Issued March, 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 APRIL 1 TO MAY 31, 1920.

(No. 63; Nos. 49797 to 50647.)

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
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INVENTORY OF SEEDS AND PLANTS IMPORTED BY THE OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM APRIL 1 TO MAY 31, 1920 (NO. 63; NOS. 49797 TO 50647).

INTRODUCTORY STATEMENT.

This inventory, for the period of April and May, 1920, gives some idea of the voluminous stream of plant immigrants which is now pouring into America unchecked by the war. It represents 15 arrivals for every working day of the period, and when one tries to forecast the future of any 15 new arrivals, the size of this undertaking becomes apparent. To find every day for 15 more or less new plants a suitable home in which they will grow, be studied by some observing mind, and have a chance to prove whether or not they are desirable newcomers would be a decided undertaking in itself; but when one considers that each immigrant is not merely a single individual but represents from a dozen cuttings to a hundred thousand seeds, the real difficulties of the undertaking begin to appear. Not only this: There are the immigrants which have come in earlier and which still require attention. To-day these represent a certain proportion of the more than 50,000 arrivals which have been scattered all over America for the past 23 years, during which period this office has attempted to supervise their arrival and distribution.

While 10,000 amateur and professional agriculturists are on the lists of those who want to take care of these immigrants, the limitations of any one experimenter are soon reached, because the testing of a new introduction takes years and requires more money than many people feel they can afford to spend. But the interest in new plants is bound to grow with our appreciation of the fact that they have great wealth-producing power and that our dooryards and parks, our forests and landscapes, are to mean vastly more to our children than they do to us. With that growth is coming a larger number of experimenters and a greater expenditure of time and money upon this phase of American life.

I find it increasingly difficult to single out the most important introductions from 851 arrivals, particularly since so many of them seem important; but perhaps my long, though often superficial,

acquaintance with them may enable me to do it better than the layman himself, and it is with this idea that I continue to prepare these introductory statements.

The cultivation of Job's-tears as a field grain crop has been proposed for tropical and subtropical regions, but I think P. J. Wester has furnished the first report of its yields. In Mindanao, where several varieties are grown by the natives in a limited way, one variety (*Coix lacryma-jobi ma-yuen;* No. 49798) yielded 3,230 pounds per acre.

The bulso (*Gnetum indicum;* No. 49799) is a climber which bears brick-red fruits like grapes, each containing a seed which when roasted tastes like a chestnut. In Java its close relative, *G. gnemon*, is used as a pickle with the "rijs tavel."

The sokwa grass of Nigeria (*Echinochloa stagnina;* No. 49845), which, according to Alfred Thompson, is adapted to low swamp lands and is so sweet that children like to chew it and horses prefer it to Guinea corn, may prove valuable for Porto Rico, Hawaii, or even for the Everglades of Florida.

The guar of Burma (*Cyamopsis tetragonoloba;* Nos. 49864 and 49899 to 49904) is, according to Professor Piper, more drought resistant than any other annual legume and will grow in any part of the country where cowpeas succeed; it may be utilized as hay, or pasturage, or silage; its green pods are also used as a vegetable. It deserves more serious consideration than has heretofore been given it.

Mr. Wester's introduction of the silani (*Vigna lutea;* No. 49870), a new leguminous vine with possibilities as an orchard cover crop for citrus orchards, will interest Florida growers.

The success of the beautiful Australian vine (*Cissus hypoglauca;* No. 49871) on Miss Kate Sessions's place at San Diego, Calif., where it is one of the most attractive of pergola vines, makes its wide distribution most desirable.

H. E. Allanson calls attention to a quick-maturing variety of watermelon (*Citrullus vulgaris;* No. 49872), the seed of which was sent by Mr. Voyeikoff, of Vladivostok. At Chico, Calif., it matured fruits in 45 days from seed.

Capt. F. Kingdon Ward, the English explorer, sends from the Htawgaw Hill tracts of Burma a promising plumlike fruit (No. 49886) which so far has not been determined botanically, but which seems suited to regions of perpetual cool climate and rainy weather, like the Puget Sound region, and is a good table fruit even in its wild state.

The Chilgoza pine (*Pinus gerardiana;* No. 49889), from the dry, arid valleys of the northwestern Himalayas at 6,000 to 12,000 feet altitude, yields a large edible seed suited for table use, and like our

piñon may grow in the valleys of Arizona and California; because of the size of its nuts it may also be valuable commercially.

The Australian quandong (*Mida acuminata;* No. 49893) which is said to have wonderful drought-enduring qualities, growing as it does in the hotter, drier parts of New South Wales, should attract horticulturists of Arizona and California if its fruits, as reported, make preserves resembling that of the guava.

Dr. H. L. Shantz continues in this inventory the notes on material collected by him while attached as Agricultural Explorer of the Bureau of Plant Industry to the Smithsonian expedition to central and East Africa. The hurried nature of his trip of reconnaissance, in which he covered in a year's time an area nearly four times the extent of the whole Atlantic seaboard of the United States, made it impossible for him to get complete data on many of the things he collected, and this fact explains the fragmentary nature of many of his notes.

The remarkable behavior of kafirs and other sorghums and Sudan grass from Africa made it seem possible that strains of these important cereal and forage crops might be found which would be superior to those already introduced. Consequently Doctor Shantz collected samples of these from the various regions which he visited (*Holcus* spp.; Nos. 50008 to 50019 and 50077 to 50079). He also obtained seeds of the mombo tree (*Brachystegia* sp.; No. 50207), the bark of which furnished the natives with cloth before calicos were imported.

Pachylobus sp. (No. 50243), a forest tree bearing nuts that are edible after boiling, and *Ricinodendron* sp. (No. 50270), bearing sweet-fleshed fruits with edible oily kernels, are two other new and promising introductions resulting from Doctor Shantz's exploration.

Dr. E. D. Merrill, director of the Bureau of Science in Manila, has sent in a blue-flowered Lobelia (*L. nicotianaefolia;* No. 50314) which grows to be more than 9 feet tall and should be useful for breeding purposes, even if not adapted for outside culture in this country.

Dr. Carlos Spegazzini, of La Plata, Argentina, has presented 10 species of Prosopis (Nos. 50092 to 50101), leguminous trees and shrubs, the pods of some of which are very valuable as stock feed.

J. Burtt Davy made for us, just before he left South Africa, a collection of trees, shrubs, and grass seeds covering 105 numbers (Nos. 50102 to 50206). Among them are many which may contribute to the afforestation problem of the Hawaiian Islands and several which, because of their edible fruits, may prove of value in California and southern Florida; these include the mupundu (*Parinari mobola;* No. 50167), the mahobohobo (*Uapaca sansibarica;* No. 50190), three species of jujube (*Ziziphus* spp.; Nos. 50196 to 50198), *Balanites aegyptiaca* (Nos. 50120 and 50121); and *Mimusops zeyheri* (Nos. 50163

to 50165). He also sends in nine species of coffee (*Coffea* spp.; Nos. 50625 to 50633) from the Kongo and other parts of Africa.

The South China tung oil is made from the seeds of the mu-yu shu (*Aleurites montana;* No. 50353) and the central China tung oil from that of *A. fordii;* both appear to be used more or less indiscriminately by the varnish trade. Together these oils represent the basic material used by a 25-million-dollar industry, and the culture of these two Chinese trees deserves to be undertaken seriously in America.

G. H. Cave, of Darjiling, India, has presented us with seeds of 15 interesting trees and shrubs from the Himalayas, among which is the *Docynia indica* (No. 50364), a small tree with edible fruits resembling the quince in flavor. This might prove peculiarly adapted to the Puget Sound region, and *Pueraria peduncularis* (No. 50371), a relative of the kudzu vine of Japan, might grow there also.

Mr. Wester sends a new leguminous tree (*Prosopis vidaliana;* No. 50381) which should be worth trying on the Florida beaches.

Dr. Argollo Ferrão sends in a remarkable variety of cassava (*Manihot esculenta;* No. 50388) which is known as the "manioc of 10 years," because it may remain 10 years in the ground and produce roots that weigh more than 500 kilograms (1,102.3 pounds) per tree.

The late Sr. André Goeldi, of Para, Brazil, presented the United States Department of Agriculture with 52 varieties of seeds which he collected at the mouth of the Amazon. Among them is the macaúba palm (*Acrocomia sclerocarpa;* No. 50467), the seeds of which when roasted make a good table nut. Since the genus to which this palm belongs does unusually well in southern Florida, there may be in the macaúba a valuable food tree for that region. The assahy palm (*Euterpe oleracea;* No. 50481), from the fruits of which a wine is made, and the pupunha (*Guilielma speciosa;* No. 50482), whose fruits have a mealy covering which when cooked is said to be more delicate than potatoes or chestnuts and to combine the qualities of both, may prove further valuable additions to the economic palms of Florida. There is also a species of Cissus in the collection, a tropical grape (No. 50474) with fruits having the flavor of the Isabella. It is well worth finding out whether the cutitiribá, a species of Lucuma (*L. macrocarpa;* No. 50487) with fruits 4 inches across, and the cacau-y (*Theobroma speciosa;* No. 50510), a deliciously flavored fruit related to the cacao, will grow in this country. *Oryza latifolia* (No. 50491), a perennial wild rice from Marajo, growing to 8 feet in height and bearing seeds the whole year round, may have value as a forage crop on wet soils.

Hugh Dixson, of New South Wales, has brought to our attention what appears to be a very valuable ornamental climber (*Millettia megasperma;* No. 50518), which resembles the wistaria but has

dark-green foliage and darker purple, sweet-scented flowers. As it will stand 10 degrees of frost, it should thrive remarkably well in California and Florida.

Wilson Popenoe and Otón Jimenez believe they have discovered, near San Jose, Costa Rica, the wild prototype of the Guatemalan race of avocados in what is known there as the aguacate de anis (*Persea americana;* No. 50585), and they predict that it will prove valuable as a stock for the cultivated avocado.

James Birch Rorer, of Guayaquil, Ecuador, has sent in a number of interesting plants from that little-known country, among them the capulin (*Prunus serotina;* No. 50604), or wild cherry, a promising new fruit resembling the Bigarreau type of cherry, refreshing to eat out of hand, and also the naranjilla (*Solanum quitoense;* No. 50607), a solanaceous fruit sold on the markets there.

Harry Johnson has collected from around Coban, Guatemala, some interesting wild plants which should yield valuable forms for cultivation. Among them are five begonias (Nos. 50609 to 50613), a morning-glory (*Ipomoea* sp.; No. 50615) with yellow-throated pink flowers of a thick succulent texture, a tender night-blooming water lily (*Nymphaea blanda;* No. 50617), and a wild solanaceous vine (*Solanum* sp.; No. 50620).

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

DAVID FAIRCHILD,
Agricultural Explorer in Charge.

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION,
Washington, D. C., October 24, 1921.

INVENTORY.[1]

49797. CACARA EROSA (L.) Kuntze. Fabaceæ. **Yam bean.**
(*Pachyrhizus angulatus* Rich.)

From San Salvador, Salvador. Seeds presented by J. E. van der Laat, Director General of Agriculture. Received April 1, 1920.

"Seeds of the white-flowered *jicama*, which is the best yam bean. It is cultivated widely and is relished very much in the raw state." (*Van der Laat.*)

For previous introduction, see S. P. I. No. 47146.

49798 and 49799.

From Lamao, Bataan, Philippine Islands. Seeds presented by P. J. Wester, agricultural adviser, Lamao Horticultural Station. Received April 1, 1920. Quoted notes by Mr. Wester.

49798. COIX LACRYMA-JOBI MA-YUEN (Rom.) Stapf. Poaceæ. **Ma-yuen.**

"Seeds of *adlay*, a grain which I believe is worthy of serious attention in Porto Rico and the Gulf States. Preliminary trials here have yielded at the rate of 3,625 kilos of grain to the hectare (3,230 pounds per acre), the hulled grain of which is 2,610 kilos. An analysis made by the Bureau of Science returned 49.86 per cent starch, 8.23 per cent protein, and 8.87 per cent fat. The returns from the hulled grain were 68.83, 11.27, and 6.65 per cent, respectively. At present *adlay* is grown in a limited way in Bukidnon and Cotabato in Mindanao and in the Mountain Province in Luzon. There are probably some 10 varieties cultivated in these islands."

49799. GNETUM INDICUM (Lour.) Merr. Gnetaceæ.
(*G. funiculare* Blume.)

"The *bulso*, a native woody vine with brick-red fruits in bunches like grapes, each containing a nut which, when roasted, tastes like a chestnut. The nuts should not be eaten raw. This is a close relative to the *banago* (*Gnetum gnemon*)."

49800. TRITICUM AESTIVUM L. Poaceæ. **Common wheat.**
(*T. vulgare* Vill.)

From Rieti, Italy. Presented by Prof. Nazarene Strampelli, director, R. Stazione Sperimentale di Granicoltura. Received April 1, 1920.

Carlotta Strampelli. A very early winter wheat originated by Professor Strampelli, sown upon about 47,000 acres in 1918–19. Secured for Dr. C. E. Leighty, Agronomist in Charge of Eastern Wheat Investigations, for use in experimental work.

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[1] All introductions consist of seeds unless otherwise noted.

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

49801 to 49803. HOLCUS SORGHUM L. Poaceæ. Sorghum.

(*Sorghum vulgare* Pers.)

From Kaduna, Northern Provinces, Nigeria. Seeds presented by P. H. Lamb, Director of Agriculture, through C. V. Piper. Received April 7, 1920. Notes furnished by H. N. Vinall, Office of Forage-Crop Investigations.

49801. "Native name *fara-fara*. Variety with loose panicles about 13 inches long and 3 inches in diameter. Seeds white, flat, rotating in the glumes and shattering freely like *shallu;* glumes black, spreading, and involute."

49802. "Native name *kaura*. Variety with rather compact panicles like kafir, 14 to 15 inches long and 2½ to 3 inches wide. Seeds somewhat larger than kafir, of a very peculiar yellowish white color like pop corn, and 60 to 75 per cent exserted from the straw-colored glumes."

49803. "Native name *jauari*. A variety with loose panicles about 15 inches long and 3 inches wide. Much like the *fara-fara* except that the seeds are red instead of white. Resembles a red-seeded *shallu*."

49804 to 49813.

From Paris, France. Seeds presented by D. Bois, Professeur de Culture, Muséum d'Histoire Naturelle. Received April 27, 1920, for use in rust investigations.

49804. TRITICUM CYLINDRICUM (Host.) Ces. Pass. and Gib. Poaceæ. **Grass.**

"A slender tufted suberect European annual, 25 to 50 centimeters tall, with unbranched culms, narrow, flat, rough blades, and solitary slender cylindrical spikes 5 to 15 centimeters long." (*Agnes Chase.*)

49805. BROMUS MACROSTACHYS LANUGINOSUS (Poir.) Coss. and Dur. Poaceæ. **Grass.**

An erect Bromus with lanceolate, pointed, somewhat compressed woolly spikelets. Native to the Mediterranean region. (Adapted from *Poiret, Encyclopédie Méthodique Botanique, supplement, vol. 1, p. 703.*)

For previous introduction, see S. P. I. No. 16042.

49806. BROMUS MADRITENSIS L. Poaceæ. **Grass.**

A tall, tufted, compact grass locally adventive from Europe.

49807. HORDEUM MARITIMUM Roth. Poaceæ.

A species of barley grass occurring on the seacoasts of western Europe and in the Mediterranean region, extending northward to Denmark. It is known as "sea barley," and in England it is also called "squirreltail grass." It occurs in meadows, especially in brackish land along the seacoast, but is also found sometimes in mountainous regions. (Adapted from *Bentham and Hooker, Handbook of British Flora, 6th ed., p. 528,* and *Boissier, Flora Orientalis, vol. 5, p. 687.*)

49808. HORDEUM VULGARE COELESTE L. Poaceæ. **Barley.**

This is probably the barley which, in Europe at least, was formerly the most widely cultivated form.

49809. CLEMATIS INTEGRIFOLIA L. Ranunculaceæ. **Clematis.**

An erect herb, bearing rather narrow, blue, leathery flowers.

For previous introduction, see S. P. I. No. 32239.

49810. CLEMATIS VITICELLA L. Ranunculaceæ. **Clematis.**

A European climber, 8 to 12 feet high, with blue, purple, or rose-purple flowers, a leading garden clematis.

49811. RANUNCULUS ACRIS L. Ranunculaceæ.

The tall or meadow buttercup.

49804 to 49813—Continued.

49812. RANUNCULUS BULBOSUS L. Ranunculaceæ.

A perennial about 1 foot high, one of the common field buttercups; naturalized in the United States from Europe.

49813. THALICTRUM MEDIUM Jacq. Ranunculaceæ.

A European plant with a leafy stem and spreading panicles of nodding flowers.

49814. SYNTHERISMA SANGUINALIS (L.) Dulac. Poaceæ. **Grass.**

From Kirkee, Poona, India. Seeds presented by William Burns, Government economic botanist. Numbered June, 1920.

A form introduced for experimental work by the Office of Forage-Crop Investigations.

49815 to 49823.

From Johannesburg, South Africa. Seeds presented by J. Burtt Davy, Vereeniging. Received April 22 and 28, 1920. Quoted notes by Mr. Burtt Davy.

49815. ASPARAGUS LARICINUS Burchell. Convallariaceæ.

"A fine bushy plant, 5 feet high; ornamental and possibly edible; hardy."

49816. CAILLIEA NUTANS (Pers.) Skeels. Mimosaceæ.
(*Dichrostachys nutans* Benth.)

"Hardwood, small tree for Hawaii."

49817. ERYTHRINA CAFFRA Thunb. Fabaceæ.

"Deciduous, ornamental, red-flowered tree; grows quickly and easily from cuttings. Used for live fences. Sensitive to frost. Grows on dry, rocky hills; 20-inch rainfall."

49818. LEBECKIA sp. Fabaceæ.

"Perennial legume; winter region rainfall area; Hermanus, Cape Province."

49819. PENTZIA INCANA (Thunb.) Kuntze. Asteraceæ. **Karroo bush.**

"Good karroo; splendid sheep feed for low-rainfall region."

49820. PHASEOLUS ACUTIFOLIUS LATIFOLIUS G. F. Freeman. Fabaceæ. **Tepary bean.**

"Small bean; very prolific. Used as dry beans in place of haricots."

49821. SPOROBOLUS sp. Poaceæ. **Grass.**

"A useful grass."

49822. VANGUERIA INFAUSTA Burchell. Rubiaceæ.

"*Misple.* Edible fruit worth improvement; grows in frostless localities on dry, rocky hills, with rainfall of about 20 inches (summer precipitation)."

49823. VITIS sp. Vitaceæ. **Grape.**

"Wild grape from Bushman's River, Alexandria Division, Cape Province. Edible and worth careful cultivation in the United States."

49824. COLOCASIA ESCULENTA (L.) Schott. Araceæ. **Taro.**

From Honolulu, Hawaii. Tubers presented by R. A. Goff, through J. M. Westgate, agronomist in charge, Hawaii Experiment Station. Received May 13, 1920.

"*Kuoho.* This is one of the most largely grown upland taros in the vicinity of Hilo, Hawaii. The buds, skin, and the flesh immediately beneath the skin are bright red. The flesh is very acrid in the raw state, but this quality is destroyed in cooking and

the taro becomes mealy and of good flavor; the flesh is grayish when cooked. The *Kuoho* taro, like other commercial varieties in Hawaii, is used mostly for making poi, the great Hawaiian dish." (*R. A. Young.*)

49825. DIOSCOREA ALATA L. Dioscoreaceæ. **Yam.**

Grown with other unidentified yams under S. P. I. No. 45990 at the Plant-Introduction Garden, Brooksville, Fla., since 1918, and numbered separately on May 15, 1920, to facilitate distribution.

"A white-fleshed yam of excellent quality. It cooks perfectly white and when mashed and beaten with milk is fully equal to the best white potato. Tested after about four months in storage." (*R. A. Young.*)

49826. COLOCASIA ESCULENTA (L.) Schott. Araceæ. **Taro.**

Corm presented through Dr. David Griffiths by A. Miller, of the American Bulb Co., Chicago, Ill., who obtained it from Japan. Received May 18, 1920.

"A taro which forms a multiple-headed nonacrid corm." (*R. A. Young.*)

49827. ANACARDIUM OCCIDENTALE L. Anacardiaceæ. **Cashew.**

From the city of Panama, Panama. Nuts presented by Sr. Ramon Arías-Feraud. Received April 1, 1920.

"The cashew has fruited successfully at Miami and Coconut Grove, Fla., and should be more widely planted, both for its aromatic fruits, which can be used in a variety of ways, and for its edible seed, known as cashew nut. It is a variable plant, but so far as known, selected varieties have not yet been propagated vegetatively." (*Proceedings of the American Pomological Society, 1915, p. 192.*)

49828 to 49833. SOJA MAX (L.) Piper. Fabaceæ. **Soy bean.**
(*Glycine hispida* Maxim.)

From Yokohama, Japan. Beans presented by Robert Fulton & Co. Received April 2, 1920. Quoted notes by Mr. Fulton.

49828. "*Kuro mame* (black soy bean)."

49829. "*Kuro Teppo mame* (round, middle-late, black soy bean)."

49830. "*Nakate mame* (middle-late, white soy bean), seed larger than *Wase mame*."

49831. "*Okute mame* (late white soy bean)."

49832. "*Shiro daizu* (white soy bean)."

49833. "*Wase mame* (summer bean), small seeded early white."

49834. SOJA MAX (L.) Piper. Fabaceæ. **Soy bean.**
(*Glycine hispida* Maxim.)

From Aizu Wakamatsu, Japan. Beans presented by Rev. Christopher Noss. Received April 2, 1920.

"*Ogon daizu* (golden soy bean)." (*Noss.*)

The oil of the bean is used for frying, as a butter substitute, for lubricating, for waterproofing clothes, for medicine, and in the manufacture of soap, candles, guncotton, and artificial rubber. The residue after the oil has been extracted has been used for cattle feed, but is now mixed with wheat flour for food purposes. The entire bean is slightly roasted, pulverized, and mixed with flour to make light cakes and to give flavor to boiled rice; it is cheaper and more nutritious than flour. (Adapted from *Parry, Travel Sketches, Japan Advertiser, January 25, 1920.*)

49835. ANANAS SATIVUS Schult. f. Bromeliaceæ. **Pineapple.**

From Kabalo, Belgian Kongo. Collected by Dr. H. L. Shantz, Agricultural Explorer of the United States Department of Agriculture. Received April 2, 1920.

