easterby, general superintendent, Bureau of Sugar-Experiment Stations. Received March 7, 1922.

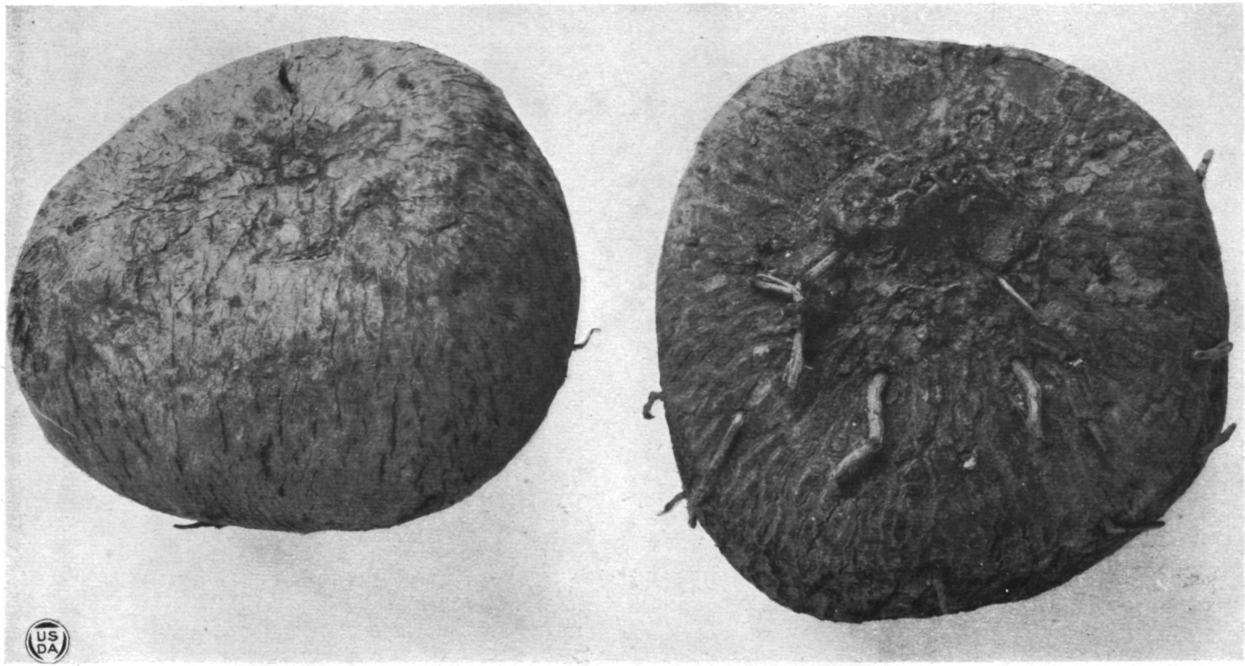
A few years ago a variety of sugar cane called *Shahjahanpur No. 10* was received by the Queensland Bureau of Sugar-Experiment Stations from the Shahjahanpur Sugar-Experiment Station, India, being recommended as a cane which would stand cold weather. This cane was planted out at the Bundaberg station, where it was found to resist severe frosts remarkably well. Its sugar content and cropping qualities being good, it was ultimately distributed to a considerable extent in southern Queensland. A very fine block of this variety, about 12 acres in extent, was grown at Spring Hill. This cane presented a splendid vigorous growth when only 9 months old. It had never been affected by frost. If this variety maintains its reputation, it should be extremely valuable to cane growers who live in regions where frost damage is common. The last analysis of the cane, made at the Bundaberg station last year, gave the following results:

Brix	21.7
Purity of juice	91.0
Percentage of fiber in cane	13.6
Commercial cane sugar	15.05

(Adapted from *The Australian Sugar Journal, vol. 13, p. 336.*)

54903. MALUS DOUMERI (Bois) Cheval. Malaceæ. **Tonkin apple.**
(*Pyrus doumeri* Bois.)

From Laos, French Indo China. Seeds presented by R. Miéville, director, Station Agricole du Tranninh, Chieng Kuang. Received March 11, 1922.



TUBERS OF THE PURPLE CEYLON YAM. (DIOSCOREA ALATA L., S. P. I. No. 54900.)