"(Kabalo, February, 1920.) Suckers from pineapples grown about native cabins." (*Shantz.*)

49836 to 49839.

From Elizabethville, Belgian Kongo. Collected by Dr. H. L. Shantz, Agricultural Explorer of the United States Department of Agriculture. Received April 3, 1920. Quoted notes by Doctor Shantz.

49836. AGAVE AMERICANA L. Amaryllidaceæ.

"(No. 364. Elizabethville. December 27, 1919.) One of the chief fiber plants of this section; the fiber is said to be whiter than sisal, which is also grown here."

49837. AGAVE SISALINA Perrine. Amaryllidaceæ.

"(No. 365. Elizabethville. December 27, 1919.) This plant does very well here, producing leaves 5 feet long, but the market is not good."

49838. MANIHOT ESCULENTA Crantz. Euphorbiaceæ. **Cassava.**
(*M. utilissima* Pohl.)

"(No. 363. Elizabethville. December 27, 1919.) This is a cool country for Manihot, and these plants may prove to be better for cool climates than those grown in South America or the lower Kongo. Here it is one of the principal articles of native diet. Its worst enemy is the porcupine."

49839. (Undetermined.)

"(Elizabethville, December, 1919.) Three small tubers."

49840. ERIOBOTRYA JAPONICA (Thunb.) Lindl. Malaceæ. **Loquat.**

From Olive, Calif. Cuttings presented by M. Payan. Received April 6, 1920.

Eulalia. This variety was originated by Mr. Payan from seeds of the *Advance* variety planted by him in 1897. It is reported to be a rather vigorous grower, spreading and productive, and thus far has shown no blight. The following is a detailed description of the fruit:

Form truncate pyriform to obovoid pyriform, borne in large, rather loose terminal clusters on stout woolly stems inserted without depression; surface smooth, sparsely covered with light down; apex depressed; basin irregular, abrupt, corrugated; calyx segments broad, short, downy, converging; eye medium, partially open; color orange-yellow, blushed, and washed with red when tree ripened, and overspread with a thin bloom; dots numerous, aureoled, light gray; skin thick, tough, acid; flesh pinkish, translucent, melting, tender, very juicy; seeds of medium size, rather numerous; flavor subacid; quality good. Season, February to May in Orange County, Calif. (Adapted from *Yearbook, U. S. Department of Agriculture, 1905, p. 504.*)

49841 and 49842.

From New South Wales, Australia. Seeds presented by Hugh Dixson, Abergeldie. Received April 1, 1920. Quoted notes by Mr. Dixson.

49841. ANGOPHORA CORDIFOLIA Cav. Myrtaceæ.

"An Australian plant which grows in rather poor sandy sandstone country, seldom above 8 feet in height. A plant I have flowered in two years at about 3 feet high; it has large bunches of cream-white eucalyptuslike flowers with honey perfume, very attractive to bees and other insects. Young plants must not be cut back, for there is apparently no bud at the base of the leaves till it

49841 and 49842—Continued.

reaches flowering stage. These seeds are about 2 years old. I have raised plants from this lot within the past month. Ten degrees of frost should not hurt them when above the seedling stage."

49842. EUCALYPTUS FICIFOLIA F. Muell. Myrtaceæ.

"A western Australian plant, commonly known as the red flowering gum. It will take at least five or six years to reach the flowering stage, but it is a blaze of scarlet when it does. The few trees I have seen flowering in the vicinity of Sydney were not above 10 to 15 feet high, with about the same spread. I think that they have been checked to make them spread. They grow in any fair soil, and 10 degrees of frost should not hurt the plants when above seedling stage. The seed takes three years to ripen, though I have just raised a plant or two from 2-year-old capsules grown near here."

A rare and showy plant with a striking display of brilliant scarlet flowers in branching heads. They are produced from a cup-shaped receptacle provided with a capsule which falls off as the flowers expand. When the flower is fully open the green interior of the receptacle is seen, which adds to the beauty of the flower. The gray-green leaves, with red midribs, are also handsome. (Adapted from *The Garden, vol. 71, p. 441.*)

49843 to 49846.

From Yola, Northern Provinces, Nigeria. Seeds presented by Alfred Thompson. Received April 2, 1920. Quoted notes by Mr. Thompson.

49843. ANNONA SENEGALENSIS Pers. Annonaceæ. **Abo.**

"The natives call this 'wild papaw.' It is the nicest wild fruit we have in our part of Africa."

"A shrub or tree, sometimes attaining a height of 8 meters, indigenous to a large part of tropical Africa. It ascends Mount Ruwenzori to an altitude of 2,600 meters. The fruit is 4.5 centimeters in diameter, yellowish or orange colored, and much esteemed by some travelers. It is believed that the wood of this species was used by the negro tribes on the upper Nile for making fire by friction as early as 2,900 B. C." (*P. J. Wester.*)

For previous introduction, see S. P. I. No. 47214.

A fruiting shrub of this species is shown in Plate I.

49844. ARACHIS HYPOGAEA L. Fabaceæ. **Peanut.**

"They grow a lot of peanuts in this part of Africa, but I do not think they are as good as those grown in America."

For previous introduction, see S. P. I. No. 47865.

49845. ECHINOCHLOA STAGNINA (Retz.) Beauv. Poaceæ. **Grass.**

"The natives call this grass 'sokwa.' It is the best kind of grass we have in this part of Africa. The horses as a rule will eat this grass before they will eat guinea corn. It is sweet like sugar cane, and the children like to chew it. It grows in low swamp land and in the wet season is often covered with 7 feet of water. When the water goes down the natives cut it or turn the cattle on it. One thing against it is that it grows to a height of about 7 feet and when the water goes down it lodges so that to cut it with a machine would be very hard."

For previous introduction, see S. P. I. No. 48427.

49846. GOSSYPIUM sp. Malvaceæ. **Cotton.**

"The African cotton is very poor, as you can see by the specimen I am sending you."

49847 to 49849.

From Foochow, Fukien, China. Cuttings presented by C. R. Kellogg, through J. B. Norton. Received April 3, 1920. Quoted notes by Mr. Kellogg.

49847. ACTINIDIA sp. Dilleniaceæ.

"(No. 1, January 26, 1920.) From an old house in Kuliang."

49848. ACTINIDIA sp. Dilleniaceæ.

"(No. 2, January 26, 1920.) Near an old potato field, Kuliang."

49849. FICUS sp. Moraceæ. **Fig.**

"A wild fig."

49850. CAJAN INDICUM Spreng. Fabaceæ. **Pigeon-pea.**

From Honolulu, Hawaii. Seeds presented by J. M. Westgate, director, Agricultural Experiment Station. Received April 5, 1920.

"White variety; germination 25 per cent. March 3, 1920." (*Westgate.*)

49851. CITRUS sp. Rutaceæ.

From Nagpur, Central Provinces, India. Budwood presented by J. C. Leslie, superintendent, Government gardens. Received April 5, 1920.

R. S. Woglum, of the Bureau of Entomology, visited India in 1913, and states concerning this orange: "The *Nagpur* orange is a large, loose-jacketed orange of the tangerine group."

49852 and 49853.

From Lamao, Bataan, Philippine Islands. Seeds presented by P. J. Wester, agricultural adviser, Lamao Horticultural Station. Received April 6, 1920.

49852. BARLERIA LUPULINA Lindl. Acanthaceæ.

A very handsome hothouse plant, native to Mauritius, almost always in flower and particularly remarkable for its rich, deep-green, lanceolate leaves marked with bright-red midribs. It forms a very compact leafy bush 2 feet in height, is not attacked by common hothouse insects, thrives in almost any soil with little or no cultivation, and is readily propagated from cuttings. (Adapted from *Edwards's Botanical Register, pl. 1483.*)

49853. BARLERIA PRIONITIS L. Acanthaceæ.

An attractive shrub, native to Asia and tropical Africa, 2 to 3 feet in height, with bright orange-yellow flowers. (Adapted from *Macmillan, Handbook of Tropical Gardening and Planting, p. 391.*)

For previous introduction, see S. P. I. No. 20974.

49854 to 49857.

From Kulare, via Cairns, Queensland, Australia. Seeds presented by J. A. Hamilton. Received April 6, 1920. Quoted notes by Mr. Hamilton, unless otherwise specified.

49854. CASUARINA TORULOSA Ait. Casuarinaceæ.

The wood of this tree is close grained and very prettily marked. It is used for cabinetwork and produces very superior shingles. Handsome veneers are obtained from the wood. (Adapted from *Maiden, Useful Native Plants of Australia, p. 400.*)

For previous introduction, see S. P. I. No. 30380.

THE ABO, AN AFRICAN ANONA. (ANNONA SENEGALENSIS PERS.; S. P. I. NO. 49843.)

This species is said to vary remarkably, some forms being low shrubs not more than 2 or 3 feet in height, like the one shown above, and others trees 30 feet tall. The yellowish or orange-colored fruits, about the size of small apples (2 to 2½ inches across), have a delicious flavor, which makes them very popular with travelers in tropical Africa. If this shrub will bear in southern Florida or California it may become a valuable winter fruit in those regions. (Photographed by Dr. H. L. Shantz, Kafue, Northern Rhodesia, November 21, 1919; P36765FS.)

A BEAUTIFUL AUSTRALIAN VINE FOR PERGOLAS. (CISSUS HYPOGLAUCA A. GRAY: S. P. I. No. 49871.)

This handsome Australian climber is evergreen in San Diego, Calif., and will probably hold its foliage whereever it can be grown. The black fruits, which are produced abundantly, add greatly to its attractiveness. The plants will endure some frost, and it is not unlikely that strains suitable for most of our Southern States can be developed. (Photographed by David Fairchild, San Diego, Calif., October 12, 1919; P25718FS.)

49854 to 49857—Continued.

49855. EUCALYPTUS sp. Myrtaceæ.

"*Flooded gum.* This species likes plenty of moisture, but grows on poor soil. It grows very straight and is the largest eucalyptus which grows on this table-land."

49856. EUCALYPTUS TERETICORNIS J. E. Smith. Myrtaceæ.

"This must be fairly hardy, as we get rather hard frost here at night in winter. The most noticeable feature in the habit of *Eucalyptus tereticornis* is that of flowering in the winter; last winter the trees began flowering at the end of May and trees were in flower until the end of September."

For previous introduction, see S. P. I. No. 38728.

49857. PHASEOLUS AUREUS Roxb. Fabaceæ. **Mung bean.**

"Green Chinese variety."

49858. TRICHOSANTHES QUINQUANGULATA A. Gray. Cucurbitaceæ.

From Littleriver, Fla. Seeds presented by J. J. Soar, Littleriver Nurseries, through Dr. David Fairchild. Received April 7, 1920.

"These seeds were given to me by Mr. Soar, who says that the plant came from the Philippines. It is the showiest gourd I have ever seen, being a bright red, redder than the reddest apple. As a decorative plant it should be very valuable, and the fruits would make the prettiest kind of decorations for Christmas trees." (*Fairchild.*)

For previous introduction, see S. P. I. No. 43266.

49859 to 49860.

From Melbourne, Victoria. Seeds presented by F. H. Baker. Received April 7, 1920.

49859. DORYANTHES PALMERI W. Hill. Amaryllidaceæ.

A gigantic showy amaryllid with very numerous ribbed leaves 6 to 8 feet long and 4 to 6 inches wide. The stem or scape is 8 to 10 feet high and bears a compact inflorescence 3 feet long, composed of short, few-flowered spikes. The scarlet perianth segments are pale red within. Native to New South Wales. (Adapted from *Curtis's Botanical Magazine, pl. 6665.*)

For previous introduction, see S. P. I. No. 23433.

49860. EUCALYPTUS ALPINA Lindl. Myrtaceæ.

A rare, slow-growing, shrubby eucalypt with stout branches, thick, oval, or roundish shining dark-green leaves, and rather large almost hemispherical fruits. It is restricted in distribution to the summit of Mount William, Western Australia, at an altitude of over 4,000 feet. It endures quite a cold climate and braves sharp frosts and snowstorms several months in the year. (Adapted from *Mueller, Eucalyptographia, vol. 2, p. 1.*)

For previous introduction, see S. P. I. No. 38709.

49861. ANANAS SATIVUS Schult. f. Bromeliaceæ. **Pineapple.**

From the City of Mexico, Mexico. Suckers presented by the Dirección de Agricultura. Received April 8, 1920.

Guatemala Spineless White.

"This variety has a number of points which would commend it for our use; it is spineless, ripens early, has a delicious flavor, and is apparently a good shipper." (*P. H. Rolfs.*)

For previous introduction, see S. P. I. No. 14452.

49862. PYRUS CALLERYANA Decaisne. Malaceæ. **Pear.**

Seeds collected under the direction of Prof. J. H. Reisner, of Nanking, China. Received April 8, 1920.

This seed is a small quantity reserved from a shipment ordered by this office for Jackson & Perkins, of Newark, N. Y., who desired to conduct experiments with *Pyrus calleryana* as a stock for our common pears. According to Professor Reisner, it is very difficult to secure pure seed of this species. This lot was collected about 40 miles from Nanking. Every effort was made to secure seed only from authentic trees of *Pyrus calleryana*.

49863. BICHEA sp. Sterculiaceæ.

(*Cola* sp.)

From Malele, Belgian Kongo. Seeds collected by Dr. H. L. Shantz, Agricultural Explorer of the United States Department of Agriculture. Received April 3, 1920.

"(No. 522. Malele. January 31, 1920.) Called by the whites 'native potato,' but the natives say it grows on a large tree. The pod is about 6 inches long with two rows of very large seeds; they are said to be very good food. The old pods are often gathered from the forest floor, and this has probably resulted in the use of the term 'native potato.' " (*Shantz.*)

49864. CYAMOPSIS TETRAGONOLOBA (L.) Taub. Fabaceæ. **Guar.**

(*C. psoraloides* DC.)

From Mandalay, Northern Circle, Burma, India. Seeds presented by E. Thompstone, Deputy Director of Agriculture. Received April 12, 1920.

"An erect East Indian annual legume with long straight stems bearing an enormous number of pods which do not burst open at maturity. The plant is usually 3 or 4 feet high, but under favorable conditions it reaches a height of 5 to 6 feet. Each pod contains about seven pale angular seeds.

"In India the plant is grown both for green forage and for the seeds which are used mainly to fatten cattle, and also as human food. The green pods are also used as a vegetable in the same manner as string beans.

"Guar may be grown in any part of the country where cowpeas succeed and is more drought resistant than any other annual legume. It may be utilized as hay, pasturage, or silage." (C. *V. Piper.*)

For previous introduction, see S. P. I. No. 43503.

49865. PASPALUM FASCICULATUM Willd. Poaceæ. **Grass.**

From Coban, Guatemala. Seeds presented by Gustav Helmrich at the request of Wilson Popenoe. Received April 19, 1920.

"*Oxay.* This grass is used here as cattle feed. It is generally propagated by suckers; among thousands of plants very few produce any flowers, and I do not know if the seeds germinate." (*Helmrich.*)

49866 to 49869.

From Christiania, Norway. Seeds presented by Dr. N. Wille, director, Botanic Garden. Received April 25, 1920.

49866. ANCHUSA OFFICINALIS L. Boraginaceæ.

The common European alkanet, a biennial or perennial plant 1 to 2 feet high, with hairy leaves and bright-blue or purple flowers opening in pairs on loose one-sided spikes. Effective in masses and of easy cultivation.

49866 to 49869—Continued.

49867. CERINTHE MINOR L. Boraginaceæ.

A European plant with yellow or purple spotted flowers in long racemes. (Adapted from *Boissier, Flora Orientalis, vol. 4, p. 148.*)

49868. RANUNCULUS GLACIALIS L. Ranunculaceæ.

A plant 3 to 6 inches in height, with beautiful silky white flowers suffused beneath with purple; native to the Arctic regions of Europe, Asia, and America, at altitudes of 6,500 to 13,000 feet. (Adapted from *Gardeners' Chronicle, third series, vol. 53, p. 117.*)

49869. THALICTRUM ANGUSTIFOLIUM L. Ranunculaceæ.

A plant from southern and middle Europe, with 3-parted leaves and flowers in dense corymbs. (Adapted from *Boissier, Flora Orientalis, vol. 1, p. 9.*)

49870. VIGNA LUTEA (Swartz) A. Gray. Fabaceæ.

(*V. retusa* Walp.)

From Lamao, Bataan, Philippine Islands. Seeds presented by P. J. Wester, agricultural adviser, Lamao Horticultural Station. Received April 27, 1920.

"Seeds of the *silani*, a native perennial, trailing, and climbing vine which I have recently domesticated, principally for trial as a cover crop. It is easily grown from cuttings, and until it becomes too common it could be used as an ornamental climber in countries where it does not grow wild." (*Wester.*)

For previous introduction, see S. P. I. No. 31607.

49871. CISSUS HYPOGLAUCA A. Gray. Vitaceæ.

(*Vitis hypoglauca* F. Muell.)

From San Diego, Calif. Seeds presented by Miss Kate Sessions. Received May 7, 1920.

An Australian evergreen climber attaining an enormous length, forming when old a very stout stem, and bearing black berries which are the size of small cherries. The plant endures slight frost, though evergreen. It is best in cool climates to keep seedlings for two or three years under shelter, so that sufficient development of the woody stem may take place in the plant subsequently to resist some degree of frost. This species may perhaps be vastly changed by continued culture. (Adapted from *Mueller, Select Extra-Tropical Plants, p. 563.*)

The use of this vine on a pergola is shown in Plate II.

49872 and 49873. CITRULLUS VULGARIS Schrad. Cucurbitaceæ. **Watermelon.**

From Chico, Calif. Seeds from plants grown from a shipment of seeds from A. D. Voyeikoff, Vladivostok, Siberia, May 17, 1920. Numbered for convenience in distribution June 15, 1920.

"This seed was planted June 15. On August 1 (45 days after planting the seed) fruits were ripe. The melons are not large, ranging from about 8 to 12 or 14 inches in diameter, nearly round, and of a purplish green color, very unusual and peculiar in appearance. The quality is fair to good. While this melon would not compete with the commercial types developed and grown here in a section highly favorable to melon production, the short season required for its development would seem to me to make it a valuable thing for many sections.

"In collecting the seed one vine was found with melons having yellow flesh; the remainder had red flesh." (*H. E. Allanson.*)

49872. Red-fleshed. **49873.** Yellow-fleshed.

49874 and 49875.

From Elizabethville, Belgian Kongo. Bulbs collected by Dr. H. L. Shantz, Agricultural Explorer of the United States Department of Agriculture. Received April 10, 1920. Quoted notes by Doctor Shantz.

49874. GLORIOSA sp. Melanthiaceæ.

"(No. 360. December 26, 1919.) This is the most prominent lily at this period. Some of the plants bear as many as seven or eight flowers which vary in color from all red to red and yellow. It is an exceptionally good lily for cut flowers, since it keeps perfectly for a long time."

49875. OXALIS PUNCTATA GLABRATA Sond. Oxalidaceæ. **Oxalis.**

"(No. 361. December 26, 1919.) A small pink-flowered oxalis now in bloom; it is small but forms attractive tufts, the flowers extending a short distance above the leaves. It grows most commonly on ground cleared of trees and brush. The flowers appear at the beginning of the rainy season."

49876 to 49882.

From Kindu, Belgian Kongo. Collected by Dr. H. L. Shantz, Agricultural Explorer of the United States Department of Agriculture. Received April 10, 1920. Quoted notes by Doctor Shantz.

49876. ARACHIS HYPOGAEA L. Fabaceæ. **Peanut.**

"(No. 501. January 26, 1920.) Peanuts grown by the natives; one of the staple crops."

49877. CURCUMA LONGA L. Zinziberaceæ.

"(No. 520. January 28, 1920.) Roots of the plant turmeric; grown by the natives."

49878. ELAEIS GUINEENSIS Jacq. Phœnicaceæ. **Oil palm.**

"(No. 495. January 26, 1920.) Seeds of the oil palm which is the chief palm of this region and the most important native plant."

49879 and 49880. ORYZA SATIVA L. Poaceæ. **Rice.**

49879. "(No. 489. January 26, 1920.) Rice grown with corn on the east side of the river. Often 5 feet high and no straighthead."

49880. "(No. 502. January 26, 1920.) Rice grown by natives. This is the most important crop of this section; it is grown following corn (apparently sown at the same time) and on the higher, better-drained land; presents a fine appearance. I have noticed no disease on either rice or corn."

49881. VOANDZEIA SUBTERRANEA (L.) Thouars. Fabaceæ.

"(No. 497. January 26, 1920.) The native groundnut of Africa; by no means as common as the peanut. The seeds are boiled with the husks on before they are ripe and are a fair substitute for the potato, but have a flavor slightly similar to that of the peanut."

For previous introduction, see S. P. I. No. 44817.

49882. ZEA MAYS L. Poaceæ. **Corn.**

"(No. 488. January 26, 1920.) Grown by the natives as an early crop with rice, on the east side of the river."

49883. DIOSPYROS LOTUS L. Diospyraceæ.

From Yokohama, Japan. Seeds received at Chico, Calif., from the Yokohama Nursery Co., April 12, 1920.

Introduced for use as rootstocks for the oriental persimmons in semiarid and alkali sections of the United States.

For previous introduction, see S. P. I. No. 44688.

49884 and 49885.

From New York, N. Y. Seeds presented by J. W. Pincus. Received April 12, 1920.

49884. TRIFOLIUM PRATENSE L. Fabaceæ. **Red clover.**

"This is the so-called Rozendaal clover, as grown in Holland. It has no hairs on the stems or leaves and is considered very much superior to any clover grown in this country. It could be raised successfully in localities where clover is grown under irrigation. In other places, owing to the abundance of native hairy clovers, the bees cross-fertilize the plants and it is impossible to get them pure." (*Pincus.*)

49885. VICIA SATIVA L. Fabaceæ.

[Sent in as lupine seed.]

49886. (Undetermined.)

From India. Seeds collected by Capt. F. Kingdon Ward, London, England. Received April 13, 1920.

"(Htawgaw Hill tracts, Burma, India. June, 1919.) A small tree 30 feet high, which grows wild in the forest on the northeast frontier of Burma, India, and bears fruit the size of a small plum. It is grown by the Lisus of the Htawgaw Hill tracts in clayey soil (disintegrated granite) in open clearings in villages at altitudes of 5,000 to 6,000 feet. The fruit is excellent, slightly acid, thirst quenching, first-rate for cooking or jam, and good as a table fruit. It ripens in June, just before the rains break. The climate is wet at all seasons, the winters cold (30° to 40° F.), and the summers warm (70° to 80° F.). The tree may be useful for grafting. Maru name *she-ham-shi.*" (*Ward.*)

49887. SACCHARUM OFFICINARUM L. Poaceæ. **Sugar cane.**

From Santiago de las Vegas, Cuba. Cuttings presented by Dr. Mario Calvino, director, Agricultural Experiment Station. Received April 13, 1920.

"This variety, *Uba del Natal,* is supposed to be immune to the red-stripe disease." (*B. T. Galloway.*)

49888. TRIFOLIUM PRATENSE L. Fabaceæ. **Red clover.**

From Valparaiso, Chile. Seeds purchased through Carl F. Deichman, American consul. Received April 13, 1920.

Chilean red clover.

49889. PINUS GERARDIANA Wall. Pinaceæ. **Chilgoza pine.**

From Rawalpindi, Punjab, India. Seeds presented by Dr. Ralph R. Stewart, Gordon College. Received April 14, 1920.

The Chilgoza pine is a moderate-sized tree found native in the inner dry and arid valleys of the northwestern Himalayas, generally at altitudes of 6,000 to 12,000 feet. It is quite hardy, enduring high winds and severe winters with heavy snows. The chief product of this tree is the edible seed, nearly an inch long; these are very nutritious and agreeable in flavor, forming the staple food of the natives. (Adapted from *letter of W. H. Michael, consul general, Calcutta,* and *India Forest Department Bulletin No. 7, 1906.*)

For previous introduction, see S. P. I. No. 40216.

49890. ACACIA BUXIFOLIA A. Cunn. Mimosaceæ.

From Tangier, Morocco. Seeds presented by M. Jules Goffart. Received April 14, 1920.

An Australian shrub, 4 feet in height, with angular branchlets and small, rather thick phyllodia. The short racemes, scarcely longer than the phyllodia, bear globular heads of flowers. (Adapted from *Bentham, Flora Australiensis, vol. 2, p. 372.*)

For previous introduction, see S. P. I. No. 47366.

49891 to 49894.

From Sydney, New South Wales, Australia. Seeds presented by the Forestry Commission, New South Wales, through George Valder, Director of Agriculture. Received April 15, 1920. Quoted notes by Mr. Valder.

49891. ATALAYA HEMIGLAUCA F. Muell. Sapindaceæ.

"*Whitewood.*"

One of the inland fodder trees which favorably attracted the attention of stock owners in the early days of the pastoral occupation of New South Wales. The tree attains a height of 30 feet and has large compound whitish leaves with leaflets sometimes 8 inches long but usually smaller. The numerous terminal clusters of flowers are succeeded by winged fruits. From the trunk exudes a gum which sometimes accumulates in masses weighing more than half a pound. When grass and other herbage fails the leaves are taken from the tree and fed to cattle, for which it makes a good feed. (Adapted from *The Pastoral Finance Association Magazine, vol. 5, No. 18, p. 33.*)

49892. GEIJERA PARVIFLORA Lindl. Rutaceæ.

"*Wilga.* From Nyngan, New South Wales."

A tall shrub or tree, native to the interior of New South Wales, where it reaches a height of about 30 feet. It has slender, pendulous branches and narrow leaves 3 to 6 inches long, and a well-developed specimen has a highly ornamental appearance, having something of the aspect of a weeping willow. It has remarkable drought-enduring qualities, and the leaves are often fed to sheep, which are very fond of them. (Adapted from *The Pastoral Finance Association Magazine, vol. 5, No. 18, p. 132.*)

49893. MIDA ACUMINATA (R. Br.) Kuntze. Santalaceæ. **Quandong.**
(*Fusanus acuminatus* R. Br.)

The quandong, sometimes called "native peach," is a tree 20 to 30 feet high and is found in the hotter and drier parts of New South Wales. Its drought-enduring qualities are wonderful, for its growth seems to be affected neither by drought nor by the hot winds which periodically blow over the interior. The leaves are much relished by sheep and cattle, and the red fruits, up to 3 inches in circumference, are much valued for the edible succulent outer parts which are used for preserves, resembling the guava in flavor. The kernels are also edible and contain a large percentage of oil which when burned gives a good light. (Adapted from *The Pastoral Finance Association Magazine, vol. 5, No. 18, p. 33.*)

For previous introduction, see S. P. I. No. 43423.

49894. OWENIA ACIDULA F. Muell. Meliaceæ.

The *gruie*, or *sour plum*, is a highly ornamental, umbrageous tree, native to New South Wales, where it grows to be about 25 feet in height. It is regarded as a good fodder tree, as stock are very fond of its leaves. The ripe fruit is 3 to 4 inches in circumference, rich crimson, and the succulent outer portion is rather acidulous in flavor. The stone is exceedingly hard, and the tree is very hard to propagate by ordinary methods. (Adapted from *The Pastoral Finance Association Magazine, vol. 5, No. 18, p. 33.*)

49895 to 49897. ANANAS SATIVUS Schult. f. Bromeliaceæ. **Pineapple.**

From Singapore, Straits Settlements. Suckers presented by the acting director of the Botanic Gardens. Received April 15, 1920.

49895. *Ruby.*

49896. *Mauritius.*

49897. *Sarawak.*

49898. LINUM NARBONENSE L. Linaceæ. **Flax.**

From Verrieres, France. Seed presented by Jacques de Vilmorin. Received April 17, 1920.

A most desirable plant from southern Europe, with linear leaves and a graceful drooping habit; it is 2½ feet across and 18 inches high. The flowers, which appear throughout the summer, are arranged in a loose panicle, with long pedicels. Each flower is 1½ inches across, bright azure-blue, somewhat paler beneath, with white anthers and a white spot in the center of each flower. (Adapted from *The Garden, vol. 52, p. 401.*)

49899 to 49902. CYAMOPSIS TETRAGONOLOBA (L.) Taub. Fabaceæ. (*C. psoraloides* DC.) **Guar.**

From Poona, Bombay Presidency, India. Seeds presented by A. A. Vasavada, Agricultural Branch. Received April 19, 1920.

"An erect East Indian leguminous annual, with long, straight stems bearing an enormous number of pods, each containing about seven pale, angular seeds. The plant grows 3 to 6 feet in height; in India it is cultivated both for green forage and for the seed, which is used mainly for feeding cattle and also as human food. Guar may be grown anywhere in the country where cowpeas succeed and is more drought resistant than any other annual legume. It may be utilized as hay, pasturage, or as silage." (*C. V. Piper.*)

49899. *Gawar Makhnisa.*

49900. *Gawar Pardeshi.*

49901. *Gawar Satia.*

49902. Local *Gawar.*

For previous introduction, see S. P. I. No. 43503.

49903 and 49904. CYAMOPSIS TETRAGONOLOBA (L.) Taub. Fabaceæ. (*C. psoraloides* DC.) **Guar.**

From Nagpur, Central Provinces, India. Seeds presented by K. P. Shrivastava, officiating economic botanist. Received April 19, 1920. Quoted notes by Mr. Shrivastava.

"I am sending seeds of the following two varieties, which are cultivated generally around Nagpur; both are generally grown during the rainy season."

49903. "*Telia Guar Phali.*"

49904. "*Deshi Guar Phali.*"

For previous introduction, see S. P. I. No. 49900.

49905 to 49910.

From Peking, Chihli, China. Presented by N. H. Cowdry, Peking Union Medical College. Received April 21, 1920. Quoted notes by Mr. Cowdry.

49905. CLEMATIS sp. Ranunculaceæ. **Clematis.**

"Seed of an upright species."

49906. DIOSPYROS LOTUS L. Diospyraceæ.

"Fruits which are very commonly sold in Peking."

For previous introduction, see S. P. I. No. 44688.

49905 to 49910—Continued.

49907. IRIS DICHOTOMA Pall. Iridaceæ. **Iris.**

"Seed of a handsome solitary plant, flowering in August."

49908. IRIS sp. Iridaceæ. **Iris.**

"Seed of a beautiful early spring flower."

49909. SCABIOSA sp. Dipsacaceæ.

"*Admiral Wo.* Seeds given to me by a Chinese friend, who says the flowers are large and blue. Growing only in one locality."

49910. ZIZIPHUS JUJUBA Mill. Rhamnaceæ. **Jujube.**
(*Z. sativa* Gaertn.)

"Fruits of the Chinese date. A very common tree in gardens."

For previous introduction, see S. P. I. No. 44687.

49911 to 49921.

From Techow, Shantung, China. Seeds presented by Miss Alice Reed through Prof. Henry Conrad, Grinnell College, Grinnell, Iowa. Received April 21, 1920. Quoted notes by Miss Reed.

49911. ALLIUM CEPA L. Liliaceæ. **Onion.**

"*Ts'ung* onions. Plant in early summer or at any time."

49912. APIUM GRAVEOLENS L. Apiaceæ. **Celery.**

"*Chinese* celery. Plant in spring."

49913. BETA VULGARIS L. Chenopodiaceæ. **Beet.**

"*Ken tang ts'ai.* Plant in spring."

49914 and **49915.** BRASSICA PEKINENSIS (Lour.) Gagn. Brassicaceæ. **Pai ts'ai.**

49914. "*Ta pai ts'ai.* Mammoth cabbage. Plant in summer; matures in late autumn for winter use."

49915. "*Pai ts'ai.* Spring cabbage. Plant in spring."

49916. DAUCUS CAROTA L. Apiaceæ. **Carrot.**

"*Hung do Pei.* Plant in early summer."

49917. PHASEOLUS AUREUS Roxb. Fabaceæ. **Mung bean.**

"Small green bean."

49918 to 49920. SOJA MAX (L.) Piper. Fabaceæ. **Soy bean.**
(*Glycine hispida* Maxim.)

49918. "Black bean."

49919. "Yellow bean."

49920. "Large green bean."

49921. SPINACIA OLERACEA L. Chenopodiaceæ. **Spinach.**

"*Po ts'ai.*"

49922 to 49954.

From Kew, England. Seeds presented by Sir David Prain, director, Royal Botanic Gardens. Received April 24, 1920.

49922. ANEMONE SYLVESTRIS L. Ranunculaceæ.

A European plant commonly called snowdrop anemone because of the drooping habit of the flowers before fully expanding, giving it a certain resemblance to the snowdrop (*Galanthus nivalis*). The white flowers, 1½ inches in diameter, are borne on long peduncles which arise singly from an involucre of leaves. These leaves are ternate or quinate with deeply toothed leaflets and are hairy on the undersurface. (Adapted from *The Garden, vol. 65, p. 73.*)

49922 to 49954—Continued.

49923. ANEMONE VITIFOLIA Buch.-Ham. Ranunculaceæ.

An ornamental plant, 1½ to 3 feet high, with white flowers. Common in Nepal.

For previous introduction, see S. P. I. No. 47693.

49924. BERBERIS ANGULOSA Wall. Berberidaceæ. **Barberry.**

A deciduous shrub from India, 4 feet or more high, with dark glossy green leaves, orange-yellow flowers, two-thirds of an inch across, and scarlet fruits.

49925. BERBERIS BEANIANA C. Schneid. Berberidaceæ. **Barberry.**

A shrub with vigorous shoots, yellow spines, small yellow flowers, and purple plum-shaped fruits. (Adapted from *Sargent, Plantae Wilsonianae, vol. 3, p. 439.*)

49926. BERBERIS CONCINNA Hook. f. Berberidaceæ. **Barberry.**

A low bush of compact habit with lustrous green leaves white beneath, deep-yellow flowers, and red berries. Native to the Sikkim Himalayas.

For previous introduction, see S. P. I. No. 40145.

49927. BERBERIS DUBIA C. Schneid. Berberidaceæ. **Barberry.**

A Chinese shrub with ovate leaves paler beneath and with flowers in short racemes. (Adapted from *Bulletin de l'Herbier Boissier, second series, vol. 5, p. 663.*)

49928. BERBERIS LYCIUM Royle. Berberidaceæ. **Barberry.**

A Himalayan plant that yields the Indian "rasout," an extract from the root used to allay inflammation of the eyes; also employed by the natives in the treatment of fevers of all kinds. The beautiful purple fruit is covered with a delicate bloom, is edible, and is dried and exported. (Adapted from *Curtis's Botanical Magazine, pl. 7075.*)

For previous introduction, see S. P. I. No. 30769.

49929. BERBERIS AGGREGATA PRATTII C. Schneid. Berberidaceæ. **Barberry.**

A western Chinese shrub, 6 to 10 feet high, with yellow flowers in narrow panicles and ovoid salmon-red fruits.

For previous introduction, see S. P. I. No. 44527.

49930. BERBERIS SOULIEANA C. Schneid. Berberidaceæ. **Barberry.**

A plant with very firm leaves having rather spreading spinose teeth and distinctly glaucous globose fruits. (Adapted from *Sargent, Plantae Wilsonianae, vol. 3, p. 437.*)

For previous introduction, see S. P. I. No. 40682.

49931. BERBERIS THIBETICA C. Schneid. Berberidaceæ. **Barberry.**

A red-fruited bush, 1½ to 2 meters high, found in thickets at an altitude of 3,200 to 3,400 meters in western Szechwan.

49932. BERBERIS UMBELLATA Wall. Berberidaceæ. **Barberry.**

An erect straggling Himalayan shrub, 8 to 10 feet high, with oblong berries.

For previous introduction, see S. P. I. No. 33023.

49933. BERBERIS HOOKERI Lem. Berberidaceæ. **Barberry.**
(*B. wallichiana* Hook., not DC.)

A yellow-flowered shrub, native to forests at altitudes of 8,000 to 10,000 feet in the temperate portions of the Himalayas. It has evergreen lanceolate leaves and blackish purple, shining berries. (Adapted from *Hooker, Flora of British India, vol. 1, p. 110.*)

For previous introduction, see S. P. I. No. 44381.

49922 to 49954—Continued.

49934. CLEMATIS AETHUSIFOLIA Turcz. Ranunculaceæ.

A free-growing deciduous climber from China, 5 to 6 feet high, with densely tangled slender stems and finely divided foliage. The attractive pale-yellow blossoms are produced profusely.

49935. CLEMATIS FARGESII Franch. Ranunculaceæ.

A 20-foot climber with white flowers which are 2 inches across in 3-flowered long-stalked axillary cymes.

49936. CLEMATIS FUSCA Turcz. Ranunculaceæ.

A semiherbaceous climber from northeastern Asia, with woolly reddish brown pitcher-shaped flowers. The seed vessels are covered with yellow-brown silky hairs.

49937. CLEMATIS REHDERIANA Craib. Ranunculaceæ.

A Chinese woody climber with pinnate chartaceous leaves which are pale beneath and compact axillary panicles of flowers. The sepals are 1.7 centimeters long, reflexed at the tip, pilose on the outer surface, smooth on the inner. (Adapted from *Kew Bulletin of Miscellaneous Information, 1914, p. 150.*)

49938. CLEMATIS VEITCHIANA Craib. Ranunculaceæ.

A Chinese woody climber with bipinnate chartaceous leaves and long lax axillary inflorescences of gracefully drooping flowers with ciliated sepals. (Adapted from *Kew Bulletin of Miscellaneous Information, 1914, p. 151.*)

49939. DEUTZIA CORYMBOSA R. Br. Hydrangeaceæ.

This pretty species has a special value by reason of its late, continuous flowering, being at its best in July and August, when the bush is covered with the corymbose clusters of pure-white flowers not far removed in form or purity of color from those of *Bouvardia jasminoides.* (Adapted from *Gardening Illustrated, vol. 39, p. 501.*)

49940. DEUTZIA LONGIFOLIA Franch. Hydrangeaceæ.

A deciduous shrub, 4 to 6 feet high, one of the handsomest garden plants of the genus. The young shoots are covered with a pale scurf and the leaves are whitish below. The rosy flowers, about an inch across, are borne in rounded cymose clusters 2 to 3 inches across. (Adapted from *Gardeners' Chronicle, third series, vol. 51, p. 409.*)

For previous introduction, see S. P. I. No. 42691.

49941. DEUTZIA LONGIFOLIA VEITCHII (Veitch) Rehder. Hydrangeaceæ.

This vigorous plant from Yunnan, China, has large, brilliantly colored, deep rose-lilac flowers, disposed in numerous little clusters the entire length of the branches.

For previous introduction, see S. P. I. No. 42691.

49942. DEUTZIA MOLLIS Duthie. Hydrangeaceæ.

A very distinct and beautiful species from central China. The white or pink-tinged flowers are in flat corymbose panicles. (Adapted from *Gardeners' Chronicle, third series, vol. 40, p. 238.*)

49943. DEUTZIA SIEBOLDIANA Maxim. Hydrangeaceæ.

The lowest growing of all the Deutzias, of a very compact habit. It has small white flower panicles which are not very conspicuous; but it is a very graceful shrub. (Adapted from *Gardening Illustrated, vol. 39, p. 335.*)

49922 to 49954—Continued.

49944. DEUTZIA VILMORINAE Lemoine and Bois. Hydrangeaceæ.

A plant of vigorous growth with pure-white flowers, suggestive of some of the smaller growing kinds of Philadelphus, a resemblance which is increased by the lateness of its flowering period. It is a native of China. M. Lemoine, of Nancy, has raised hybrids between this species and different forms of *Deutzia crenata* or *D. scabra*, which flower at about the same time and thus usually escape injury from late spring frosts which often damage the flowers of the earlier kinds. As the parents of these are among the most desirable of our early-flowering shrubs and valuable from the fact that many spring-flowering subjects are over before their blossoms develop, these newer hybrids should prove good acquisitions. (Adapted from *Gardening Illustrated, vol. 39, p. 362.*)

For previous introduction, see S. P. I. No. 35184.

49945. DIERVILLA SESSILIFOLIA Buckl. Caprifoliaceæ.

A beautiful free-flowering North American plant with light pea-green leaves 8 inches long and 3 to 4 inches broad and pretty sweet-scented light-yellow flowers. (Adapted from *Gardeners' Chronicle, third series, vol. 42, p. 427.*)

49946. DEUTZIA WILSONI Duthie. Hydrangeaceæ.

A very handsome Chinese shrub with reddish brown bark, soon peeling, and scabrous oblanceolate leaves 3 to 4½ inches long. The white flowers, nearly 1 inch across, are in open corymbs; the petal margins are wavy and hooded. (Adapted from *Curtis's Botanical Magazine, pl. 8083.*)

49947. LONICERA ALPIGENA L. Caprifoliaceæ. **Honeysuckle.**

A central European deciduous shrub, 4 to 8 feet high, with paired red-tinged yellow flowers on long stalks and red cherrylike fruits.

49948. PHILADELPHUS ACUMINATUS Lange. Hydrangeaceæ.

A Chinese shrub 10 feet high, with hard-tipped serrate leaves and very fragrant white flowers.

49949. PHILADELPHUS LEWISII Pursh. Hydrangeaceæ.

One of the most floriferous of all the taller species, with graceful pendulous branches. The white flowers are more than an inch across. Native to western North America.

49950. PHILADELPHUS PEKINENSIS Rupr. Hydrangeaceæ.

A free-flowering Chinese shrub with slightly fragrant yellowish flowers about 1 inch across, produced in racemes of five to nine.

49951. ROSA GLUTINOSA Sibth. and Smith. Rosaceæ. **Rose.**

A dwarf sweetbrier, ranging from Italy eastward to Persia, with short compact branches and white flowers tinged with pink. The small globose fruits are bright red. (Adapted from *Willmott, The Genus Rosa, pl. 150.*)

49952. ROSA MOLLIS J. E. Smith. Rosaceæ. **Rose**

A compact rose, often not more than 3 feet high, with short erect stems and broadly oval leaflets clothed with soft-gray pubescence on both surfaces. The flowers are usually pink, occasionally white, and the early ripening red pulpy fruits with erect persistent sepals are often pendulous and very ornamental. (Adapted from *Willmott, The Genus Rosa, pl. 138.*)

49953. ROSA SERAFINII Viv. Rosaceæ. **Rose.**

A dwarf, densely branching leafy bush with dark-green leaves and solitary bright rose-colored flowers. The pea-shaped fruits are red changing to black. Native to Corsica, Sardinia, Sicily, and the Apuan and Maritime Alps. (Adapted from *Curtis's Botanical Magazine, pl. 7761.*)

For previous introduction, see S. P. I. No. 32961.

49922 to 43954—Continued.

49954. ROSA WEBBIANA Wall. Rosaceæ. **Rose.**

A rose common in the central Himalayas, at altitudes of 6,000 to 13,000 feet. The great beauty of this rose lies in the young shoots which at first are absolutely blue and covered with large pure-white thorns. It has the smallest leaves of any cultivated rose. The flowers are pink, moderately large, and the globose coriaceous fruit is nodding. (Adapted from *Willmott, The Genus Rosa, pl. 76.*)

For previous introduction, see S. P. I. No. 40191.

49955 to 49976.

From Africa. Seeds collected by Dr. H. L. Shantz, Agricultural Explorer of the United States Department of Agriculture. Received April 5, 1920. Quoted notes by Doctor Shantz.

49955. ADENANTHERA PAVONINA L. Mimosaceæ. **Coral-bean tree.**

"(No. 384. Elizabethville, Belgian Kongo. December 29, 1919.) A leguminous tree with bright-red beans, used as a street tree in Elizabethville."

For previous introduction, see S. P. I. No. 42355.

49956. ALBIZZIA LEBBECK (L.) Benth. Mimosaceæ. **Lebbeck tree.**

"(No. 379. Elizabethville, Belgian Kongo. December 28, 1919.) An attractive tree for ornamental purposes or as a street tree."

For previous introduction, see S. P. I. No. 42809.

49957. ASPARAGUS sp. Convallariaceæ.

"(No. 374. Victoria Falls, Southern Rhodesia. November 17, 1919.) A large spiny type."

49958. BERLINIA sp. Cæsalpiniaceæ.

"(No. 375. Victoria Falls, Southern Rhodesia. November 17, 1919.) Seeds of a leguminous tree."

49959. BIDENS PILOSA L. Asteraceæ.

"(No. 378. Elizabethville, Belgian Kongo. December 28, 1919.) A very common plant in this part of the Kongo; it makes a splendid forage plant, but has weedy tendencies. [It is the same as No. 188, S. P. I. No. 49292.]"

49960. BRACHYSTEGIA sp. Cæsalpiniaceæ.

"(No. 377. Victoria Falls, Southern Rhodesia. November 17, 1919.) A leguminous tree."