The Purple Ceylon yam, as shown by these characteristic tubers, is usually somewhat spherical, never elongated. The flesh is deep purple and retains the color when cooked, which makes a dish of this yam exceedingly attractive; the quality is excellent. The tubers shown are much reduced in size. This variety has become such a favorite for table use in Porto Rico that the increase in production has been hindered by the lack of sufficient propagating material. (Photographed by E. L. Crandall, Washington, D. C., March 20, 1922: P27534FS.)

TUBERS OF THE CONGO YAM. (DIOSCOREA CAYENENSIS LAM., S. P. I. No. 54901.)

The Congo yam, shown above greatly reduced in size, has rich yellow flesh strikingly different from all other yams commonly grown. While the flavor is not so delicate as that of many other yams, the texture is good and the color attractive. The average weight of tubers, when grown under favorable conditions, is 4 to 5 pounds. (Photographed by E. L. Crandall, Washington, D. C., March 20, 1922; P27535FS.)

"An interesting wild apple, native to the high plateaus of Indo China, at altitudes of 800 to 2,000 meters (2,620 to 6,562 feet), notably on Langbian and the lesser mountain ranges.

"It is a large tree which produces fruits similar in form, flavor, and color to certain varieties of Normandy cider pears.

"Although the species grows in the open forest and is uncared for by the present mountaineers, it must have been cultivated and improved at some ancient time. There remain specimens cultivated as sacred trees around certain Laos pagodas; here the trees were cared for by priests." (*Aug. Chevalier.*)

For previous introduction, see S. P. I. No. 53008.

54904. PASPALUM NOTATUM Fluegge. Poaceæ. **Grass.**

From San Jose, Costa Rica. Seeds presented by Sr. J. Alfredo Quiros. Received February 24, 1922.

A perennial grass, used for forage in tropical America, introduced for the use of department specialists.

54905. TRIFOLIUM PRATENSE L. Fabaceæ. **Red clover.**

From Warsaw, Poland. Seeds purchased through L. J. Keena, American consul general. Received March 17, 1922.

"The only variety of red-clover seed which appears to be procurable in Poland." (*Keena.*)

Introduced for comparative tests with American-grown clover.

54906 to 54908. COIX LACRYMA-JOBI MA-YUEN (Rom.) Stapf. Poaceæ. **Ma-yuen.**

From Manila, Philippine Islands. Seeds presented by P. J. Wester, agricultural adviser, Bureau of Agriculture. Received March 9, 1922.

"*Adlay.* When it is considered that adlay far surpasses rice in yield, that its analysis is quite similar to that of wheat, that it can be eaten like rice and also can be ground into flour and used in making biscuits and bread, that the grits make an excellent breakfast food, and that it can be grown from sea level to an altitude of more than 3,000 feet, it is fair to assume that it is only a question of time when adlay will be widely cultivated in the Tropics." (*Wester.*)

"Adlay has many qualities over other grains that ought to appeal to the dry-land rice farmers. First, this grain will stand a drought that would kill upland rice and still produce a good crop; second, adlay is a plant that locusts do not seem to bother; I have seen upland rice destroyed by locusts while the adlay planted around the field was not touched by them; third, adlay will produce nearly double the yield per hectare that can be expected from upland rice; fourth, the care and cultivation of 1 hectare of adlay can be carried on at less than one-half the cost of taking care of 1 hectare of upland rice.

"The food value of adlay has been known to the Filipino farmers a long time, and it has been used by them in various ways, roasted in cakes and as a substitute for rice. It also is a first-class feed for poultry." (*W. G. McCarty, supervising agricultural agent, Santa Cruz, Laguna.*)

For further description, see Philippine Agricultural Review, vol. 13, p. 217.

For previous introduction, see S. P. I. No. 54454.

54906. *Adlay No. 1.*

54907. *Adlay No. 2.*

54908. *Adlay No. 3.*

54909. TRITICUM AESTIVUM L. Poaceæ. **Common wheat.**
(*T. vulgare* Vill.)

From Nanking, China. Seeds presented by J. Lossing Buck, acting dean, College of Agriculture and Forestry, University of Nanking. Received March 11, 1922.

"One of our students from Shantung told us that because of floods in the autumn a large amount of wheat was planted in the spring. This is the first time I have heard of spring wheat in China. These seeds are from Tung Tsao, Koo-yung District, Shantung." (*Buck.*)

54910. MYRIANTHUS ARBOREUS Beauv. Moraceæ.

From Zomba, Nyasaland Protectorate. Seeds presented by E. W. Davy, Assistant Director of Agriculture. Received March 13, 1922.