49961. CASSIA DIDYMOBOTRYA Fres. Cæsalpiniaceæ.

"(No. 380. Elizabethville, Belgian Kongo. December 28, 1919.) A sennalike ornamental shrub; good for parking."

For previous introduction, see S. P. I. No. 43649.

49962. COFFEA EXCELSA Cheval. Rubiaceæ. **Coffee.**

"(No. 369. Elizabethville, Belgian Kongo. December 27, 1919.) Said to be a native coffee; obtained from M. De Neuter, Elizabethville."

49963. COFFEA LAURENTII Wildem. Rubiaceæ. **Coffee.**
(*C. robusta* Hort.)

"(No. 368. Elizabethville, Belgian Kongo. December 27, 1919.) One of the best types for the Kongo; said to be a native coffee. Secured from M. De Neuter at Elizabethville."

For previous introduction, see S. P. I. No. 32359.

49955 to 49976—Continued.

49964. COMBRETUM sp. Combretaceæ.

"(No. 382a. Elizabethville, Belgian Kongo. December 29, 1919.) One of the prominent trees of this section; often large."

49965. CYPHOMANDRA BETACEA (Cav.) Sendt. Solanaceæ. **Tree-tomato.**

"(No. 382. Elizabethville, Belgian Kongo. December 29, 1919.) This plant does well here in cultivation and produces quantities of egg-shaped fruits. It grows rapidly and lives about four years."

For previous introduction, see S. P. I. No. 44913.

49966. ELEUSINE CORACANA (L.) Gaertn. Poaceæ. **Ragi millet.**

"(No. 359. Sakania, Belgian Kongo. December 17, 1919.) Said to be especially prized for making Kafir beer; grown only by the natives."

For previous introduction, see S. P. I. No. 46295.

49967 and **49968.** HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

49967. "(No. 358 Sakania, Belgian Kongo. December 17, 1919.) The type grown by natives of this section. I have seen fields broadcast, but as a rule it is grown in hills like corn."

49968. "(No. 365a. Elizabethville, Belgian Kongo. December 27, 1919.) A white kafir grown by the natives and one of the chief food staples. The seed looks quite uniform and much like our white-hulled kafir. Grown at Munama Experiment Station."

49969 and 49970. ORYZA SATIVA L. Poaceæ. **Rice.**

49969. "(No. 366. Elizabethville, Belgian Kongo. December 27, 1919.) A late variety grown without irrigation by the natives at Stanleyville, known to the natives as *kinyeki*. The grain breaks up easier and it is three weeks later than No. 367 [S. P. I. No. 49970]. Obtained from M. De Neuter, Chef du Service de l'Agriculture, Elizabethville."

49970. "(No. 367. Elizabethville, Belgian Kongo. December 27, 1919.) An early rice known as *mutselu* by the natives who grew it at Stanleyville. It is grown with rain only or as dry-land rice; no irrigation. It is three or four weeks earlier than No. 366 [S. P. I. No. 49969]. Obtained from M. De Neuter, Elizabethville."

49971. PLECTRONIA sp. Rubiaceæ.

"(No. 385. Elizabethville, Belgian Kongo. December 29, 1919. Herb. No. 500.) A low shrubby plant with white or greenish flowers and black berries."

49972. SOLANUM sp. Solanaceæ.

"(No. 371. Elizabethville, Belgian Kongo. December 27, 1919.) A decorative Solanum, with deep-lavender flowers 1½ inches wide and deep-orange fruits 1½ inches in diameter."

49973. TRISTACHYA BISERIATA Stapf. Poaceæ. **Grass.**

"(No. 381. Elizabethville, Belgian Kongo. December 29, 1919. Herb. No. 502.) One of the taller, coarser grasses. It has three awns like an Aristida, but two of these are very small. All grasses of this section grow on a continuous grass floor under the tall spreading forest trees. They should be tried in the Southern States. Drought obtains here from July to November, inclusive, with rain the rest of the year."

For previous introduction, see S. P. I. No. 23923.

49955 to 49976—Continued.

49974. ZEA MAYS L. Poaceæ. **Corn.**

"(No. 357. Sakania, Belgian Kongo. December 17, 1919.) The corn grown by the natives of this section; said to be small and early. It is planted mostly in small elevated beds about the native villages. Meal from this corn constitutes the chief food of the natives. This is a cool part of the Kongo, and the corn is probably an earlier type than will be found farther down."

49975. (Undetermined.)

"(No. 376. Victoria Falls, Southern Rhodesia. November 17, 1919.) Seeds of a medium-sized forest tree from the open forests of Zambesi region."

49976. (Undetermined.)

"(No. 383. Elizabethville, Belgian Kongo. December 29, 1919.) A tree which bears a large quantity of small, orange fruits with tough rinds and large pulp-covered seeds. The fruit is said to be eaten by the natives, but it does not taste very good and there is very little edible material on each fruit."

49977 to 50054.

From Belgian Kongo. Seeds collected by Dr. H. L. Shantz, Agricultural Explorer of the United States Department of Agriculture. Received April 6, 1920. Quoted notes by Doctor Shantz.

49977. ABELMOSCHUS ESCULENTUS (L.) Moench. Malvaceæ. **Okra.**
(*Hibiscus esculentus* L.)

"(No. 439. Bukama. January 16, 1920.) A tall okra plant with unusually short fruits which are used extensively. It is but rarely seen here and differs only slightly from the plant in our own gardens."

49978 and 49979. ANNONA MURICATA L. Annonaceæ. **Soursop.**

49978. "(No. 511. Kindu. January 27, 1920.) An introduced fruit, 6 inches long, with white flesh of very good flavor."

For previous introduction, see S. P. I. No. 47874.

49979. "(No. 527. Kongolo. February 1, 1920.) A large and unusually good soursop. It is grown both here and at Kindu."

49980. ANNONA RETICULATA L. Annonaceæ. **Custard-apple.**

"(No. 528. Kongolo. February 2, 1920.) A very good custard-apple; quite abundant here and said to produce fruit in three years from seed."

For previous introduction, see S. P. I. No. 45955.

49981. ARACHIS HYPOGAEA L. Fabaceæ. **Peanut.**

"(No. 467. Moyumba. January 20, 1920.) A variety of peanut grown by the natives; an important food crop."

49982. ASPARAGUS sp. Convallariaceæ. **Asparagus.**

"(No. 402. Kalule Sud. January 8, 1920.) An upright, rather spiny asparagus; a bush and not a vine. Valuable as an ornamental."

49983. BOTHRIOCLINE sp. Asteraceæ.

"(No. 401. Kalule Sud. January 8, 1920. Herb. No. 546.) A rather large-flowered plant which resembles Vernonia."

49984. BRACHIARIA BRIZANTHA (Hochst.) Stapf. Poaceæ. **Grass.**
(*Panicum brizanthum* Hochst.)

"(No. 404. Kalule Sud. January 8, 1920. Herb. No. 535.) A tall hairy leaved Chaetochloalike grass forming large clumps, with a luxuriant growth."

For previous introduction, see S. P. I. No. 43240.

49977 to 50054—Continued.

49985. CAESALPINIA PULCHERRIMA (L.) Swartz. Cæsalpiniaceæ.

"Seeds of this shrub or small tree were found with corn from Nionga, collected January 18, 1920. The plant is a leguminous ornamental widely distributed throughout the Tropics and has large open clusters of flowers whose petals are scarlet edged with gold."

49986. CAJAN INDICUM Spreng. Fabaceæ. **Pigeon-pea.**

"(No. 531. Kongolo. February 2, 1920.) A tall woody legume called a bean by the whites and said to be very good while still green."

49987. CANAVALI ENSIFORME (L.) DC. Fabaceæ. **Jack bean.**

"(No. 521. Kindu. January 28, 1920.) A large white bean grown by the natives and used in soups."

49988. CAPSICUM ANNUUM L. Solanaceæ. **Red pepper.**

"(No. 444. Nionga. January 28, 1920.) A variety of paprika with very narrow leaves and spreading habit; it is grown by the natives."

49989. CASSIA ALATA L. Cæsalpiniaceæ.

"(No. 526. Kongolo. February 1, 1920. Herb. No. 633.) A Cassia which forms an attractive shrub."

49990. CASSIA OCCIDENTALIS L. Cæsalpiniaceæ.

"(No. 449. Kadia. January 18, 1920. Herb. No. 593.) A yellow-flowered legume abundant on moist soil. It may be a good green manure for southern wet lands. A native told me the leaves were used as greens."

For previous introduction, see S. P. I. No. 42830.

49991. CASSIA sp. Cæsalpiniaceæ.

"(No. 400. Elizabethville. January 6, 1920.) A small bush used as an ornamental at Elizabethville."

49992. CHAETOCHLOA sp. Poaceæ. **Grass.**

"(No. 440. Kebelwe. January 17, 1920. Herb. No. 588.) A tall grass from moist soil near the river, where it grows up singly, not forming clumps."

49993. CLEOME sp. Capparidaceæ.

"(No. 474. Ankoro. January 21, 1920.) An attractive ornamental with pink flowers."

49994. COMBRETUM sp. Combretaceæ.

"(No. 514. Kindu. January 28, 1920. Herb. No. 630.) A shrub or vine with yellow flowers and the leaves of the flowering branches bright red."

49995. CRACCA sp. Fabaceæ.

"(No. 464. Kabwe. January 19, 1920. Herb. No. 598.) Seeds of a large velvet bean."

49996. CRACCA sp. Fabaceæ.

"(No. 469. Kayombe. January 20, 1920. Herb. No. 601.) Seeds of a pink legume; may be valuable as forage or for green manure."

49997. CUCURBITA PEPO L. Cucurbitaceæ. **Pumpkin.**

"(No. 455. Kadia. January 18, 1920.) Seeds of a pumpkin grown by the natives."

49998. DRACAENA sp. Liliaceæ.

"(No. 510. Kindu. January 27, 1920.) An attractive plant somewhat like Pandanus but with equally arranged leaves and red palmlike fruits."

49977 to 50054—Continued.

49999. ECHINOCHLOA PYRAMIDALIS (Lam.) Hitchc. and Chase. Poaceæ. (*Panicum pyramidalis* Lam.) **Grass.**

"(No. 473. Kapako, near Ankoro. January 21, 1920. Herb. No. 594.) A tall grass common along the river."

50000. ELAEIS GUINEENSIS Jacq. Phœnicaceæ. **Oil palm.**

"(No. 442. Nionga. January 18, 1920.) The most important palm of the Kongo. The pulp is eaten raw or roasted; also the oil is extracted from the pulp and from the kernel. It is abundant along the Lualaba south as far as the vicinity of Bukama. It is planted everywhere by the natives, and the tree always belongs to the man who planted it or to his descendants. It forms a fringe along the banks of the Lualaba. At Kindu and Kongolo there are trees, but it seems far less important here than farther south."

For previous introduction, see S. P. I. No. 48010.

50001. ELEUSINE CORACANA (L). Gaertn. Poaceæ. **Ragi millet.**

"(No. 446. Kadia. January 18, 1920.) Called 'millet'; a short, low-growing plant known in Luban as *luku*. It is the most important seed for the manufacture of beer; also used as a food."

For previous introduction, see S. P. I. No. 46295.

50002. ERIOSEMA sp. Fabaceæ.

"(No. 466. Moyumba. January 20, 1920. Herb. No. 599.) A leguminous shrub abundant on the river lands."

50003. ETHULIA CONYZOIDES L. Asteraceæ.

"(No. 450. Kadia. January 18, 1920. Herb. No. 592.) A lavender-flowered composite; this may be valuable as an ornamental."

50004. GOSSYPIUM sp. Malvaceæ. **Cotton.**

"(No. 529. Kongolo. February 2, 1920.) A cotton with a very long pod, secured from the Catholic Mission."

50005. GOSSYPIUM sp. Malvaceæ. **Cotton.**

"(No. 535. Kongolo. February 3, 1920. Herb. No. 643.) Seeds of a black-seeded, long-podded native cotton, probably the same as No. 533 [S. P. I. No. 50006]. The plants were growing wild around Kongolo and are believed by the whites to be native cotton. This particular one has fairly good lint."

50006. GOSSYPIUM sp. Malvaceæ. **Cotton.**

"(No. 533. Kongolo. February 2, 1920.) Cotton picked up at a trader's store; apparently secured from the natives."

50007. HIBISCUS sp. Malvaceæ.

"(No. 452. Kadia. January 18, 1920. Herb. No. 591.) An ornamental plant about 4 feet high, with lemon-yellow flowers marked with rich purple."

50008 and 50009. HOLCUS SORGHUM VERTICILLIFLORUS (Steud.) Hitchc. Poaceæ. **Tabucki grass.**

50008. "(No. 441. Nionga, west of Lake Kisali. January 17, 1920. Herb. No. 589.) Mixed seeds from plants growing near the village; abundant along the Lualaba River."

50009. "(No. 454. Kadia. January 18, 1920.)"

50010 and 50011. HOLCUS SORGHUM EFFUSUS (Hack.) Hitchc. Poaceæ. **Kamerun grass.**

50010. "(No. 460. Mulongo. January 19, 1920. Herb. No. 496.) Seeds of a tall plant on the uplands."

50011. "(No. 461. January 19, 1920.) Similar to No. 460 [S. P. I. No. 50010]."

49977 to 50054—Continued.

50012 to 50014. HOLCUS SORGHUM VERTICILLIFLORUS (Steud.) Hitchc. Poaceæ. **Tabucki grass.**

50012. "(No. 483. Malele. January 23, 1920. Herb. No. 610.) Seeds of a plant growing at the side of the track."

50013. "(No. 506. Kindu. January 27, 1920. Herb. No. 623.) Seeds from a plant on low land."

50014. "(No. 507. Kindu. January 27, 1920.) Seeds from a plant on the uplands."

50015. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

"(No. 516. Kindu. January 28, 1920.) Seeds of a grass very abundant here but never used by the natives."

50016. HOLCUS SORGHUM VERTICILLIFLORUS (Steud.) Hitchc. Poaceæ. **Tabucki grass.**

"(No. 524. Kongola. January 31, 1920.) Seeds."

50017 to 50019. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

50017. "(No. 387. Elizabethville. January 5, 1920.) White kafir."

50018. "(No. 445. Kadia. January 18, 1920.) Red kafir, known in the Luban language as *muki;* important for food."

50019. "(No. 530. Kongolo. February 2, 1920.) A white kafir grown east and south of here; called *mutama* by the natives."

50020. INULA sp. Asteraceæ.

"(No. 404. Kalule Sud. January 8, 1920.) An ornamental composite."

50021. JATROPHA CURCAS L. Euphorbiaceæ.

"(No. 459. Kulu. January 19, 1920.) A hedge plant with cottonlike leaves and upright habit. The fruits are yellow-green and three-fourths of an inch in diameter. The seed yields an oil."

For previous introduction, see S. P. I. No. 47916.

50022. KIGELIA sp. Bignoniaceæ.

"(No. 539. Kongolo. February 3, 1920.) The large sausage tree; abundant from the Zambezi to Kongolo."

50023. LUFFA CYLINDRICA (L.) Roem. Cucurbitaceæ.
(*L. aegyptiaca* Mill.)

"(No. 538. Kongolo. February 3, 1920. Herb. No. 642.) A variety of Luffa which grows wild here; not eaten by the natives."

For previous introduction, see S. P. I. No. 40533.

50024. LYCOPERSICON ESCULENTUM Mill. Solanaceæ. **Tomato.**

"(No. 463. Kabwe. January 19, 1920.) A small red tomato planted everywhere by the natives."

50025. MELOTHRIA sp. Cucurbitaceæ.

"(No. 409. Kalule Sud. January 19, 1920.) A small cucurbit with pointed, very pretty fruits; said to be eaten by the natives. The plant is a low climber or prostrate."

50026. MELOTHRIA sp. Cucurbitaceæ.

"(No. 457. Kadia. January 18, 1920.) A small red fruit, one-fourth of an inch in diameter; ornamental."

49977 to 50054—Continued.

50027. PHYSALIS PERUVIANA L. Solanaceæ. **Poha.**

"(No. 410. Kalule Sud. January 19, 1920.) The Cape gooseberry, which grows along the track."

For previous introduction, see S. P. I. No. 46681.

50028. PROTEA sp. Proteaceæ.

"(No. 406. Kalule Sud. January 8, 1920. Herb. No. 545.) A red shrub about a foot high."

50029. RICINODENDRON RAUTANENII Schinz. Euphorbiaceæ. **Manketti tree.**

"(No. 534. Kongolo. February 3, 1920. Herb. No. 417.) A timber and nut tree."

For an illustration of the manketti tree, see Plate III.

50030 and 50031. RICINUS COMMUNIS L. Euphorbiaceæ. **Castor-bean.**

50030. "(No. 451. Kadia. January 18, 1920.) Castor-oil beans."

50031. "(No. 532. Kongolo. February 2, 1920.)"

50032. SAPINDUS SENEGALENSIS Poir. Sapindaceæ. **Soapberry.**

"(No. 525. Kongolo. January 31, 1920.) Seeds of a tree whose fruits are used as a substitute for soap."

50033. SESAMUM ORIENTALE L. Pedaliaceæ. **Sesame.**

"(No. 512. Kindu. January 28, 1920.) Seeds of sesame grown by natives for its oil."

50034. SESAMUM ANGOLENSE Welw. Pedaliaceæ. **Sesame.**

"(No. 475. Below Kambi. January 21, 1920. Herb. No. 600.) Seeds of a sesame, abundant all along the river; this is a wild form with a larger flower than the cultivated kind."

50035. SOLANUM MELONGENA L. Solanaceæ. **Eggplant.**

"(No. 399. Elizabethville. January 6, 1920.) A red eggplant, very small but sold when still green; secured from the native market."

50036. SOLANUM sp. Solanaceæ.

"(No. 403. Kalule Sud. January 8, 1920. Herb. No. 533.) A small orange-fruited Solanum with berries half an inch in diameter. The plant is about 3 feet high and makes a fairly good ornamental."

50037. SPOROBOLUS PYRAMIDALIS Beauv. Poaceæ. **Grass.**

"(No. 519. Kindu. January 28, 1920. Herb. No. 631.) A species of Sporobolus grown on poor land."

50038. TRICHOLAENA ROSEA Nees. Poaceæ. **Natal grass.**

"(No. 536. Kongolo. February 3, 1920.) This seems a taller and much more branched grass here than farther south."

For previous introduction, see S. P. I. No. 41921.

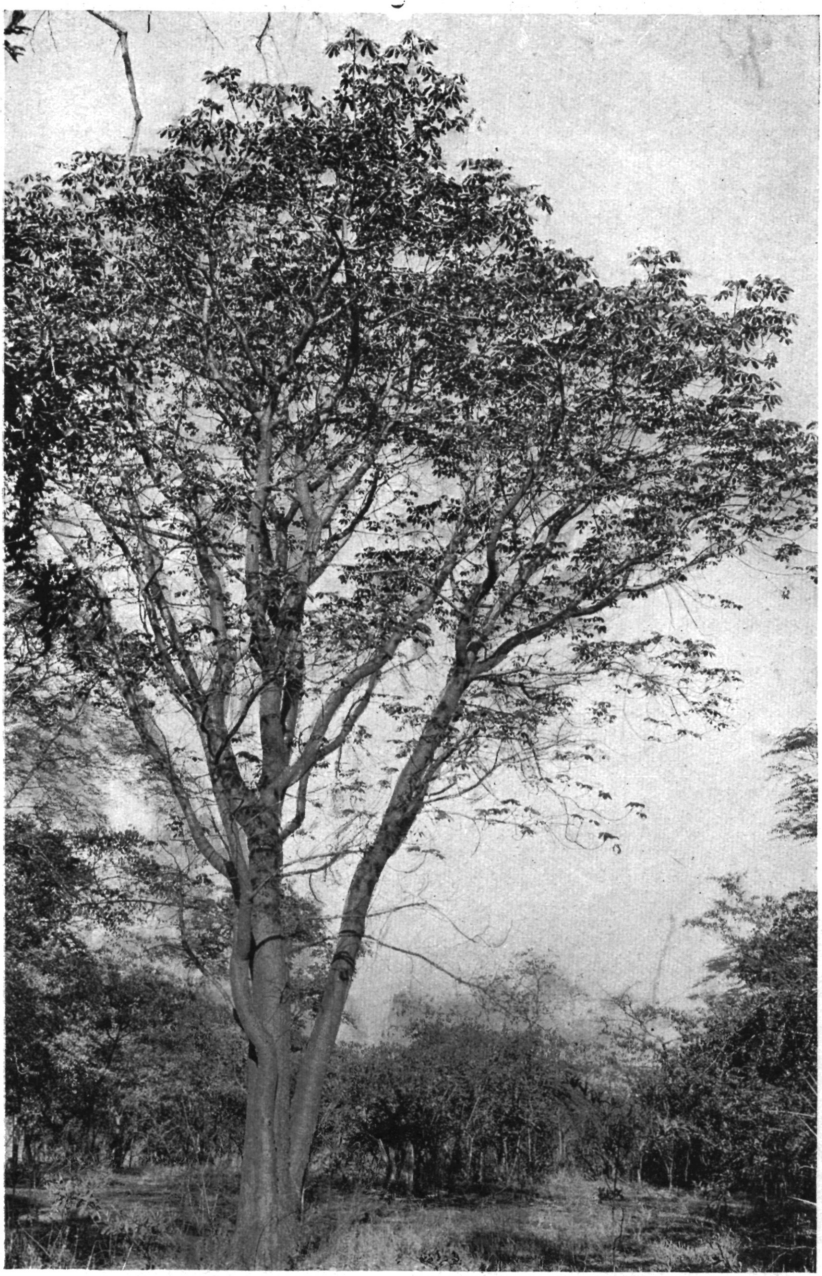
Plate IV shows this grass as it grows near Lake Tanganyika.

50039. TRICHOPTERYX DIANDRA Schum. Poaceæ. **Grass.**

"(No. 470. Kayombe. January 20, 1920. Herb. No. 603.) A grass resembling Stipa, about 8 feet high, with a loose head."

50040. TRIUMFETTA RHOMBOIDEA Jacq. Tiliaceæ.

"(No. 513. Kindu. January 28, 1920. Herb. No. 629.) A tall woody plant, 6 to 12 feet high, extensively used for fiber. It is one of the best; the fiber is very strong and easily obtained."



THE MANKETTI TREE OF THE BELGIAN KONGO. (RICINODENDRON RAUTANENII SCHINZ; S. P. I. No. 50029.)

The fruits produced by this tree, an ally of the castor-bean, somewhat resemble almonds in character. They yield over 57 per cent of a rich yellow oil and are much prized as food by the natives. Unfortunately, they are somewhat difficult to crack because of the hard shell. The tree is ornamental, and the wood, which is very light, is used in the construction of boxes and for other purposes where light weight is a prime consideration. In this respect the manketti may well be compared to the balsa tree of Central America, whose commercial exploitation is now receiving much attention. (Photographed by Dr. H. L. Shantz, Victoria Falls, Southern Rhodesia, November 13, 1919; P36745FS.)

NATAL GRASS AS IT GROWS ON THE SHORES OF LAKE TANGANYIKA, AFRICA. (TRICHOLAENA ROSEA NEES; S. P. I. No. 50038.)

Dr. Shantz has brought in several distinct strains of Natal grass, a species which has attracted much attention for several years because of its value for hay and as a mulch crop on the sandy soils of Florida and other Gulf Coast States. Not a weed itself, because it can be killed by a single plowing, it is found useful in favorable soil to choke out weeds and grasses by its vigorous growth; at the same time it yields an average of 2½ to 3 tons of excellent hay to the acre. Double that quantity has been secured under very favorable conditions. (Photographed by Dr. H. L. Shantz, Nyanza, Urundi, February 29, 1920; P37628FS.)

49977 to 50054—Continued.

50041 and 50042. VIGNA SINENSIS (Torner) Savi. Fabaceæ. **Cowpea.**

50041. "(No. 462. Mulongo. January 19, 1920.) Kafir beans; grown on river lands by natives."

50042. "(No. 391. Elizabethville. January 5, 1920.) Beans grown by the natives around through the villages."

50043. VIGNA sp. Fabaceæ.

"(No. 456. Kadia. January 18, 1920.) Seeds of a small-podded Vigna."

50044 to 50050. ZEA MAYS L. Poaceæ. **Corn.**

50044. "(No. 390. Elizabethville. January 5, 1920.) Corn secured from the natives; grown about their villages."

50045. "(No. 443. Uionga. January 18, 1920.) Corn grown by the natives near the water level on the banks of the Lualaba."

50046. "(No. 447. Kadia. January 18, 1920.) A yellow corn grown on low land near the river."

50047. "(No. 448. Kadia. January 18, 1920.) A white and purple corn. This and No. 447 [S. P. I. No. 50046] are the staple crops of the country. They are planted in November at the beginning of the rainy season and repeated plantings made up to about January. The ripe corn is soaked, half pounded in mortars, dried, winnowed (of the pericarp), pounded to a fine meal, and made into a stiff mush. This is the staple food of all natives."

50048. "(No. 505. January 26, 1920.) A white flint corn; the type most commonly grown here; from a rice-corn field."

50049. "(No. 517. Kindu. January 28, 1920.) A white dent corn, not common here."

50050. "(No. 518. Kindu. January 28, 1920.) A white flint corn, not common here."

50051. (Undetermined.)

"(No. 509. Kindu. January 27, 1920.) A large forest tree with dry fruits a little smaller than an orange."

50052. PSEUDARTHRIA HOOKERI Wight and Arn. Fabaceæ.

"(No. 523. Malele to Kindu. January 31, 1920. Herb. No. 632.) A tall herbaceous leguminous plant which looks like a pink spirea at a distance. It is abundant in the tree savanna country and may be useful as a green manure or even as an ornamental."

50053. (Undetermined.)

"(No. 537. Mongolo. February 3, 1920. Herb. No. 644.) A river-bank tree with oval red fruits about 1¾ inches long, with edible nuts."

50054. SOLANUM MELONGENA L. Solanaceæ. **Eggplant.**

"(No. 540. Kongolo. February 5, 1920.) A yellow-fruited eggplant, said to be native; of very good quality."

50055 and 50056.

From Belgian Kongo. Collected by Dr. H. L. Shantz, Agricultural Explorer of the Bureau of Plant Industry. Received April 5, 1920. Quoted notes by Doctor Shantz.

50055. DIOSCOREA sp. Dioscoreaceæ. **Yam.**

"(No. 515. Kindu. January 28, 1920.) Aerial tubers of one of the most common vines. It may be valuable as an ornamental, as well as a food plant."

50055 and 50056—Continued.

50056. GLADIOLUS sp. Iridaceæ. **Gladiolus.**

"(No. 458. Kulu. January 19, 1920. Herb. No. 595.) Bulbs of a small white gladiolus with occasionally a touch of pink and two purple blotches surrounded by yellow on the lower petals. The same form was found at Kabwe."

50057 and 50058. PISTACIA VERA L. Anacardiaceæ. Pistache.

From Athens, Greece. Cuttings presented by B. Krimpas, director, Royal Society of Agriculture. Received April 22 and 24, 1920.

A variety bearing unusually large pistache nuts which were included in an exhibit at the Panama-Pacific International Exposition in 1915.

50057. Cuttings from a pistillate tree.

50058. Cuttings from a staminate tree.

50059 to 50068.

From Elizabethville, Belgian Kongo. Collected by Dr. H. L. Shantz, Agricultural Explorer of the United States Department of Agriculture. Received April 8, 1920. Quoted notes by Doctor Shantz.

50059. DATURA STRAMONIUM L. Solanaceæ.

"(No. 394. January 5, 1920.) Seeds of a white-flowered form."

50060. ELEUSINE CORACANA (L.) Gaertn. Poaceæ. **Ragi millet.**

"(No. 388. January 5, 1920.) Seeds used chiefly in making native beer."

For previous introduction, see S. P. I. No. 46295.

50061. MORAEA sp. Iridaceæ.

"(No. 398. January 5, 1920. Herb. No. 522.) Bulbs of a small dark-purple, almost black gladioluslike plant."

50062. IMPATIENS sp. Impatientaceæ.

"(No. 393. January 5, 1920. Herb. No. 523.) Seeds of an attractive, low, red-stemmed form found in wet clay soils."

50063. LACTUCA sp. Cichoriaceæ.

"(No. 392. January 5, 1920.) Seeds of a cichoriaceous plant."

50064. PANICUM sp. Poaceæ. **Grass.**

"(No. 395. January 5, 1920. Herb. No. 496.) Seeds of a loose-panicled Panicum."

50065. PHASEOLUS VULGARIS L. Fabaceæ. **Common bean.**

"(No. 389. January 5, 1920.) Sold to the natives for food."

50066. (Undetermined.)

"(No. 397. January 5, 1920. Herb. No. 520.) Seeds of a spiny-stemmed tree with small flowers. The wood is useful."

50067. ZEA MAYS L. Poaceæ. **Corn.**

"(No. 386. January 5, 1920.) Corn secured from Elizabethville; the kind sold to natives for food."

50068. (Undetermined.)

"(No. 396. January 5, 1920.) Seeds of a low bush bearing small orange-colored fruits."

50069 to 50091.

From Belgian Kongo. Seeds collected by Dr. H. L. Shantz, Agricultural Explorer of the United States Department of Agriculture. Received April 8, 1920. Quoted notes by Doctor Shantz.

50069. ANNONA SQUAMOSA L. Annonaceæ. **Sugar-apple.**

"(No. 477. Kongolo. January 22, 1920.) Fruit sweet and of very good flavor."

For previous introduction, see S. P. I. No. 47875.

50070. BRACHYSTEGIA sp. Cæsalpiniaceæ.

"(No. 504. Kindu. January 26, 1920.) Large beans from a forest tree."

50071. CAESALPINIA PULCHERRIMA (L.) Swartz. Cæsalpiniaceæ.

"(No. 476. Kongolo. January 22, 1920.) A red-flowered shrub, probably the same as No. 437 [S. P. I. No. 49688], but much better developed. It is a very attractive ornamental."

For previous introduction, see S. P. I. No. 7266.

50072. CANNA INDICA L. Cannaceæ.

"(No. 480. Malele. January 23, 1920. Herb. No. 609.) A wild canna with a small red flower; very abundant in this section."

50073. CUCUMIS MELO L. Cucurbitaceæ. **Muskmelon.**

"(No. 499. Kindu. January 26, 1920.) Seeds secured from a native melon; these seeds are eaten by the natives."

50074 and 50075. CUCURBITA PEPO L. Cucurbitaceæ. **Squash.**

50074. "(No. 465. Kabwe. January 19, 1920.) Looks like a melon; 8 inches long by 4 inches in diameter; green with white stripes."

50075. "(No. 498. Kindu. January 26, 1920.) A light-yellow squash used as a table vegetable."

50076. FUNTUMIA ELASTICA (Preuss) Stapf. Apocynaceæ. **Lagos rubber tree.**

"(No. 492. Kindu. January 26, 1920.) A plant common on the forest floor."

For previous introduction, see S. P. I. No. 42367.

50077. HOLCUS SORGHUM EFFUSUS (Hack.) Hitchc. Poaceæ. **Kamerun grass.**

"(No. 468. Kayombe. January 20, 1920. Herb. No. 602.) Tall, more slender plants; not eaten by the wild elephants which had eaten adjacent grasses."

50078. HOLCUS SORGHUM VERTICILLIFLORUS (Steud.) Hitchc. Poaceæ. **Tabucki grass.**

"(No. 471. Kapako, near Ankoro. January 21, 1920. Herb. No. 606.) Seeds from several plants."

50079. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**

"(No. 479. Kasongo. January 23, 1920. Herb. No. 607.) A tall dark form; abundant here. Like all the others it is branched at every upper node."

50080. MANIHOT ESCULENTA Crantz. Euphorbiaceæ. **Cassava.**
(*M. utilissima* Pohl.)

"(No. 490. Kindu. January 26, 1920.) From plants partly wild, at the edge of the forest; grown everywhere about here."

50069 to 50091—Continued.

50081. PANICUM MAXIMUM Jacq. Poaceæ. **Grass.**

"(No. 472. Kapako. January 21, 1920. Herb. No. 605.) A very tall loose-headed grass."

For previous introduction, see S. P. I. No. 47032.

50082. PENTACLETHRA MACROPHYLLA Benth. Mimosaceæ.

"(No. 481. Malele. January 23, 1920.) Very large beans purchased from natives; used as an ornament. Probably from a forest tree."

For previous introduction, see S. P. I. No. 34351.

50083 and 50084. RICINUS COMMUNIS L. Euphorbiaceæ. **Castor-bean.**

50083. "(No. 491. Kindu. January 26, 1920.) Castor-beans."

50084. "(No. 503. Kindu. January 26, 1920.) Castor-beans."

50085 and 50086. SESAMUM ORIENTALE L. Pedaliaceæ. **Sesame.**

50085. "(No. 478. Kongolo to Malele. January 23, 1920.) Grown by the natives for oil. It has a smaller flower and larger pod than the wild form sent in under No. 475 [S. P. I. No. 50034]. Collected at about kilometer 265."

50086. "(No. 487. Kindu. January 26, 1920.) Grown by the natives for oil; used in every village. The stems with the nearly ripe pods are placed in a basket in the sun and the seeds allowed to shell out as the pods dry."

50087. SOLANUM sp. Solanaceæ.

"(No. 493. Kindu. January 26, 1920.)"

50088. SOLANUM sp. Solanaceæ.

"(No. 496. Kindu. January 26, 1920.)"

50089. URENA LOBATA L. Malvaceæ.

"(No. 482. Kibombo. January 24, 1920.) A malvaceous fiber plant used to make a strong burlap or cloth and for other purposes."

50090. VIGNA SINENSIS (Torner) Savi. Fabaceæ. **Cowpea.**

"(No. 500. Kindu. January 26, 1920.) Beans secured from a native; these differ from most of the kafir beans previously sent in."

50091. (Undetermined.)

"(No. 485. From 60 kilometers south of Kindu. January 24, 1920. Herb No. 619.) A bush with yellow almondlike fruits; said by the natives to be useless."

50092 to 50101.

From La Plata, Argentina. Seeds presented by Dr. Carlos Spegazzini. Received April 23, 1920.

50092. PROSOPIS ALBA Griseb. Mimosaceæ.

An Argentine tree which yields a gum that is used by the natives of the interior provinces as a dyeing material, giving a dark-red color resistant to the action of light and water. (Adapted from *Trabajos del Museo de Farmacología de la Facultad de Ciencias Médicas, Buenos Aires No. 23, p. 1.*)

50093. PROSOPIS CAMPESTRIS Griseb. Mimosaceæ.

An Argentine shrub with tangled intertwined branches, strong spiny stipules, and pale golden yellow flowers. These shrubs form extensive groups on the plains. (Adapted from *Abhandlungen der Königlichen Gesellschaft der Wissenschaften zu Göttingen, vol. 19, p. 132.*)

50092 to 50101—Continued.

50094. PROSOPIS CHILENSIS (Molina) Stuntz. Mimosaceæ. **Algaroba.** (*P. juliflora* DC.)

One of the best sources of honey; its seeds are valuable for cattle and poultry.

For previous introduction, see S. P. I. No. 46973.

50095. PROSOPIS DENUDANS Benth. Mimosaceæ.

A low shrub from Patagonia, with short graceful leafy branches and twisted pods. The pinnate leaves are in fascicles; the inner surfaces of the petals are woolly. (Adapted from *Hooker, Journal of Botany, vol. 4, p. 351.*)

50096. PROSOPIS DULCIS DC. Mimosaceæ.

A thorny tree, 60 feet high, with very deep roots, adapted for live fences. The hard, strong, durable wood when polished resembles mahogany. The sweetish pods, rich in protein, grape sugar, starch, pectin, potash, lime, and phosphoric acid, are used for cattle fodder and even for human food; a sparkling drink called *aloja* is made from the pods. (Adapted from *Mueller, Select Extra-Tropical Plants, p. 421.*)

50097. PROSOPIS FLEXUOSA (Lag.) DC. Mimosaceæ.

A very smooth tree with short spiny stipules, narrow leaflets, and flowers in cylindrical spikes. The rounded pods are twisted. Native to Chile. (Adapted from *Lagasca, Genera et Species Plantarum, p. 16.*)

50098. PROSOPIS NIGRA Hieron. Mimosaceæ.

A stout, low, bushy plant abundant in Corrientes, Argentina, with strong, beautiful wood much used in this region for furniture, doors, windows, carriages, etc. (Adapted from *Lillo, Contribución al Conocimiento de los Arboles de la Argentina, p. 53.*)

50099. PROSOPIS PANTA Hieron. Mimosaceæ.

A low, branching, edible-fruited tree which is distinguished from the common algarobas by its longer and wider fruit. The rosy wood is somewhat hard and on being cut emits a pleasant melonlike odor; it is used for posts and for firewood. (Adapted from *Lillo, Contribución al Conocimiento de los Arboles de la Argentina, p. 55.*)

50100. PROSOPIS PATAGONICA Speg. Mimosaceæ.

A shrub, native to southern Patagonia, 2 to 3 meters high, with spiny branches. The small green campanulate flowers are in dense cylindrical spikes from the center of the leaf clusters. (Adapted from *Revista de la Facultad de Agronomía y Veterinaria, Nos. 30 and 31, p. 510.*)

50101. PROSOPIS SILIQUASTRUM (Lag.) DC. Mimosaceæ.

A Chilean tree about 20 to 30 feet high, growing from Coquimbo to the Cachapoal River. The pods are much relished by animals. The wood is violet-brown, very hard, and used by wheelwrights; it gives very good charcoal. The seed is much appreciated medicinally for cardiac troubles on account of the tannin it contains. (Adapted from *Bulletin de la Société Nationale d'Acclimatation de France, vol. 65, p. 112.*)

50102 to 50206.

From Burttholm, Vereeniging, Transvaal. Seeds presented by J. Burtt Davy. Received May 6, 1920. Quoted notes by Mr. Burtt Davy.

50102. ACACIA GIRAFFAE Willd. Mimosaceæ.

"*Kameel doorn.* A valuable timber tree for arid regions in the warm Temperate Zone. The ripe pods are eaten greedily by stock. It thrives in sandy soil, attains a large size, and the dark reddish brown wood is used by the natives in making spoons, knife handles, etc."

For previous introduction, see S. P. I. No. 46805.

50102 to 50206—Continued.

50103. ACACIA LITAKUNENSIS Burchell. Mimosaceæ.

"(No. 228/19.) Waterberg district, Transvaal."

A tree up to 40 feet in height native to the Transvaal, called *moshu* by the natives. It has a singularly twisted bivalve pod (Adapted from *Harvey and Sonder, Flora Capensis, vol. 2, p. 283.*)

For previous introduction, see S. P. I. No. 28662.

50104 and 50105. ACACIA GLANDULIFERA Schinz. Mimosaceæ.

50104. "(No. 238/19.) Waterberg district, Transvaal." A reddish brown shrub, up to 5 meters in height, native to southwestern Africa. It has bipinnate leaves and glanduliferous oblong pods about 35 millimeters long. (Adapted from *Mémoires de l'Herbier Boissier, 1900, p. 111.*)

50105. "Waterberg district, Transvaal."

50106. ACACIA LITAKUNENSIS Burchell. Mimosaceæ.

"(No. 228/19.) Waterberg district, Transvaal."

50107. ACACIA PALLENS (Benth.) Rolfe. Mimosaceæ.

"Seeds of the kopjes doorn, one of the most valuable mine-timber trees of the warmer parts of the bush veldt."

A medium-sized tree, with a spiny trunk and branches, compound leaves 8 to 10 centimeters long, and dense flower spikes 4 to 6 centimeters long. It is considered a valuable timber tree in the Transvaal, where it is native, the wood being very hard and durable underground. (Adapted from *Kew Bulletin of Miscellaneous Information, 1907, p. 361.*)

50108. ACACIA ROBUSTA Burchell. Mimosaceæ.

"(No. 229/19.) *Mooku* (Sesutu). Collected at Potgietersrust, August 29, 1919."

A tree, 15 to 25 feet high, with a much-branched dilated crown and much-crowded odorous yellow flowers. It is not uncommon in mixed woods in Angola, where it is native. (Adapted from *Hiern, Catalogue of Welwitsch's African Plants, p. 314.*)

For previous introduction, see S. P. I. No. 28550.

50109 and 50110. ACACIA SCORPIOIDES (L.) W. F. Wight. Mimosaceæ. (*A. arabica* Willd.) **Babul.**

"Variety *kraussiana*. Waterberg district, Transvaal."

The typical form of this species is a pubescent yellow-flowered shrub, which produces the white transparent gum arabic called "gum thus." The wood is strong and durable and is used for many purposes. A decoction of the bark is used for soap, and the pods are used for tanning.

For previous introduction, see S. P. I. No. 48063.

50109. "Waterberg district, Transvaal."

50110. "(No. 235/19.) Waterberg district, Transvaal. Small tree; pods eaten by stock."

50111. ACACIA sp. Mimosaceæ.

"(No. 231/19.) Potgietersrust, August 29, 1919."

50112. ACACIA GLANDULIFERA Schinz. Mimosaceæ.

"(No. 238/19.) A shrub collected at Potgietersrust, August 29, 1919."

50113. ACACIA sp. Mimosaceæ.

"(No. 222/19.) Potgietersrust, Waterberg district, Transvaal."

50102 to 50206—Continued.

50114. ACACIA sp. Mimosaceæ.

"*Moobanga*. Elizabethville, Belgian Kongo."

50115. ACANTHOSICYOS HORRIDA Welw. Cucurbitaceæ.

"Narra seeds; Protectorate of Southwest Africa. From a very hot, arid region."

This plant, which belongs to the gourd family, is found on the dunes on the coast of the Protectorate of Southwest Africa; it continues to grow with the height of the dune, sending down roots to a considerable depth. The natives are very fond of the juicy flesh of the roundish fruit, which is about 9 inches in diameter. The seeds, which are very nutritious, have been used by Europeans in Cape Town as a substitute for almonds, and the natives are very fond of them. (Adapted from *Kew Bulletin of Miscellaneous Information, 1907, p. 342.*)

For previous introduction, see S. P. I. No. 34734.

50116. AGATHOSMA CHORTOPHILA Eckl. and Zeyh. Rutaceæ.

An erect, many-stemmed evergreen shrubby plant, a foot or more high, native to the Cape of Good Hope. The leaves are erect and oblong-linear, and the flowers are borne in umbels. (Adapted from *Harvey and Sonder, Flora Capensis, vol. 1, p. 435.*)

For previous introduction, see S. P. I. No. 47952.

50117. AMYGDALUS COMMUNIS L. Amygdalaceæ. **Almond.**
(*Prunus amygdalus* Stokes.)

"Frost-resisting almond from the high veldt, Transvaal."

50118. ANACARDIUM OCCIDENTALE L. Anacardiaceæ. **Cashew.**

"Manicaland, Southern Rhodesia. Collected by Maj. R. Gordon on his 1919 trip."

A tree, up to 40 feet in height, with large leaves and close-grained, strong, and durable wood. The fruit consists of a small nut borne upon a pear-shaped red or yellow fleshy receptacle 2 to 4 inches long. This receptacle is edible and quite harmless when ripe, having an agreeable subacid flavor, and is also very good when cooked. The kidney-shaped nut contains a single large kernel which is very delicious when cooked, having a nutty flavor; it should not be eaten unless cooked, however, because of the poisonous juices of the shell, which must be driven off by heat. (Adapted from *Cook and Collins, Economic Plants of Porto Rico, p. 75.*)

For previous introduction, see S. P. I. No. 45915.

50119. ASPARAGUS sp. Convallariaceæ.

"(No. 239/19.) Potgietersrust; August 29, 1919. A climber; stipular spines very thick, recurved."

50120 and 50121. BALANITES AEGYPTIACA (L.) Delile. Zygophyllaceæ.

A tropical African tree, 3 to 5 meters high, with papery woolly leaves and edible stone fruits 3 centimeters long, rather bitter in flavor. The natives make an intoxicating liquor from these fruits and also eat them raw. The seeds yield an oil known as betu, which is used for food, as a liniment, and to some extent as a medicine. One of the ingredients of the celebrated spikenard perfume is supposed to have been furnished by this tree. (Adapted from *Post,*

50102 to 50206—Continued.

Flora of Syria, p. 199, and from *Kew Bulletin of Miscellaneous Information, Additional Series IX, p. 138.*)

For previous introduction, see S. P. I. No. 44563.

50120. "(No. 162/19; Herb. No. 17914.) *Mookoonkoole.* Kongo trip."