A medium-sized ornamental tree with spreading branches, common in the dense humid forests of tropical Africa at an altitude of about 4,000 feet. The palmate leaves, with five to seven leaflets, are up to 20 inches in length. The male flowers, borne in axillary clusters with peduncles 2 to 7 inches long, form a solid mass of yellow, later becoming brownish gold. The edible golden yellow fruits are up to 4 inches in diameter, with an acidulous-sweet flavor, and in the Southwest Africa Protectorate are much esteemed by the natives who bring them to the coast markets. (Adapted from *Hiern, Catalogue of Welwitsch's African Plants, pt. 4, p. 995; Thiselton-Dyer, Flora of Tropical Africa, vol. 6, pt. 2, p. 231;* and *Wildeman, Mission Emile Laurent, vol. 1, p. 377.*)

For previous introduction, see S. P. I. No. 44250.

54911 to 54917.

From Christiania, Norway. Seeds presented by Haakon Foss, director, Agricultural Experiment Station. Received March 16, 1922. Quoted notes by Mr. Foss.

"Early varieties of barley and oats that have proved valuable in the central mountain districts of Norway. They should be of interest for regions of high altitude and cold climate in the United States.

"The seeds sent were grown chiefly in 1921 at Vindingstad, the experiment farm in the central mountain districts, lying at an elevation of 550 meters (approximately 1,800 feet)."

54911. AVENA SATIVA L. Poaceæ. **Oats.**

"*Perle havre* (pearl oats). An early variety of oats with stiff stems, selected by Doctor Christie, Hamar, Norway. The yield is very high, the average for 1919 to 1921 being 3,300 kilograms of grain and 6,800 kilograms of straw per hectare, or approximately 92 bushels of grain and 2.7 tons of straw per acre. The grain is small, but thin husked and plump, and the plant may be grown at nearly the same altitude as barley."

54912 to 54917. HORDEUM VULGARE PALLIDUM Seringe. Poaceæ. **Barley.**

54912. "*Opdal cyg.* A local variety of barley originated near Opdal in the central high-mountain region. It is very early ripening and of good yield under low temperature conditions and is used mostly on the border of the grain-growing area."

54913. "*Asplund cyg.* A famous new barley variety of the *hexastichum* type which was selected by a Swedish farmer at Asplund. It is not very early ripening nor very well adapted to low temperature conditions, but under medium conditions it is superior in yield and stem stiffness to all varieties hitherto tested."

54914. "*Bjöorneby cyg.* A widely cultivated variety of barley, originated in the eastern part of Norway. It is used mostly in the lower mountain valleys."

54915. "*Dönnes cyg.* An old local variety of barley originated near Dönnes in Nordland. It is very early ripening and of extremely high yield under low temperature conditions, but of only medium grain qualities."

54916. "*Maskin cyg.* Selected by Doctor Christie. An early-ripening variety with very stiff stems and of high yield. The average for 1920 and 1921 was 3,640 kilograms of grain and 4,260 kilograms of straw per hectare, or approximately 67.6 bushels of grain and 1.7 tons of straw per acre. The quality of the grain is superior."

54917. "*Trysil cyg.* A widely grown variety of barley, originated in the eastern part of Norway. It is used mostly in the lower mountain valleys."

54918 and 54919.

From Tripoli, Libia, Africa. Seeds presented by Dr. E. O. Fenzi. Received March 22, 1922. Quoted notes by Doctor Fenzi.

These are the wild forms of well-known evergreens and may differ from the varieties now cultivated. Both are native to Cyrenaica.

54918. CUPRESSUS SEMPERVIRENS L. Pinaceæ. **Cypress.**

"This is first found at about 650 feet elevation, but grows at its best above 1,300 feet, where trees 100 feet high and showing the same branching habit as the old cedars of Lebanon are not rare. They are confined to the northern slope of the Cyrenaican plateau, where precipitation is much greater than on the southern slope."

54919. JUNIPERUS PHOENICEA L. Pinaceæ. **Juniper.**

"The Juniperus is much more plentiful than the Cupressus, so much so as to constitute about 60 per cent of the whole woody vegetation between sea level and 2,600 feet elevation. It may become over 30 feet in height, but is generally smaller. The wood of both species is quite heavy and practically indestructible."

54920 to 54922.