50121. A smaller fruited variety.

50122. BALANITES MAUGHAMII Sprague. Zygophyllaceæ. **Manduro.**

"Seeds found along the Zambezi River near Chivamba; the boys say it is a thorny tree. Collected by Maj. R. Gordon, August 14, 1919. Native name, *mwanjondo.*"

For previous introduction, see S. P. I. No. 39196.

50123. BAROSMA BETULINA (Bergius) Bartl. and Wendl. Rutaceæ.

This species is the most valuable species of Barosma from a commercial standpoint, as it contains the greatest number of oil glands in its small light-green leaves. It is a rather compact evergreen shrub, attaining a height of 3 or 4 feet, and is found at altitudes of 1,000 to 2,000 feet in South Africa. (Adapted from *The Agricultural Journal of South Africa, vol. 6, p. 83.*)

For previous introduction, see S. P. I. No. 47953.

50124. BAROSMA CRENULATA (L.) Hook. Rutaceæ. **Buchu.**

The large-leaved buchu is often distinguished as the "true buchu." It is a twiggy shrub, 3 to 4 feet high, with numerous pale purplish flowers produced in October and November. As with the preceding species, *Barosma betulina*, the oil glands on the leaves yield a greenish yellow oil. This oil, when exposed to the cold, deposits a solid Barosma camphor which, when purified, has the odor of peppermint. This camphor is used in remedies for bladder and kidney troubles. (Adapted from *The Agricultural Journal, Cape Colony, vol. 6, p. 146.*)

For previous introduction, see S. P. I. No. 47954.

50125. BARYXYLUM AFRICANUM (Sond.) Pierre. Cæsalpiniaceæ.
(*Peltophorum africanum* Sond.)

"(No. 224/19.) *M'seschla* (Sesutu). Common and characteristic small tree of Transvaal bush veldt. Wood hard, well colored, and valuable."

A handsome tree, native to Angola, Africa, 20 to 30 feet high, with a habit like Mimosa. It has bipinnate leaves, attractive saffron-yellow flowers, and flat 2-seeded pods. (Adapted from *Hiern, Catalogue of Welwitsch's African Plants, p. 287.*)

For previous introduction, see S. P. I. No. 48235.

50126. BAUHINIA RETICULATA DC. Cæsalpiniaceæ.

"*Kifumbe.* Elizabethville, Belgian Kongo."

A rather small tree, native to southern tropical Africa, with leathery bilobed leaves and whitish or pinkish flowers. The bark and leaves are crushed and used as an application for wounds and ulcers; the tree is sometimes cultivated in Angola for this purpose. (Adapted from *Hiern, Catalogue of Welwitsch's African Plants, p. 296.*)

50127. BAUHINIA sp. Cæsalpiniaceæ.

"From Pemba Island, near Zanzibar. A shrub with white flowers, resembling the Christmas rose."

50128. BRACHYSTEGIA sp. Cæsalpiniaceæ.

"A tree known as Bangiri, found at Villa Fontes on the Zambezi River. Rather like a poplar, but with darker leaves. The wood seems rather soft, and

50102 to 50206—Continued.

the bark scales off like silver paper. The tree grows about 40 or 50 feet tall, perhaps bigger, and the boys say that the natives use them to make canoes. Collected by Maj. R. Gordon, August 2, 1919."

50129. BRACHYSTEGIA sp. Cæsalpiniaceæ.

"*Moosoombi;* a big acacialike tree; good wood; grows in Manicaland, Rhodesia. Collected by Maj. R. Gordon in October, 1919."

50130. BRACHYSTEGIA sp. Cæsalpiniaceæ.

"*Musamba.* Elizabethville, Belgian Kongo."

50131. BRACHYSTEGIA sp. Cæsalpiniaceæ.

"*Mutawndu.* Elizabethville, Belgian Kongo."

50132. CAILLIEA NUTANS (Pers.) Skeels. Mimosaceæ.
(*Dichrostachys nutans* Benth.)

"(No. 221/19.) Potgietersrust, Transvaal. *Sikkel-bosch; m'tetempa.* A valuable hardwood tree of the bush veldt; much sought for fence posts. It is also ornamental."

For previous introduction, see S. P. I. No. 43645.

50133. CAPRIOLA INCOMPLETA (Nees) Skeels. Poaceæ. **Grass.**
(*Cynodon incompletus* Nees.)

"This species spreads by surface runners and does not produce stolons as does *Cynodon dactylon.* It is difficult to collect seed, as the grass is so closely grazed by stock of all sorts."

For previous introduction, see S. P. I. No. 46567.

50134. CASSIA sp. Cæsalpiniaceæ.

"*Mupuala.* Elizabethville, Belgian Kongo."

50135. ACACIA sp. Mimosaceæ.

"(No. 231/19.)"

50136. CEIBA PENTANDRA (L.) Gaertn. Bombacaceæ. **Kapok.**
(*Eriodendron anfractuosum* DC.)

"*Kapok,* vegetable silk."

"The kapok tree, native in the American Tropics, is widely distributed in the Tropics of both hemispheres. It attains a height of 75 to 100 feet, with widespreading branches. It begins to bear seed pods when about 5 years old, and the yield of pods increases with the age of the tree. Well-developed trees under favorable circumstances yield about 7,000 pounds for pillows, mattresses, life preservers, etc., and its use is rapidly increasing." (*L. H. Dewey.*)

For previous introduction, see S. P. I. No. 46522.

50137. CHENOPODIUM AMARANTICOLOR Coste and Reynier. Chenopodiaceæ.

"From Algeria. When young this forms an excellent substitute for spinach."

For previous introduction, see S. P. I. No. 30381.

50138 to 50140. CITRULLUS VULGARIS Schrad. Cucurbitaceæ. **Watermelon.**

50138. "*Golden.* Vereeniging, Transvaal."

50139. "Vereeniging, Transvaal."

50140. "Vereeniging, Transvaal."

50141. COFFEA EXCELSA Cheval. Rubiaceæ. **Coffee.**

This species of Coffea is native to central Africa and has been experimented with in Trinidad, British West Indies. It shows a satisfactory percentage of caffein and though somewhat bitter, has an excellent flavor. (Adapted from *Bulletin of the Department of Agriculture, Trinidad and Tobago, vol. 17, p. 62*).

50102 to 50206—Continued.

50142. COFFEA LAURENTII Wildem. Rubiaceæ. **Coffee.**

A white-flowered shrub, native to Belgian Kongo, with dark-green, oval acuminate leaves up to 30 centimeters in length and shortly elliptic 2-seeded fruits. The roundish seeds are 9 to 11 millimeters long. (Adapted from *Actes du Premier Congrès de Botanique, 1900, p. 234.*)

For previous introduction, see S. P. I. No. 32359.

50143. COIX LACRYMA-JOBI L. Poaceæ. **Job's-tears.**

"A hardy form grown at an altitude of 4,850 feet."

For previous introduction, see S. P. I. No. 48012.

50144. COMBRETUM sp. Combretaceæ.

"(No. 245/19.) From The Matoppos, Matabeleland."

50145. COMBRETUM sp. Combretaceæ.

"(No. 233/19.) Potgietersrust, Waterberg district, Transvaal."

50146. COMBRETUM sp. Combretaceæ.

"Seeds of a tree somewhat like an olive in foliage but much larger, being 40 to 50 feet high. It is a larger spreading tree, giving a good shade; apparently hard wooded. The native name is *Cotamo*. Collected by Maj. R. Gordon at Shemba, Zambezi River, Mozambique, August 8, 1919."

50147. DIPLORHYNCHUS sp. Apocynaceæ.

"*Manyanyata*. A tree near Elizabethville, Belgian Kongo."

50148. DIPLORHYNCHUS sp. Apocynaceæ.

"*Mwenge*."

50149. ELEPHANTORRHIZA ELEPHANTINA (Burch.) Skeels. Mimosaceæ. (*E. burchellii* Benth.)

"Root used in tanning and dyeing stuffs a brown color."

For previous introduction, see S. P. I. No. 46902.

50150. ERAGROSTIS CURVULA (Schrad.) Nees. Poaceæ. **Grass.**

A very densely tufted South African perennial grass with tender erect stems 1 to 2 feet high and narrow blades sometimes more than a foot in length. (Adapted from *Thistleton-Dyer, Flora Capensis, vol. 7, p. 599.*)

For previous introduction, see S. P. I. No. 38767.

50151. ERYTHRINA CAFFRA Thunb. Fabaceæ.

"Magaliesberg, Transvaal."

A tree, 30 to 60 feet high, with prickly branches, trifoliolate leaves with broadly ovate leaflets, and scarlet flowers borne in dense, many-flowered racemes. It is native to South Africa. (Adapted from *Harvey and Sonder, Flora Capensis, vol. 2, p. 236.*)

50152. GAZANIA sp. Asteraceæ.

"A yellow Gazania from Mr. Healtie, Addo, Southern Provinces, Nigeria."

50153 and 50154. GREWIA MONTICOLA Sond. Tiliaceæ.

A much-branched spreading shrub with densely tomentose twigs and almost sessile, unequally sided leaves. The flowers are borne in axillary few-flowered clusters. The shrub is native to the Transvaal. (Adapted from *Harvey and Sonder, Flora Capensis, vol. 1, p. 226.*)

50153. "(No. 236/19.) Potgietersrust, Transvaal. Small evergreen tree."

50154. "(No. 232/19.) Waterberg district, Transvaal. Fruit edible."

50102 to 50206—Continued.

50155. GUIZOTIA ABYSSINICA (L. f.) Cass. Asteraceæ.

"*Ramtil.* An African oil seed."

An annual composite, native to tropical Africa, but cultivated in most of the Provinces of India for the sake of the oil-producing seeds. The seed is sown from June to August and harvested in November and December; it prefers light sandy soil. The pale-yellow oil is used for making paints, for lubrication, and for lighting purposes. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 4, p. 186.*)

For previous introduction, see S. P. I. No. 44789.

50156. HIBISCUS MUTABILIS L. Malvaceæ.

"Elizabethville, Belgian Kongo."

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

For previous introduction, see S. P. I. No. 47357.

50157. LAGENARIA VULGARIS Seringe. Cucurbitaceæ. **Gourd.**

"Calabash gourd. Belgian Kongo."

50158. LANDOLPHIA sp. Apocynaceæ.

"(No. 146/19.) Elizabethville, Belgian Kongo. Yields a rubber."

50159. LEONOTIS sp. Menthaceæ.

A mint allied to the *molonillo* of Porto Rico, a cosmopolitan plant of the Tropics used for various medicinal purposes.

50160. LINUM USITATISSIMUM L. Linaceæ. **Flax.**

"Sample of linseed from northern Manchuria."

50161. LOBELIA ERINUS MICRODON (DC.) Sond. Lobeliaceæ. **Lobelia.**

"An ornamental annual, entirely different in habit from the ordinary garden form, being erect instead of diffuse. The fragrant flowers are beautiful shades of blue and white."

For previous introduction, see S. P. I. No. 46808.

50162. MELINIS MINUTIFLORA Beauv. Poaceæ. **Molasses grass.**

"*Bandeira* grass."

A low compact-growing grass, native to central Brazil, where it is called *capim gordura* on account of a slightly glutinous matter which exudes from the stems. It is very rank and sometimes runs out all other vegetation. Cattle are very fond of this grass. (Adapted from *Journal of the Royal Horticultural Society, vol. 3, p. 253.*)

For previous introduction, see S. P. I. No. 47162.

50163 to 50165. MIMUSOPS ZEYHERI Sond. Sapotaceæ.

A large shrub or small tree, native to the Kalahari region, Transvaal. The long-stemmed, oblong-lanceolate leaves are 3 to 4 inches in length, and the edible drupes are about an inch long and sweetish in flavor. (Adapted from *Harvey and Sonder, Flora Capensis, vol. 4, sec. 1, p. 441.*)

50163. "*Moople.*"

50164. "Magaliesberg, Transvaal."

50165. "Magaliesberg, Transvaal."

50166. PANICUM LAEVIFOLIUM Hack. Poaceæ. **Grass.**

Variety *pictum*.

50102 to 50206—Continued.

50167 and 50168. PARINARI MOBOLA Oliver. Rosaceæ.

A very handsome tree, 20 to 40 feet high, native to Angola, with dense evergreen foliage, and very ornamental because of the leaves being deep green above with snow-white lower surfaces. The wood is used for the manufacture of furniture and for building, and the elliptic-ovoid fruits, about the size of a hen's egg, are edible, the pulp resembling a mixture of honey and meal in flavor and texture. (Adapted from *Hiern, Catalogue of Welwitsch's African Plants, p. 320.*)

For previous introduction, see S. P. I. No. 32395.

50167. "*Mupundu.* Elizabethville, Belgian Kongo."

50168. "*Momvula* or *macacata.* A dark-leaved evergreen tree which grows in Angola and Manicaland, Rhodesia. It bears good edible fruit much relished by the natives. It also makes a good shade tree."

50169 and 50170. PHASEOLUS ACUTIFOLIUS LATIFOLIUS G. F. Freeman. Fabaceæ. **Tepary bean.**

50169. "Small white haricot beans. Vereeniging, Transvaal."

50170. "Small white haricot beans grown at Burttholm, Vereeniging, Transvaal."

50171. PHASEOLUS AUREUS Roxb. Fabaceæ. **Mung bean.**

"Grown successfully at Burttholm, Vereeniging, Transvaal. Seed obtained at a local agricultural show."

50172 and 50173. PHASEOLUS VULGARIS L. Fabaceæ. **Common bean.**

50172. "Amersfoort Show, March, 1917. Small haricot."

50173. "Small white haricot of the Transvaal."

50174. PHORMIUM TENAX Forst. Liliaceæ. **New Zealand flax.**

"From Kenneth Austin. A fiber plant from California, U. S. A."

For previous introduction, see S. P. I. No. 47572.

50175. PHYSALIS sp. Solanaceæ.

"Much used in making jam in the Transvaal. This is not the ordinary *Physalis peruviana*, or Cape gooseberry."

50176. PISUM SATIVUM L. Fabaceæ. **Garden pea.**

"Peas from the Amersfoort Show, March, 1917."

50177. PSEUDOLACHNOSTYLIS sp. Euphorbiaceæ.

"*Mutatye.*"

50178. PTEROCARPUS ANGOLENSIS DC. Fabaceæ.

"(No. 242/19.) From the Matoppos, Matabeleland. A timber tree valuable for furniture."

An unarmed tree, native to the western part of central Africa. It has alternate, unequally pinnate leaves, axillary or terminal racemes of flowers, and flat one-seeded, almost round pods. The reddish wood is used in dyeing, and the bark contains a large quantity of tannin. (Adapted from *De Lanessan, Plantes Utiles des Colonies Françaises, p. 799.*)

50179. PTEROCARPUS SERICEUS Benth. Fabaceæ.

"(No. 246/19.) From the Matoppos, Matabeleland."

An unarmed tree, native to South Africa, with alternate, unequally pinnate leaves shining silky beneath or on both sides and oval-roundish pods about 1½ inches long. (Adapted from *Harvey and Sonder, Flora Capensis, vol. 2, p. 264.*)

50102 to 50206—Continued.

50180. PTEROCARPUS sp. Fabaceæ.

"Waterberg district, Transvaal."

50181. RHUS sp. Anacardiaceæ.

"(No. 240/19.) Potgietersrust, August 29, 1919."

50182. RHUS sp. Anacardiaceæ.

"(No. 230/19.) Potgietersrust, August 29, 1919."

50183. SCHOTIA TRANSVAALENSIS Rolfe. Cæsalpiniaceæ.

"(No. 237/19.) A very ornamental evergreen shade tree, with brilliant scarlet flowers; from the Waterberg district, Transvaal. Native name, *boer-boom.*"

50184. STERCULIA sp. Sterculiaceæ.

"*Nhengati.* A very tall tree; possibly 50 feet of clear trunk before the branches begin. The trunk is white, and the soft wood makes excellent paper; the wood is not so soft as that of the baobab tree (*Adansonia digitata*). Collected by Maj. R. Gordon, March 8, 1919."

50185. STRYCHNOS sp. Loganiaceæ.

"(No. 201/19.) Wood halt near Baya, Katanga."

50186. TAMARINDUS INDICA L. Cæsalpiniaceæ. **Tamarind.**

"A fine shade tree known in Queensland as tamarind; cultivated there but wild in Mozambique. Native name *Malleta.* Collected on the Zambezi River by Maj. R. Gordon, August 6, 1919."

For previous introduction, see S. P. I. No. 47983.

50187 and 50188. TERMINALIA SERICEA Burchell. Combretaceæ.

A tree 2 to 10 meters high, with a flat crown, silvery white foliage, and yellow wood. It is called *geelhout* by the Boers and *mugorro* by the Kafirs. It is distributed from South Africa to Angola. (Adapted from *H. Baum, Kunene-Sambesi Expedition, p. 321.*)

50187. "(No. 223/19.) Potgietersrust. *Bosch Vaal-bosch; M'wanunu* (Sesutu). A hard, durable wood."

50188. "(No. 247/19.) From the Matoppos, Matabeleland."

50189. TOUNATEA MADAGASCARIENSIS (Desv.) Kuntze. Cæsalpiniaceæ. (*Swartzia madagascariensis* Desv.)

An African tree, 12 to 30 feet in height, with very heavy wood which is deep red in color. It is said to be excellent for piano manufacture and good for all high-class furniture work. It is a very durable and valuable timber. (Adapted from *Holland, Useful Plants of Nigeria, vol. 1, p. 248.*)

50190. UAPACA SANSIBARICA Pax. Euphorbiaceæ.

"*Mahobohobo,* or *massangi;* both names are correct. A large-leaved evergreen with wood used for timber and edible fruits. Collected by Maj. R. Gordon in Manicaland, Rhodesia."

For previous introduction, see S. P. I. No. 32394.

50191. UAPACA sp. Euphorbiaceæ.

"*Musuku.* Elizabethville, Belgian Kongo."

50192. VIGNA SINENSIS (Torner) Savi. Fabaceæ. **Cowpea.**

"Cowpea grown by natives of Pondoland."

50102 to 50206—Continued.

50193. VITEX REHMANNI Guerke. Verbenaceæ.

"(No. 226/19.) Potgietersrust. *Mookwele* (Sesutu). Common and characteristic tree up to 20 feet high."

A shrub with opposite 3 or 5 foliolate leaves with elliptic profusely glandular leaflets, axillary cymes of bell-shaped flowers, and cone-shaped drupes about a quarter of an inch long. It is native to Natal and the Kalahari region, Transvaal. (Adapted from *Thiselton-Dyer, Flora Capensis, vol. 5, sec. 1, p. 214.*)

50194 and 50195. ZIZIPHUS MUCRONATA Willd. Rhamnaceæ.

A much-branched tree, 15 to 20 feet high, found in South Africa and central Africa. The ovate leaves are up to 2 inches in length, the yellowish flowers are borne in axillary cymes, and the red drupes are about the size of cherries. (Adapted from *Harvey and Sonder, Flora Capensis, vol. 1, p. 475.*)

50194. "Valuable wood."

50195. "Good wood for fence posts, hard and durable and drought resistant."

50196. ZIZIPHUS sp. Rhamnaceæ.

"*Kankole.* Elizabethville, Belgian Kongo."

50197. ZIZIPHUS sp. Rhamnaceæ.

"(No. 227/19.) Potgietersrust."

50198. ZIZIPHUS sp. Rhamnaceæ.

"(No. 243/19.) From the Matoppos, Matabeleland. Much like *Ziziphus mucronata*, but the fruits are much larger."

50199. (Undetermined.)

"(No. 142/19.) *Mooloo'alwa.* Elizabethville, Belgian Kongo. There are two trees going under this name; this is the lesser or 'kiloko' sort."

50200. (Undetermined.)

"Vereeniging, Transvaal."

50201. (Undetermined.)

"(No. 234/19.) Potgietersrust. An ornamental shrub."

50202. (Undetermined.)

"Shrub or small tree."

50203. (Undetermined.)

"(No. 225/19.) Potgietersrust. *Mookwerikweri* (Sesutu). Small evergreen tree."

50204. (Undetermined.)

"*Maviling hombwa.* Tree near Elizabethville, Belgian Kongo."

50205. (Undetermined.)

"Collected in Manicaland, Rhodesia, by Maj. R. Gordon."

50206. (Undetermined.)

"*Kimpampa.* Elizabethville, Belgian Kongo. Ornamental tree."

50207. BRACHYSTEGIA sp. Cæsalpiniaceæ.

From Kafue, Northern Rhodesia. Seeds collected by Dr. H. L. Shantz, Agricultural Explorer of the United States Department of Agriculture. Numbered June 7, 1920.

"(No. 300 in part. Bolenga Camp on the Kafue River. November 25, 1919.) *Mombo* (Chinyanja). A large, spreading, acacialike tree with large pods and large, flat seeds; it is most useful as well as ornamental. The seed is eaten by the natives

and by baboons. The bast fiber, formerly used to make cloth, is now used whenever fiber is required. The bark when pounded furnished the chief cloth used by the natives before the introduction of cloth by the whites." (*Shantz.*)

50208 to 50210.

From Hobart, Tasmania. Seeds presented by L. A. Evans, Acting Director of Agriculture. Received May 14, 1920.

"Collected on the slopes of Mount Wellington at an altitude of about 3,000 feet." (*Evans.*)

50208. EUCALYPTUS COCCIFERA Hook. f. Myrtaceæ.

A fine tree with leaves of two forms—in the young tree they are opposite, sessile, oval, and more or less mucronate; in the adult form they are alternate, stalked, lanceolate, and hook pointed. The young branches are cylindrical and very white; the flowers are usually in tufts of seven. (Adapted from *Gardeners' Chronicle, third series, vol. 3, p. 798.*)

For previous introduction, see S. P. I. No. 10505.

50209. EUCALYPTUS MUELLERI T. B. Moore. Myrtaceæ.

A magnificent tree, 100 to 200 feet high, branchless for half its height, with light red-colored wood extremely hard and heavy and of a stringy, close-grained character. The thick shining leaves are crenulated. The tree is native to Tasmania at altitudes of 2,000 feet; it grows luxuriantly in unsheltered conditions and in poor soil. (Adapted from *Mueller, Proceedings of the Royal Society of Tasmania, p. 208.*)

For previous introduction, see S. P. I. No. 38730.