From Mount Silinda, Southern Rhodesia, Africa. Seeds presented by Dr. W. L. Thompson. Received March 22, 1922. Quoted notes by Doctor Thompson.

54920. KHAYA NYASICA Stapf. Meliaceæ. **African mahogany.**

"The *red mahogany* is one of our most valuable timber trees and is widely distributed over Mozambique. It is fairly rapid in growth, though not equal to some of the eucalypts in this respect. It is found most often growing near streams, but also on high ground at a distance from water. The timber is very durable and is not attacked by white ants or borers."

A huge tree, 150 feet or more in height, with a very straight trunk and an enormous crown of handsome glossy foliage which is not eaten to any extent by locusts. The hard red timber has a beautiful grain and is easily worked. The seeds are boiled and crushed by the natives, who use the resulting oil in their hair to kill vermin. The tree is native to Gazaland, Mozambique, where its native name is *umbaba*. (Adapted from *Journal of the Linnean Society, vol. 40 (Botany), p. 42.*)

54921. STRYCHNOS MELLODORA S. Moore. Loganiaceæ.

"The Strychnos is also prized by us for its timber, which is fine grained and strong, and is used here for tool handles. It is not so large a tree as the *red mahogany*, not usually more than a foot or 15 inches in diameter. It is much more free from the attacks of insects than the *ukuhla* and not so completely immune as the *red mahogany*."

54922. TRICHILIA CHIRINDENSIS Swynn. and Baker. Meliaceæ.

"The *ukuhla* is a fine timber tree except for the fact that white ants and borers attack the wood. I have some bookshelves made of this lumber over 20 years ago which have not been touched by borers since, though they have some borer holes in them, made previous to the lumber being made up into shelves. This immunity is due to chance treatment, lying out in the storms during our rainy season, not to controlled conditions. We have tried soaking the lumber in a pond, but so far have not learned to control conditions so as to be uniformly successful. The seeds are partially covered with a white pulp, inclosed by a bright-red skin, having a nutty flavor, and although there is very little of it on each seed the natives are very fond of it. An oil is also obtained from the seeds. I once obtained some of it from a native; it was quite solid like tallow, and I attempted to make candles of it, but when melted it did not harden again at once on cooling."

54920 to 54922—Continued.

One of the finest forest trees of Gazaland, Mozambique. It has a spreading head of dark glossy leaves, light-gray bark, and dull-white flowers; it makes an excellent shade tree, sometimes becoming 120 feet in height. The timber is reddish brown and easily worked. (Adapted from *Journal of the Linnean Society, vol. 40 (Botany), p. 39.*)

54923 to 54927.

From Honolulu, Hawaii. Seeds presented by Dr. H. L. Lyon, in charge, Department of Botany and Forestry, Experiment Station of the Hawaiian Sugar-Planters' Association. Received March 20, 1922. Quoted notes by Doctor Lyon.

These trees were introduced at the suggestion of J. F. Rock, Agricultural Explorer of the United States Department of Agriculture, for trial as ornamentals for southern Florida.

54923. CASSIA NODOSA Buch.-Ham. Cæsalpiniaceæ.

"Seeds collected in Honolulu, February, 1922."

Pink and white shower. This magnificent flowering tree is one of the most commonly cultivated ornamental plants in Honolulu, where it is much used for street planting. It is a moderate-sized, deciduous tree with long drooping branches and glossy leaves; during May and June it bears a profusion of beautiful, bright-pink, rose-scented flowers in dense clusters on long stalks. It is native to India from the eastern Himalayas to the Malay Archipelago, and also to the Philippines. (Adapted from *Rock, Ornamental Trees of Hawaii, p. 106.*)

54924. CASSIA SIAMEA Lam. Cæsalpiniaceæ. **Kassod tree.**

The kassod tree is of rather low stature, with twiggy branches and bluish leaves up to a foot in length. In the late summer and early autumn, when all of the other showy leguminous trees have ceased to bloom, this tree bears axillary and terminal panicles of attractive bright-yellow flowers. In Honolulu it has been planted more or less extensively in private grounds. The native home of the kassod tree is southern India and Malaysia. (Adapted from *Rock, Ornamental Trees of Hawaii, p. 99.*)

54925. LEPISANTHES ERIOLEPIS Radlk. Sapindaceæ.

"Seeds collected in the Philippines by F. X. Williams."