50210. EUCALYPTUS URNIGERA Hook. f. Myrtaceæ.

A small tree, 15 to 20 feet high in its native home on the summits of the Tasmanian Mountains, but occasionally reaching a height of 150 feet in cultivation; one of the hardiest of the eucalypts. The leaves of the young tree are opposite, sessile, orbicular, and green; the leaves on the adult plant are alternate, stalked, elliptic, and always green, never glaucous. The pale-yellow flowers are in groups of three, followed by urn-shaped fruits. Baron von Mueller says of this species: "It is particularly hardy and may become of sanitary importance to colder countries in malarial regions, the foliage being much imbued with antiseptic oil." (Adapted from *Gardeners' Chronicle, third series, vol. 3, pp. 460, 798.*)

For previous introduction, see S. P. I. No. 1679.

50211 to 50217.

From Chama, Coban, Guatemala. Seeds collected by Harry Johnson. Received May 3, 1920. Quoted notes by Mr. Johnson.

50211. ANNONA RETICULATA L. Annonaceæ. **Custard-apple.**

"An upright, open, heavy-bearing tree, 25 feet high, with smooth dark-green leaves 8 to 10 inches long and 2 inches broad, with acuminate tip and base. The fruit, 4 inches in length, is of a very pleasing light-red color, like the blush on the nectarine. The skin is thin, not reticulated, but the facets are slightly visible. The flesh is of the color and texture of a ripe Bartlett pear, with a flavor similar to that of the cherimoya. The seeds surround a central core which is compactly inclosed in smooth pulp. There is only one tree that I know of here at Jocolo."

For previous introduction, see S. P. I. No. 45955.

50211 to 50217—Continued.

50212. BEGONIA CONVALLARIODORA C. DC. Begoniaceæ.

"Seeds collected in Chama, from a widely distributed species which I first saw at Mocca. It grows most profusely along roadsides in the second growth, scrambling over the shrubs and undergrowth and hanging down from the banks. The white flowers, sometimes tinged on the outside with red, are produced freely in large panicles near the ends of the shoots."

50213. BEGONIA sp. Begoniaceæ.

"Collected about 2 miles out from Tactic on the road leading to Tucuru. A rhizomatous species with large, slightly hairy leaves 10 to 14 inches in diameter on petioles 18 to 36 inches long. The flower spike is 2 to 3 feet in length; the pods are strongly winged."

50214. GOSSYPIUM HIRSUTUM L. Malvaceæ. **Cotton.**

"Seeds of the cotton grown around the Lago Izabal, at Jocolo, said to have been imported many years ago from the United States."

For previous introduction, see S. P. I. No. 41917.

50215. GOSSYPIUM sp. Malvaceæ. **Cotton.**

"This variety is said to grow into quite a tree. It is common in the region around Jocolo."

50216. GOSSYPIUM sp. Malvaceæ. **Cotton.**

"This variety grows into a large shrub or small tree with yellow flowers. It is the common form at Chama."

50217. PHASEOLUS LUNATUS L. Fabaceæ. **Lima bean.**

"Seeds of a black *butter bean*, as it is called here. There are two to four seeds in a pod, usually three."

50218. CHRYSOBALANUS ICACO L. Rosaceæ. Icaco.

From Chama, Coban, Guatemala. Seed collected by Harry Johnson, Received May 22, 1920.

"A fruit similar in appearance to a large ripe olive, but of sweet though rather insipid flavor. The shrub grows along the lake shore, hanging over the water, and is a free bearer." (*Johnson.*)

50219 and 50220.

From Kigoma, Belgian Kongo. Fruits collected by Dr. H. L. Shantz, Agricultural Explorer of the United States Department of Agriculture. Received April 12, 1920. Quoted notes by Doctor Shantz.

50219. CITRUS sp. Rutaceæ.

"(No. 617. Kigoma. February 20, 1920.) Fruit of a lime, very abundant here and used much more than the lemon."

50220. CITRUS sp. Rutaceæ.

"(No. 619. Kigoma. February 20, 1920.) A rough lemon grown here."

50221 to 50287.

From Belgian Kongo. Seeds collected by Dr. H. L. Shantz, Agricultural Explorer of the United States Department of Agriculture. Received April 12, 1920. Quoted notes by Doctor Shantz.

50221. AMARANTHUS sp. Amaranthaceæ. **Amaranth.**

"(No. 547. Kongolo. February 6, 1920.) The young plants and leaves are used as greens."

50221 to 50287—Continued.

50222. BIXA ORELLANA L. Bixaceæ. **Annatto tree.**

"(No. 610. Ujiji. February 17, 1920. Herb. No. 675.) An ornamental plant; pigment is rubbed from the seeds and used by the natives as coloring material."

For previous introductions, see S. P. I. No. 44954.

50223. CAPSICUM ANNUUM L. Solanaceæ. **Red pepper.**

"(No. 557. Kongolo. February 7, 1920.) A large paprika, 2 inches long."

For previous introduction, see S. P. I. No. 47010.

50224. CEIBA PENTANDRA (L.) Gaertn. Bombacaceæ. **Kapok.**
(*Eriodendron anfractuosum* DC.)

"(No. 613. Ujiji. February 17, 1920.) Grown as a street tree."

For previous introduction, see S. P. I. No. 46522.

50225. CITRULLUS VULGARIS Schrad. Cucurbitaceæ. **Watermelon.**

"(No. 560. Kabalo. February 8, 1920.) A white-fleshed, red-seeded watermelon with a fairly good flavor."

50226. CROTALARIA STRIATA Schrank. Fabaceæ.

"(No. 572. Albertville. February 12, 1920. Herb. No. 665.) A tall leguminous plant, about 4 feet high."

For previous introductions, see S. P. I. No. 34670.

50227. DACTYLOCTENIUM AEGYPTIUM (L.) Richter. Poaceæ. **Grass.**
(*Eleusine aegyptiaca* Desf.)

"(No. 562. Kabalo. February 8, 1920.) A ruderal."

For previous introduction, see S. P. I. No. 38017.

50228. DATURA METEL FASTUOSA (L.) Safford. Solanaceæ.

"(No. 602. Kigoma. February 14, 1920. Herb. No. 669.)"

For previous introduction, see S. P. I. No. 47671.

50229. GOSSYPIUM sp. Malvaceæ. **Cotton.**

"(No. 556. Kongolo. February 7, 1920.) One capsule with four carpels."

50230. GOSSYPIUM sp. Malvaceæ. **Cotton.**

"(No. 564. Kabalo. February 9, 1920.) This cotton, collected at Kiluba, has a very long pod, and the seeds are closely packed together with no lint between them as in kidney cotton."

50231. GOSSYPIUM sp. Malvaceæ. **Cotton.**

"(No. 575. Albertville. February 12, 1920. Herb. No. 663.) A cotton plant 6 feet high with long pods."

50232. HETEROPOGON CONTORTUS (L.) Beauv. Poaceæ. **Grass.**

"(No. 576. Albertville. February 12, 1920.) A low grass about a foot high, which grows in dense masses on poor sandy soil."

For previous introduction, see S. P. I. No. 15357.

50233 and 50234. HOLCUS SORGHUM VERTICILLIFLORUS (Steud.) Hitchc. Poaceæ. **Tabucki grass.**

50233. "(No. 568. Albertville. February 10, 1920.) Darker and more hairy than the normal plants of this species, 8 feet high."

50234. "(No. 569. Albertville. February 10, 1920.) Seed collected from many different plants."

50221 to 50287—Continued.

50235 and 50236. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

50235. "(No. 600. Kigoma. February 14, 1920.) A white kafir called mtama, from the market."

50236. "(No. 603. Kigoma. February 14, 1920.) A white kafir (mtama) purchased in the market."

50237. IPOMOEA PES-CAPRAE (L.) Roth. Convolvulaceæ.
(*I. biloba* Forsk.)

"(No. 565. Albertville. February 9, 1920.) From the sandy shore of Lake Tanganyika."

For previous introduction, see S. P. I. No. 47921.

50238. QUAMOCLIT PENNATA (Desr.) Voigt. Convolvulaceæ.

"(No. 549. Kongolo. February 6, 1920. Herb. No. 653.) An ornamental vine."

50239. JATROPHA CURCAS L. Euphorbiaceæ.

"(No. 611. Ujiji. February 17, 1920.) A crotonlike oil plant, the same as No. 459 [S. P. I. No. 50021]. The Belgians are trying to extract the oil here in the Ujiji soap factory."

For previous introduction, see S. P. I. No. 47916.

50240. LYCOPERSICON ESCULENTUM Mill. Solanaceæ. **Tomato.**

"(No. 548. Kongolo. February 6, 1920.) A small red tomato abundant here; the only tomato in the market."

50241. MANIHOT GLAZIOVII Muell. Arg. Euphorbiaceæ. **Ceara rubber.**

"(No. 612. Ujiji. February 17, 1920.) The rubber tree, also grown as an ornamental or street tree."

For previous introduction, see S. P. I. No. 46809.

50242. NICOTIANA TABACUM L. Solanaceæ. **Tobacco.**

"(No. 558. Kongolo. February 7, 1920.) Native tobacco; very strong but of good aroma."

50243. PACHYLOBUS sp. Balsameaceæ.

"(No. 550. Kongolo. February 7, 1920.) A large forest tree with nuts edible when boiled; the nuts also yield an oil."

50244. PANICUM MAXIMUM Jacq. Poaceæ. **Grass.**

"(No. 544. Kongolo. February 5, 1920. Herb. No. 651.) A large Panicum."

For previous introduction, see S. P. I. No. 47032.

50245. PENNISETUM GLAUCUM (L.) R. Br. Poaceæ. **Pearl millet.**
(*P. typhoideum* Pers.)

"(No. 599. Kigoma. February 14, 1920.) From the market."

For previous introduction, see S. P. I. No. 48095.

50246 and 50247. PENNISETUM SETOSUM (Swartz) L. Rich. Poaceæ. **Grass.**

50246. "(No. 542. Kongolo. February 6, 1920. Herb. No. 648.) A large Setarialike grass, prominent in this region."

50247. "(No. 543. Kongolo. February 6, 1920.) A large grass similar to the previous number [S. P. I. No. 50246], but with larger heads."

50221 to 50287—Continued.

50248 and 50249. PHASEOLUS AUREUS Roxb. Fabaceæ. **Mung bean.**

50248. "(No. 597. Kigoma. February 14, 1920.) A small green bean used by the Arabs."

50249. "(No. 601. Kigoma. February 14, 1920. Herb. No. 668.) A low bush form grown by the natives; seeds and pods very small."

50250 to 50267. PHASEOLUS VULGARIS L. Fabaceæ. **Common bean.**

"(Kigoma. February 14, 1920.) Beans from the region of Usumbura, shipped through Kigoma and sold in the market in Albertville. They constitute one of the staples here."

50250. "(No. 577.) A large white bean."

50251. "(No. 578.) Similar to the navy bean."

50252. "(No. 579.) A greenish yellow bean."

50253. "(No. 580.) A brown bean."

50254. "(No. 581.) A black bean."

50255. "(No. 582.) A brownish yellow bean; striped."

50256. "(No. 583.) Light yellow with dark stripes."

50257. "(No. 584.) Reddish bean with dark stripes."

50258. "(No. 585.) Reddish brown bean."

50259. "(No. 586.) Purple-mottled bean."

50260. "(No. 587.) Purple, red-mottled bean."

50261. "(No. 589.) Deep-red bean, not mottled."

50262. "(No. 590.) Deep-purple bean."

50263. "(No. 591.) Gray bean."

50264. "(No. 592.) Reddish bean with purple stripes."

50265. "(No. 593.) Red bean with white mottling."

50266. "(No. 594.) Reddish tan bean."

50267. "(No. 595.) Unassorted remainder."

50268. PHYSALIS ANGULATA L. Solanaceæ.

"(No. 546. Kongolo. February 6, 1920.) The plants are more glaucous and smaller than those of *Physalis edulis*, and the berries are sweeter."

50269. PISUM SATIVUM L. Fabaceæ. **Garden pea.**

"(No. 596. Kigoma. February 14, 1920.) Sold here in the market; also from the Urumbura region."

50270. RICINODENDRON sp. Euphorbiaceæ.

"(No. 559. Kabalo. February 8, 1920.) The ripe fruit is greenish with a pulp about one-fourth of an inch deep and quite sweet. The pulp is used, but the nut is of the most value, both as food and for oil."

50271 to 50277. RICINUS COMMUNIS L. Euphorbiaceæ. **Castor-bean.**

50271. "(No. 566. Kabalo to Albertville. February 10, 1920.) Castor-bean."

50272. "(No. 604. Ujiji. February 17, 1920.) Small-seeded castor-oil plant; the best oil variety grown here. There is a plant in Ujiji for extracting the oil and plantations for growing the raw material."

50273. "(No. 605. Ujiji. February 17, 1920.) A large-seeded variety similar to No. 609 [S. P. I. No. 50277]."

50221 to 50287—Continued.

50274. "(No. 606. Ujiji. February 17, 1920.) A bean intermediate in size between Nos. 605 and 604."

50275. "(No. 607. Ujiji. February 17, 1920.) A very large reddish tinted castor-bean."

50276. "(No. 608. Ujiji. February 17, 1920.) A large deep-brown bean."

50277. "(No. 609. Ujiji. February 17, 1920.) Mixed castor-beans."

50278. SOLANUM sp. Solanaceæ.

"(No. 545. Kongolo. February 6, 1920. Herb. No. 646.) A Solanum similar to the wonderberry."

50279. TITHONIA ROTUNDIFOLIA (Mill.) Blake. Asteraceæ.
(*T. speciosa* Griseb.)

"(No. 570. Albertville. February 10, 1920.) A peculiar composite which looks like a single dahlia but has mintlike foliage. It is cultivated as an ornamental."

For previous introduction, see S. P. I. No. 43782.

50280 and 50281. TRICHOLAENA ROSEA Nees. Poaceæ. **Natal grass.**

50280. "(No. 561. Kabalo. February 8, 1920.) Abundant on sandy soil."

50281. "(No. 573. Albertville. February 12, 1920.) Growing on sandy soil. It is a foot high and accustomed to long periods of drought."

50282. VIGNA SINENSIS (Torner) Savi. Fabaceæ. **Cowpea.**

"(No. 551. Kongolo. February 7, 1920.) Small red beans from the native market."

50283. VIGNA sp. Fabaceæ.

"(No. 571. Albertville. February 10, 1920.) A wild vine along the lake shore."

50284 to 50286. ZEA MAYS L. Poaceæ. **Corn.**

50284. "(No. 552. Kongolo. February 7, 1920.) Red flint corn."

50285. "(No. 553. Kongolo. February 7, 1920.) White flint corn."

50286. "(No. 554. Kongolo. February 7, 1920.) White and blue flint corn."

50287. (Undetermined.)

"(No. 574. Albertville. February 12, 1920. Herb. No. 574.) A tree."

50288 to 50306.

From Kew, England. Seeds presented by Sir David Prain, director, Royal Botanic Gardens. Received May 3, 1920.

50288. BERBERIS TISCHLERI C. Schneid. Berberidaceæ. **Barberry.**

A shrub about 2 meters high, with leaves paler beneath, yellow flowers, and yellowish red fruits; native to western Szechwan at altitudes of 2,300 to 3,800 meters. (Adapted from *Sargent, Plantae Wilsonianae, vol. 1, p. 355.*)

For previous introduction, see S. P. I. No. 43825.

50289. BETULA ERMANI Champ. Betulaceæ. **Birch.**

A tree up to 100 feet in height, with the bark of the trunk creamy white and peeling, that of the branches orange-brown; native to Manchuria, Korea, and Japan. It is said to be liable to injury by spring frosts, owing to its early start

50288 to 50306—Continued.

into growth. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 256.*)

For previous introduction, see S. P. I. No. 40154.

50290. BETULA KENAICA W. H. Evans. Betulaceæ. Birch.

A tree, native to the Alaskan coast from Cook Inlet southward to the head of Lynn Canal, 30 to 40 feet high, with widespreading branches. The stout branchlets are marked with red-brown lenticels becoming darker after 2 or three years. The thin, furrowed bark is dark brown or nearly black near the base of the trunk, grayish white or light reddish brown higher up. The leaves are dull dark green above, pale yellow-green below. (Adapted from *Sargent, Manual of the Trees of North America, p. 205.*)

50291. EUONYMUS USSURIENSIS Maxim. Celastraceæ.

A shrub or small tree with short, thick branches, broadly elliptical leaves, and small flowers with yellow anthers. (Adapted from *Bulletin de L'Académie Impériale des Sciences de St. Pétersbourg, vol. 27, p. 450.*)

50292. PYRACANTHA CRENULATA (Don) Roemer. Malaceæ.
(*Crataegus crenulata* Roxb.)

Variety *rogersiana.*

A very attractive, rapid-growing shrub with an abundance of white flowers in May, followed in October by a profusion of bright-red berries. It is native to the Himalayas and China. (Adapted from *The Garden, vol. 78, p. 563.*)

50293. RUBUS ALLEGHANIENSIS Porter. Rosaceæ. Blackberry.
(*R. nigrobaccus* Bailey.)

One of the numerous forms of the cultivated blackberry, often known as *Rubus nigrobaccus*, but apparently only a more or less stable form of *R. alleghaniensis.*

50294. RUBUS BIFLORUS QUINQUEFLORUS Focke. Rosaceæ.

A large vigorous-growing bush with attractive, stout, "whitewashed" stems, 12 to 15 feet in height, and ornamental foliage. This plant produces rich, golden yellow, raspberrylike fruits of pleasant flavor, which may prove of considerable value in the hands of the hybridist. (Adapted from *The Garden, vol. 76, p. 624.*)

For previous introduction, see S. P. I. No. 42586.

50295. RUBUS COREANUS Miquel. Rosaceæ.

An upright-growing Chinese bramble which is self-supporting. The bluish white stems are 7 or more feet in length and are furnished abundantly with handsome pinnate leaves which are about 8 inches long and consist of seven to nine leaflets. The stems are armed with straight prickles; those on the petioles are hooked. The fruits are small, red to nearly black, and edible. Native to central and western China at altitudes of 6,000 feet. (Adapted from *Gardeners' Chronicle, third series, vol. 51, p. 148.*)

For previous introduction, see S. P. I. No. 42585.

50296. RUBUS FLOSCULOSUS Focke. Rosaceæ.

A vigorous Chinese shrub, 10 to 15 feet high, with stout, erect, dark purplish brown stems, smooth except for a few spines. The pinnate leaves, smooth above, are covered beneath with a close white felt. The small pink flowers are followed by small, very dark red or black fruit. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 458.*)

For previous introduction, see S. P. I. No. 29976.

50288 to 50303—Continued.

50297. RUBUS GIRALDIANUS Focke. Rosaceæ.

A vigorous, strikingly handsome Rubus with stout blue-white stems, 12 to 15 feet high. The foliage is decidedly ornamental and the stems are very showy, particularly in winter. (Adapted from *Gardeners' Chronicle, third series, vol. 51, p. 147.*)

For previous introduction, see S. P. I. No. 40594.

50298. RUBUS LASIOSTYLUS Focke. Rosaceæ.

A stout, hardy plant, strikingly ornamental with its thick, very spiny stems, of a peculiar whitened character, 4 to 12 feet high. The pinnate leaves are dark green above and silvery white beneath; when young, the leafstalks and veins are suffused with rose. The magenta red flowers are followed by curious white, woolly fruits which are sweet to the palate and are said to be used for food in China, where it is native. (Adapted from *Gardeners' Chronicle, third series, vol. 51, p. 167*; and *Gardening Illustrated, vol. 28, p. 631.*)

For previous introduction, see S. P. I. No. 44402.

50299. RUBUS MESOGAEUS Focke. Rosaceæ.

A central Chinese bramble with slender climbing stems, 4 to 5 meters long, rather small flowers, and small globose berries. (Adapted from *Focke, Species Ruborum, Bibliotheca Botanica, vol. 72, p. 204.*)

For previous introduction, see S. P. I. No. 42589.

50300. RUBUS NUTKANUS Moc. Rosaceæ.

The salmonberry of Alaska, with large, sweet, pleasant-flavored fruits and no prickles. The plant dies down to the root annually; the seeds may rest for fully 15 years under ground and yet be able to germinate. (Adapted from *Mueller, Select Extra-Tropical Plants, p. 476.*)

50301. RUBUS PARVIFOLIUS L. Rosaceæ.

An East Asian and Australian plant which produces much finer fruit in the mountains of Australia than in the lowlands. It extends as a native to Japan. (Adapted from *Mueller, Select Extra-Tropical Plants, p. 477.*)

For previous introduction, see S. P. I. No. 29978.

50302. RUBUS PHOENICOLASIUS Maxim. Rosaceæ.

A very ornamental Japanese wineberry, 8 to 10 feet high, with the branches and fruit clusters covered with a dark-red hairy pubescence that contrasts delightfully with the green leafage and its white reverse surface. This bramble is remarkably productive and is very decorative with its long full sprays of berries ranging from pale yellow, where the red calyces have but just expanded, to the polished crimson of the ripe berries. The ripe fruit is agreeable in flavor and has a certain sharp, brisk quality in the taste. The plant is as hardy as the raspberry and prefers damp situations. (Adapted from *Gardening Illustrated, vol. 19, p. 235.*)

For previous introduction, see S. P. I. No. 36071.

50303. RUBUS PUBESCENS Weihe. Rosaceæ.

A very robust bramble native to Europe, with strong canes which, however, do not ascend to any considerable height without support. The fruit is well developed and pleasant flavored.

For previous introducton, see S. P. I. No. 42591.

50288 to 50306—Continued.

50304. RUBUS VEITCHII Rolfe. Rosaceæ.

One of the handsomest of all the Chinese brambles. The plants grow to a height of 6 to 7 feet, have blue-white stems and attractive, much-divided fernlike foliage. At first erect, the stems are gracefully drooping with age. Both stems and petioles are very spiny. The pinnate leaves are dark green above and white beneath. The purple flowers are borne in small terminal panicles; the blue-black fruits are of moderate size. (Adapted from *Gardeners' Chronicle, third series, vol. 51, p. 148.*)

50305. RUBUS XANTHOCARPUS Bur. and Franch. Rosaceæ.

A Chinese trailing plant with large, ovate, bright-yellow fruits which are fragrant and palatable.

For previous introduction, see S. P. I. No. 24155.

50306. STAPHYLEA PINNATA L. Staphyleaceæ.

A treelike shrub, widely distributed throughout Europe to western Asia, with deciduous leaves and terminal clusters of small flowers and much-inflated membranaceous podlike fruits. (Adapted from *Gardening Illustrated, vol. 39, p. 476.*)

50307. SOLANUM TUBEROSUM L. Solanaceæ. **Potato.**

From Teteko, New Zealand. Tubers presented by Charles G. Hallett. Received May 11, 1920.