An East Indian tree with pinnate leaves composed of about four pairs of oblong leaflets and small whitish flowers borne in dense panicles. (Adapted from *Actes du Congrès International de Botanistes, 1877, p. 106.*)

54926. POLYSCIAS NODOSA (Blume) Seem. Araliaceæ.

"Seeds collected in the Philippines by F. X. Williams."

The *malapapaya* is a lofty tree found in nearly every Province of the Philippine Islands. It sometimes reaches a height of 100 feet, with a straight trunk and compound leaves over 3 feet in length. The yellowish white, light, very soft wood is considered one of the best match woods and also is valuable for very light construction purposes. (Adapted from *Whitford, Forests of the Philippines, pt. 2 p. 89.*)

54927. STERCULIA sp. Sterculiaceæ.

"Seeds collected in the Philippines by F. X. Williams."

54928. AGATI GRANDIFLORA (L.) Desv. Fabaceæ.

(*Sesbania grandiflora* Poir.)

From Honolulu, Hawaii. Seeds presented by Dr. H. L. Lyon, in charge, Department of Botany and Forestry, Experiment Station of the Hawaiian Sugar-Planters' Association. Received March 2, 1922.

A small, rapid-growing, soft-wooded tree, 15 to 20 feet in height, with narrow, pinnate leaves, large pendulous white flowers, and long, sickle-shaped pods.

The fleshy petals are used in curries and soups in the Indian Archipelago, where this tree is native. The leaves and young shoots are sometimes used as fodder. In this country, the far South is the only region suited to this ornamental tree.

For previous introduction, see S. P. I. No. 54468.

54929 to 54958. FRAGARIA spp. Rosaceæ. **Strawberry.**

From Bourg la Reine, France. Plants purchased from Millet & Fils. Received March 28, 1922. Quoted notes from catalogue of Millet & Fils, unless otherwise stated.

"American strawberry breeders are interested in securing from all parts of the world wild species of Fragaria, as well as hybrids and horticultural varieties. The present collection has been introduced at the recommendation of George M. Darrow, of this department, with a view principally to furnishing material for use in the strawberry-breeding work now being conducted by the Department of Agriculture.

"In the development of European strawberries, at least four species have taken part. Prior to 1714, when the large-fruited *Fragaria chiloensis* was introduced into France from Chile, European horticulturists had to content themselves with the small-fruited native strawberries, *F. vesca* (wood strawberry) and *F. elatior* or *F. moschata* (the hautbois), to which was added, shortly after 1600, the American species, *F. virginiana*. These three were intercrossed and gave rise to numerous horticultural forms, which were in turn crossed with the Chilean species. The specific ancestry of many of the cultivated forms is now somewhat obscure and they are here listed as *Fragaria* spp." (*Wilson Popenoe.*)

The following everbearing varieties:

54929 to 54944. FRAGARIA spp. **Hybrid strawberry.**

54929. FRAGARIA sp.

"*Cyrano de Bergerac.* Derived from *St. Joseph.*"

54930. FRAGARIA sp.

"*Jeanne d'Arc.* Resembling *St. Joseph*, but more vigorous and with larger fruits." (*Robinson, Vegetable Garden, p. 702.*)

54931. FRAGARIA sp.

"*La Constante.* This is a synonym of *St. Joseph.*"

54932. FRAGARIA sp.

"*La Perle.* A variety of the highest merit with large pink fruits."

54933. FRAGARIA sp.

"*La Productive.* A cross between *St. Joseph* and *Edward Lefort*; plants vigorous, tall; fruits large, oblong, bright red, with very juicy and very sweet pink flesh. It is an everbearing variety, flowering very early in the spring." (*Robinson, Vegetable Garden, p. 703.*)

54934. FRAGARIA sp.

"*Louis Rossignol.* An improved form of *St. Joseph.*"

54935. FRAGARIA sp.

"*Odette.* An everbearing variety with long fruits of very good quality."

54936. FRAGARIA sp.

"*St. Antoine de Padoue.* A much more vigorous variety than *St. Joseph*, the result of a cross between that variety and *Royal Sovereign.* The large, conical fruits with very sweet, juicy flesh are borne until the end of July, then again in September and October." (*Robinson, Vegetable Garden, p. 703.*)

For previous introduction, see S. P. I. No. 41978.

54929 to 54958—Continued.

54937. FRAGARIA sp.

"*St. Joseph.* A bushy, rather dwarf, trailing plant which bears abundantly through the whole summer up to the first frosts. The medium-sized, heart-shaped fruits have rosy white, juicy, fragrant flesh." (*Robinson, Vegetable Garden, p. 701.*)

The following standard varieties:

54938. FRAGARIA sp.

"*Dr. Hogg.* Very much like the *British Queen* in habit, but with larger, fine scarlet fruits with very solid pinkish juicy flesh having a delicate fragrance." (*Robinson, Vegetable Garden, p. 697.*)

54939. FRAGARIA sp.

"*Docteur Morère.* A very vigorous variety with very large, broad fruits which are deep red when ripe, with pink, sugary flesh resembling that of the Chilean strawberry in flavor." (*Robinson, Vegetable Garden, p. 683.*)

54940. FRAGARIA sp.

"*Espoir.* A vigorous variety with very large dark-red fruits of fine quality."

54941. FRAGARIA sp.

"*Hericart* (*Vtesse H. de Thury*). A medium-sized fruit, of a brilliant-red color and fine quality."

54942. FRAGARIA sp.

"*Louis Gauthier.* A tall, robust plant bearing an abundance of large round pinkish fruits having juicy, fragrant flesh of very good quality." (*Robinson, Vegetable Garden, p. 687.*)

54943. FRAGARIA sp.

"*Madame Meslé.* A vigorous plant, a cross between *General Chanzy* and *Docteur Morère*, which bears an abundance of very large, oblong, tapering fruits of a beautiful vermilion red. The flesh is pink and of a delicate flavor." (*Robinson, Vegetable Garden, p. 689.*)

54944. FRAGARIA sp.

"*White Pineapple.* White fruits with excellent, very abundant, white flesh."

54945 and 54946. FRAGARIA MOSCHATA Duchesne. **Hautbois strawberry.**

54945. "*Belle Bordelaise.* A thickset compact plant with rather long, often conical, fruits which ripen about the middle of June." (*Robinson, Vegetable Garden, p. 677.*)

54946. "*Marguerite Lebreton.* Very early; bears an abundance of long fruits; the best variety for forcing."

54947 to 54958. FRAGARIA VESCA L. **Wood strawberry.**

54947. "*Belle de Meaux.* Dark-red fruits, somewhat elongated, with red flesh of excellent quality."

54948. "*Belle de Paris.* An everbearing variety with mottled leaves and very large, spherical (sometimes flattened) fruits. One of the best."

54949. "*Belle de Peraudiere.* Blunt red fruits with fragrant flesh."

54950. "*Belle du Mont Cenis.* Large, white, very good fruits."

54951. "*Belle du Mont Dore.* A somewhat elongated fruit with firm yellow flesh."

54952. "*Bush white.* An alpine bushy variety with white fruits." (*Robinson, Vegetable Garden, p. 675.*)

54929 to 54958—Continued.

54953. "*Gaillon de Semis.* One of the more vigorous of the everbearing varieties; for use on poor or wornout soils. Excellent as a border."

54954. "*Janus.* A very fine alpine variety, very productive, with large, conical fruits which are almost black when ripe. It comes true from seed." (*Robinson, Vegetable Garden, p. 675.*)

54955. "*Madame Beraud.* A blunt variety with obtuse red fruits of very good quality."

54956. "*Marie de Volder.* Elongated fruits of excellent quality."

54957. "*Millet.* A rather early robust variety with bright-red conical and flattened fruits with exquisite sugary flesh."

54958. "*President Meuren.* A variety with very fine, highly colored, somewhat elongated fruits."

54959 to 54962. CAPSICUM ANNUUM L. Solanaceæ. **Red pepper.**

From Granada, Spain. Seeds purchased by Miss Ola Powell from Sr. Juan Leyva, Granada, Spain, through Gaston Smith, American consul. Received March 30, 1922. Quoted notes by Miss Powell.

"These peppers were much larger than any pimientos I have seen growing in the United States. The flesh was very thick and crisp and of delicious flavor. I ate them as one would eat apples."

54959. "*Cornicabra de Murcia.* This is the one which is most extensively grown in Murcia and used for making ground sweet pepper. I ate many of them while in Spain. Although I was told it was too early in the season to get this year's finished product, it seemed to me that the flavor and color had been remarkably retained."

54960. "*De cuatro cascas.* The largest pimiento I found; it is claimed to be the earliest ripening pepper. There did not appear to be very many fruits to each plant. If this variety can be made to ripen early in the United States I am sure it will prove a good one for use among Home-Demonstration Club members."

54961. "*Dulce de España.* A thick-fleshed variety of delicious flavor; the plants were no larger than those of *De cuatro cascas,* but they seemed to bear more fruit. It is rather longer than the others and is the sweet pepper used for canning in Spain."

54962. "*Morrón granadino* (heart-shaped). A rather choice improved variety."

54963. BARRINGTONIA ASIATICA (L.) Kurz. Lecythidaceæ.

From Honolulu, Hawaii. Seeds presented by Dr. H. L. Lyon, in charge, Department of Botany and Forestry, Experiment Station of the Hawaiian Sugar-Planters' Association. **Received March 17, 1922.**

A large, handsome, East Indian tree with thick, leathery, shining, bright-green leaves and very conspicuous flowers with four white petals and numerous crimson-tipped stamens, resembling a brush. The fruit is quite large and is the shape of a 4-sided pyramid; it is smooth on the outside and contains one seed. The tree forms extensive beach forests on some of the Pacific islands. In the Molukkas an illuminating oil is extracted from the seeds, and the dry fruits are gathered by the natives and used as floats for their fish nets. (Adapted from *Rock, Ornamental Trees of Hawaii, p. 663.*)

"Mr. Rock believes that this tree should be planted on the sandy beaches and keys of Florida." (*David Fairchild.*)

For previous introduction, see S. P. I. No. 36867.

54964 to 54966. CERATONIA SILIQUA L. Cæsalpiniaceæ. **Carob.**

From Malaga, Spain. Budwood presented by Sr. Luis Liro Ortiz, through Gaston Smith, American consul, Malaga, Spain. Received March 30, 1922. Quoted notes by Sr. Ortiz, unless otherwise stated.

"In recent years carob cultivation has received serious attention in California, and efforts have been made to secure the best varieties from the Mediterranean region for trial in that State. These three which have been sent in by Sr. Luis Liro Ortiz are recommended as some of the best which are grown in the region of Malaga." (*Wilson Popenoe.*)

"With the exception of the *Castellana*, the carob grows in all this region without any cultural attention, often having the appearance of a wild tree. The *Castellana* is the only sort propagated by grafting. It is considered to be the most productive of all."

54964. "*Bravie.* Cuttings from a 35-year-old tree growing on the property of Basilia Mira Gutierrez, at Pago del Pino, District of Torrox. The tree receives no care whatever and is growing in dry, stony soil; in spite of these conditions, it produces long pods, somewhat more slender than those of *Castellana.*'

54965. "*Castellana.* Cuttings from a tree growing on the property of the widow of Salvador Mira Rico, at Pago del Pino, in the District of Torrox, Province of Malaga. The rootstock is of the *Bravie* variety and was top-worked to *Castellana* seven years ago. At present it yields excellent crops of long carobs, in spite of the fact that it is never pruned nor cultivated and that it is growing on stony land."

"The pods of this variety are about 8 inches long, plump, and very sweet. It appears to be an excellent sort." (*Wilson Popenoe.*)

54966. "*Macho.* Cuttings from a tree 30 to 35 years old, growing on the property of Salvador Molina Sanchez, at Pago del Pino, District of Torrox. The tree has been abandoned and stands on dry, rocky ground; in spite of this, it produces a large quantity of short, broad carobs."

54967. DIOSCOREA TRIFIDA L. f. Dioscoreaceæ. **Yampi.**

From Panama, Canal Zone. Collected by Dr. David Fairchild, Agricultural Explorer in Charge of the Office of Foreign Seed and Plant Introduction, Bureau of Plant Industry. Received October 3, 1921. Numbered March, 1922.

"This is a purple-skinned variety of the yampi. The yampi is not a strong grower, but since some of the most delicious of all the tropical yams belong to this species it will be well worth while if some of the varieties can be grown successfully in Florida. The leaves of this variety are five-lobed and the stem two to four winged, with purple lines on the wings." (*R. A. Young.*)

54968. SOJA MAX (L.) Piper. Fabaceæ. **Soy bean.**
(*Glycine hispida* Maxim.)

From Harbin, Manchuria. Seeds presented by B. W. Skvortzow. Received February 28, 1922.

Introduced for experimental work by specialists of the Department of Agriculture.

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