"Tubers of a peculiar potato that grows in this district. I was given one little tuber by a Government overseer of rabbiters who had taken some tubers from the spring in which they grow and had grown them in his garden for a year or so. He assured me that frost does not affect the plants when growing in the spring. The tubers I am forwarding you grew in my garden from the one I received from the rabbiter, so they have been out of the water for two or three generations." (*Hallett.*)

"On the northern side of the Rangitaiki River, in the Bay of Plenty district, opposite the old Maori settlement called Waiohau, where a splendid spring of fresh water issues from the base of a hill and flows between banks heavily fringed with water cress to the near-by river, a remarkable instance of a plant forsaking its normal environment may be observed. There water cress and potato plants flourish together, and tubers are found among the cress roots from 12 to 18 inches under water. Some of the tubers are almost in midstream, others may be found snuggled into the bank fiber, and the foliage of cress and potato mingle on the water surface. It may be that the plants are dependent for their growth upon the earthy particles held by the cress roots and also that there is some fertilizing quality in the water which drains from the great volcanic area. The potatoes when cooked are not all mealy, but waxy. They grow to a fair size and are fit for eating as early as August.

"I forwarded some of the tubers for testing at the Moumahaki Experimental Farm last season. The manager's report on the trial is as follows:

"'Some of the water-potato tubers were planted on August 31, 1916, in the potato-variety trials, having the same treatment, soil, and manured as the 66 other varieties planted on the same date. The potato in question came away vigorously and is distinct in foliage, with a large blue flower, bearing seed apples naturally. The crop was lifted on February 6, 1917, and was free from disease. The yield was as follows: Marketable tubers (table and seed), at the rate of 11 tons per acre; pig potatoes, 1.87 tons; total 12.87 tons. The cooking test made on February 6, by boiling, showed that the potatoes kept their color 24 hours, but they could not be classed as good cookers. The starch content is believed to be high. About the same date one root was lifted, and the tubers were put into running stream water. In less than a month the tubers had rotted.'

"Despite the negative result recorded in the last part of this report, the circumstances surrounding the growth of the tubers in the Rangitaiki spring may indicate, if only slightly, a possible reversion of this long-domesticated plant to an ancestral habit." (*D. M. Ross, New Zealand Journal of Agriculture, vol. 15, p. 209.*)

50308 and 50309.

From Lamao, Bataan, Philippine Islands. Seeds presented by P. J. Wester, agricultural adviser, Lamao Horticultural Station. Received May 4, 1920.

50308. IPOMOEA sp. Convolvulaceæ. **Morning-glory.**

"A white-flowered perennial Ipomoea. The plant is of medium growth and blossoms during the winter months, the tourist season." (*Wester.*)

50309. CITRUS HYSTRIX DC. Rutaceæ. **Cabuyao.**

"Seeds of an unusually productive tree; fruits rather more oblate than the ordinary run of this species." (*Wester.*)

For previous introduction, see S. P. I. No. 42364.

50310. IPOMOEA sp. Convolvulaceæ. Morning-glory.

From Coban, Guatemala. Seeds presented by Harry Johnson. Received May 4, 1920.

"A rather vigorous vine not more than 25 feet long in the specimens seen, with leaves 2½ inches in length. The flowers, which are borne in clusters of two or more on 3-inch pedicels, are 2½ inches in diameter, salver shaped, and are a peculiar shade of terra cotta, which is a novel color. It is quite free flowering, and here it is a perennial. I have seen it only in the hot lowlands. Seeds collected at Papalha." (*Johnson.*)

50311. LILIUM PHILIPPINENSE Baker. Liliaceæ. Benguet lily.

From Manila, Philippine Islands. Bulbs presented by M. J. Oteyza, forester in charge of the Baguio district in Benguet, Luzon, through Elmer D. Merrill, director, Bureau of Science. Received May 5, 1920.

A very beautiful hardy white lily with a fragrance indistinguishable from that of a gardenia. The plant is exceedingly dainty, with slender recurving leaves not more than one-fifth of an inch wide. The flowers are 8 inches long with a very slender tube; the segments are spread out only near the apex. The bulbs will flower in less than half the time required to force *Lilium longiflorum*. (Adapted from *Gardeners' Chronicle, third series, vol. 36, p. 210.*)

For previous introduction, see S. P. I. No. 45570.

50312. NICOTIANA TABACUM L. Solanaceæ. Tobacco.

From Smyrna, Turkey. Seeds presented by George Horton, American consul general. Received May 5, 1920.

"Seeds of the Turkish tobacco grown in the region about Smyrna. E. M. Yantis, of the Gary Tobacco Co., states that only one type is grown in this region." (*Horton.*)

50313. CEDRUS ATLANTICA Manetti. Pinaceæ.

From Tangier, Morocco. Seeds presented by Jules Goffart, Société d'Horticulture. Received June 1, 1920.

One of the finest evergreens, of vigorous growth and pyramidal form; it has dense, light silvery foliage. In its native territory, the Atlas Mountains of Algeria, it reaches a height of 120 feet. It thrives splendidly on the Pacific coast of the United States and can be grown in a sheltered position on the Atlantic coast as far north as New York. (Adapted from *Florists' Review, vol. 34, p. 78.*)

50314. LOBELIA NICOTIANAEFOLIA Heyne. Campanulaceæ.

From Manila, Philippine Islands. Seeds presented by Elmer D. Merrill, director, Bureau of Science. Received May 6, 1920.

"The plant is a tall, coarse herb, attaining a height of from 2 to 3 meters, the stem often being 3 centimeters in diameter. It grows on the mountains of northern Luzon at altitudes of 1,500 to 2,000 meters in damp ravines, in open places, and in thickets. The inflorescence is terminal, consisting of numerous pale-blue flowers. The plant has some possibilities as an ornamental on account of its very luxuriant growth." (*Merrill.*)

50315 to 50324. VICIA spp. Fabaceæ.

From Erfurt, Germany. Seeds purchased from Haage & Schmidt. Received May 6, 1920.

A collection of vetch seeds introduced for the Office of Forage-Crop Investigations.

50315. VICIA BITHYNICA L.

An annual upright or climbing vetch, with numerous branching stems 4 to 20 inches long. The leaflets, of which there are from one to three pairs, are lanceolate or even linear, and the rather large flowers have yellowish wings and keels and purple-violet standards which finally become blue. Native to the Mediterranean regions. (Adapted from *Ascherson and Graebner, Synopsis der Mitteleuropäischen Flora, vol. 6, pt. 2, p. 983.*)

50316. VICIA ANGUSTIFOLIA Grufberg.

An annual European vetch 1 to 2 feet long, with nearly sessile leaves made up of 3 to 7 pairs of linear-lanceolate leaflets and bearing purple flowers about half an inch long. (Adapted from *Ascherson and Graebner, Synopsis der Mitteleuropäischen Flora, vol. 6, pt. 2, p. 971.*)

50317. VICIA SATIVA L.

For previous introduction see S. P. I. No. 32195.

50318. VICIA DASYCARPA Ten.

"An annual or sometimes perennial European vetch with slender angled stems, about 10 pairs of ovate to linear leaflets, and flowers which are whitish below and blue-violet above, becoming blue with age. Produces good seed crops." (*P. L. Ricker.*)

For previous introduction, see S. P. I. No. 32165.

50319. VICIA SATIVA L.

Received as *Vicia striata*, but the seeds do not agree with that species.

50320. VICIA SATIVA L.

Received as *Vicia peregrina*, but the specimens do not agree with that species.

50321. VICIA SATIVA L.

Received as *Vicia picta*, but specimens grown from these seeds are *Vicia sativa*.

50322. VICIA ATROPURPUREA Desf.

Received as *Vicia pseudocracca*, but specimens grown from these seeds are *Vicia atropurpurea*.

50323. VICIA SEPIUM L.

A perennial European vetch with climbing, rarely prostrate stems, up to a meter long, terminating in almost threadlike reddish tendrils. The leaflets are oval to elongate, and the flowers, in clusters of two to five, are dark lilac

50315 to 50324—Continued.

colored, more rarely yellowish white or pure white. The black narrow pods are about an inch long. (Adapted from *Ascherson and Graebner, Synopsis der Mitteleuropäischen Flora, vol. 6, pt. 2, p. 953.*)

For previous introduction, see S. P. I. No. 32204.

50324. VICIA SYLVATICA L.

A perennial weak-stemmed vetch from northern and eastern Europe, sometimes over 5 feet high, with mucronate narrow leaflets, whitish flowers with lilac-colored stripes, and elongate, pendent black pods about an inch long. (Adapted from *Ascherson and Graebner, Synopsis der Mitteleuropäischen Flora, vol. 6, pt. 2, p. 925.*)

For previous introduction, see S. P. I. No. 31085.

50325. MIDA ACUMINATA (R. Br.) Kuntze. Santalaceæ. **Quandong.**
(*Fusanus acuminatus* R. Br.)

From Sydney, New South Wales. Seeds presented by the Forestry Commission. Received May 6, 1920.

For previous introduction, see S. P. I. No. 49893.

50326. CITRUS NOBILIS DELICIOSA (Ten.) Swingle. Rutaceæ. **Tangerine.**

From Jhelam, Punjab, India. Budwood presented by Mrs. Ralph R. Stewart. Received May 7, 1920.

"(Jhelam, Punjab. March 11, 1920.) *Naranji* tangerine." (*Stewart.*)

For previous introduction, see S. P. I. No. 45933.

50327. AMORPHOPHALLUS sp. Araceæ.

From Singapore, Straits Settlements. Tuber presented by I. Henry Burkill, director, Botanic Gardens. Received May 7, 1920.

"A tuber of a species of Amorphophallus from the Waterfall Garden in Penang. It came from the Kedah Peak, where *Amorphophallus prainii* may well occur." (*Burkill.*)

50328 to 50331.

From Pancajche, Alta Vera Paz, Guatemala. Seeds presented by Harry Johnson. Received May 7, 1920. Quoted notes by Mr. Johnson.

"These blackberries were collected at Tactic, Alta Vera Paz, at altitudes of 5,000 to 6,000 feet."

50328. RUBUS sp. Rosaceæ. **Blackberry.**

"(No. 1. April 13, 1920.) A remarkably fruitful blackberry of vigorous growth, with canes up to an inch in diameter and sharp, hooked spines which are not very numerous. The fruits, which are borne in big terminal clusters of 15 to 35 berries, are of good flavor and rather long. The seeds are not objectionable, as in so many cultivated varieties. These seeds are all from one plant."

50329. RUBUS sp. Rosaceæ. **Blackberry.**

"(No. 2. April 13, 1920.) A vigorous vine; the canes are covered with glandular hairs. It is a medium bearer, with good-sized fruits."

50328 to 50331—Continued.

50330. RUBUS sp. Rosaceæ. **Blackberry.**

"(No. 3. April 13, 1920.) Seeds from many vines of one species. The vines are vigorous and upright, producing canes more than 10 feet high, with few spines. The fruits are of good size and flavor, and the vines are good bearers."

50331. SALVIA sp. Menthaceæ. **Sage.**

"(No. 5. Tactic. April 13, 1920.) A perennial Salvia, rather frequent in the underbrush on the mountain sides above Tactic at altitudes of 5,000 to 6,000 feet. It is soft wooded, producing pendent stems 3 to 5 feet long. The flowers, which are borne in terminal spikes up to a foot long, are bright red, tubular without a widely flaring mouth, and five-eighths of an inch long. The foliage is similar to that of *Salvia splendens*."

50332. GREVILLEA BANKSII R. Br. Proteaceæ.

From Littleriver, Fla. Seeds presented by Charles T. Simpson. Received May 11, 1920.

"These seeds of *Grevillea banksii*, a native of Australia, are from a tree on my grounds. It is one of our best ornamentals, being a rapid, upright grower, with elegant pinnatifid leaves with greenish silvery undersurfaces. It begins to bloom in December and continues in flower until in May, being covered with heads of curious carmine flowers, which are decidedly attractive. The tree is perfectly hardy here and would probably be so for some distance farther north, and so far it is entirely free from insect pests or diseases. It will grow in hammock or pineland with little culture or fertilizer." (*Simpson.*)

For previous introduction, see S. P. I. No. 40042.

50333. LAGENARIA VULGARIS Seringe. Cucurbitaceæ. **Gourd.**

From Avery Island, La. Seeds presented by E. A. McIlhenny. Received May 13, 1920.

"I am sending you a few of the edible gourd seeds. A glance at them will show that they are different from the snake gourd of India. This gourd is thoroughly edible when 3 feet in length if grown under favorable conditions and is then without husk and tender from skin to skin." (*McIlhenny.*)

50334. THEMEDA QUADRIVALVIS (L.) Kuntze. Poaceæ. **Grass.**
(*Anthistiria ciliata* L. f.)

From Hobart, Tasmania. Seeds presented by L. A. Evans, acting director of Agriculture. Received May 13, 1920.

"A coarse, rather tough annual grass which grows in tufts from 1 to 3 feet in height. It is closely related to the kangaroo grass of Australia and Tasmania." (*C. V. Piper.*)

For previous introduction, see S. P. I. No. 48487.

50335. PASPALUM DILATATUM Poir. Poaceæ. **Grass.**

From Sydney, New South Wales. Seeds presented by W. Plant & Co. Received May 14, 1920.

"This grass is a smooth perennial with a deep, strong, root system and grows in clumps 2 to 4 feet high. It is a native of South America and perhaps also of the Gulf States in this country. In Australia this grass has proved to be valuable, especially on the northern coast of New South Wales. It is said to remain green when all other grasses have dried up. Owing to its tendency to lodge, it is better adapted for pasture than for hay. The seed is usually of low percentage of germination." (*C. V. Piper.*)

For previous introduction, see S. P. I. No. 35068.

50336 to 50339.

From Darjiling, India. Seed presented by Lieut. Col. A. T. Gage, through the Lloyd Botanic Garden. Received May 17, 1920, for work on leaf rusts conducted by the Office of Cereal Investigations.

50336. CLEMATIS GOURIANA Roxb. Ranunculaceæ.

An extensive climber, with shining leaves pubescent beneath and yellowish or greenish white flowers in dense panicles. Native to the western Himalayas up to 3,000 feet; also to Ceylon and the Eastern Peninsula. (Adapted from *Hooker, Flora of British India, vol. 1, p. 4.*)

For previous introduction, see S. P. I. No. 47659.

50337. CLEMATIS MONTANA Buch.-Ham. Ranunculaceæ.

A vigorous white-flowered climber, valuable for covering verandas. Native to the Himalayas.

For previous introduction, see S. P. I. No. 39007.

50338. THALICTRUM CHELIDONII DC. Ranunculaceæ.

A very beautiful ornamental plant, 15 inches high, with lovely pale-green foliage pubescent beneath. The delicate, silvery lavender flowers, over an inch across, are borne in graceful sprays. (Adapted from *The Garden, vol. 82, p. 289.*)

50339. THALICTRUM ELEGANS Wall. Ranunculaceæ.

An erect perennial herb with panicles of green-purple flowers. Native to the subalpine Himalayas from Hazara to Sikkim at altitudes of 10,000 to 13,000 feet. (Adapted from *Hooker, Flora of British India, vol. 1, p. 10.*)

50340 to 50342.

From Brisbane, Queensland. Seeds presented by C. T. White, Government botanist. Received May 20, 1920.

50340. ASTREBLA PECTINATA CURVIFOLIA Turner. Poaceæ. **Grass.**

"*Curly Mitchell* grass." (*White.*)

One of the best pasture grasses of Queensland, forming erect tufts 1 to 2 feet high, with narrow, much-curved leaves and woolly spikelets. Seeds of this grass furnished the Queensland aborigines with a large proportion of their food. (Adapted from *Bailey, Queensland Flora, pt. 6, p. 1897.*)

50341. ASTREBLA TRITICOIDES (Lindl.) F. Muell. Poaceæ. **Grass.**

A strong-growing somewhat wiry perennial grass that grows on stiff clayey soil. Its flowering spikes, resembling heads of wheat, are said to have highly fattening qualities and are readily eaten by stock. Native to South Australia, New South Wales, and Queensland. (Adapted from *Maiden, Useful Native Plants of Australia, p. 78.*)

For previous introduction, see S. P. I. No. 48977.

50342. PANICUM DECOMPOSITUM R. Br. Poaceæ. **Grass.**

A spreading glabrous grass, 2 to 3 feet high, common in Queensland. The pounded grains are said to yield a good food, although the grains are rather small. It is excellent for fodder.

For previous introduction, see S. P. I. No. 45040.

50343. ZIZIPHUS SPINA-CHRISTI (L.) Willd. Rhamnaceæ.

From Algiers, Algeria. Seed presented by Dr. L. Trabut. Received May 21, 1920.

A large tree, cultivated as an ornamental in the oases and gardens of the Sudan, with bright-green leaves somewhat fleshy and cordate and ovoid, fragrant, red-brown fruit. The red wood is used by the natives for coarse carpentry. (Adapted from *Bulletin de la Société de Horticulture de Tunis, vol. 17, p. 125.*)

For previous introduction, see S. P. I. No. 44361.

50344. VACCINIUM VITIS-IDAEA L. Vacciniaceæ. **Red bilberry.**

From Stockholm, Sweden. Fruits presented by Dominic I. Murphy, American consul general. Received May 14, 1920.

A small bush, seldom more than 7 or 8 inches in height, which grows wild in northern Europe. The leaves are evergreen, and the blossoms are white or pink. The deep-red berries have a tart, sour taste and are a reasonable substitute for cranberries. The shrub grows best upon the heathery moors, in light forest growths, and on the lower hills of the mountainous districts. (Adapted from *Commerce Reports, November 23, 1910.*)

A form, *Vaccinium vitis-idaea* var. *minor*, of this plant grows in the extreme northeastern United States and in Canada; it is here known as the mountain or rock cranberry.

50345. ANDROPOGON sp. Poaceæ.

From Kisantu, Belgian Kongo. Seeds presented by Father H. Vanderyst. Received July 29, 1920.

50346. ALLIUM CEPA L. Liliaceæ. **Onion.**

From Valencia, Spain. Seeds presented by John R. Putnam, American consul. Received May 22, 1920.

For use in horticultural and pomological investigations.

50347 and 50348.

From Kulare, via Cairns, Queensland, Australia. Seeds presented by J. A. Hamilton. Received May 4, 1920.

50347. EUCALYPTUS TERETICORNIS J. E. Smith. Myrtaceæ.

This tree is usually not more than 100 feet high in Australia. It grows best near the coast, but endures the dry heat of the interior valleys. The trees of this species furnish an excellent red timber which is very hard and durable. (Adapted from *McClatchie, Eucalypts Cultivated in the United States, Bulletin 35, U. S. Bureau of Forestry, p. 81.*)

For previous introduction, see S. P. I. No. 38728.

50348. PHASEOLUS AUREUS Roxb. Fabaceæ. **Mung bean.**

According to Mr. Hamilton these beans are there known as "green soy beans."

50349 to 50351. AVENA SATIVA L. Poaceæ. **Oats.**

From Bremen, Germany. Presented by Prof. S. Tacke, director, Moor-Versuchs-Station. Received May 18 and 20, 1920. Quoted notes by Professor Tacke.

50349. "Bright-yellow oats."

50350. "Black-speckled oats."

50351. "Golden yellow oats."

50352. CREPIS BREVIFLORA Delile. Cichoriaceæ.

From Cairo, Egypt. Seeds presented by Thomas W. Brown, director, Horticultural Section, Gizeh Branch, Ministry of Agriculture. Received May 21, 1920.

An Egyptian annual, 50 centimeters to 1 meter high, with a slender, zigzag, dichotomous, corymbose stem. The lower leaves are ovate-oblong, and the stem leaves are linear-lanceolate with sagittate bases. The heads of yellow flowers are very small. (Adapted from *Muschler, Manual Flora of Egypt, p. 1067.*)

This genus forms an unusually promising subject for genetic research, and these seeds were introduced for purposes of comparison and experimental breeding at the University of California Agricultural Experiment Station.

50353. ALEURITES MONTANA (Lour.) Wilson. Euphorbiaceæ. **Mu-oil tree.**

From Port Louis, Mauritius. Seeds presented by G. Regnard. Received June 8, 1920.

The *mu-yu shu* [mu-oil or wood-oil tree], an ornamental tree cultivated for its oil in subtropical southeastern China. In spring it is a beautiful sight, resembling a plum tree in full flower. The flowers are white with pink and yellow markings. The deciduous leaves are broadly ovate and heart shaped at the base. The fruit is egg shaped, 5 to 6 centimeters (about 2 inches) long, with three longitudinal and many transverse much-raised ridges; the interior part of the fruit is thick and woody and is not easily rotted by fermentation. It incloses usually three obovoid seeds each about 3 centimeters long, warty outside. When ripe, the fruit opens from the base upwards into three parts, and the seeds can then be readily extracted and crushed for oil. This oil is largely used in the paint and varnish industries. (Adapted from *Bulletin of the Imperial Institute, vol. 11, p. 441,* and *Agricultural Gazette of New South Wales, vol. 29, p. 437.*)

For previous introduction, see S. P. I. No. 36897.

50354 to 50356.

From the island of Guam. Seed presented by Glen Briggs, agronomist, Guam Agricultural Experiment Station, through Prof. C. V. Piper. Received May 6, 1920.

50354. ALYSICARPUS VAGINALIS (L.) DC. Fabaceæ.

"This is probably the same as S. P. I. No. 26786. It proved to be the most promising species of Alysicarpus of all those in our trials and for a time promised to be an exceedingly valuable introduction. For some reason not clear the plant failed after the first year or two, but its general character is such that it is worthy of extensive testing to ascertain if possible the exact conditions which it requires." (*Piper.*)

For previous introduction, see S. P. I. No. 26786.

50355. CHRYSOPOGON ACICULATUS (Retz.) Trin. Poaceæ. **Lovi-lovi grass.**

"This grass is abundant in the Indo-Malay region. At Hongkong it is used extensively for lawns. In the Philippines and India it furnishes a good deal of native pasturage, but is objectionable from the fact that when it is allowed to fruit the fruits are sharp pointed, like needles, and so cause some injury to the animals. Besides, they are a nuisance in sticking in the clothing. We have experimented with it somewhat in Florida, where it succeeds well enough, but thus far it has not proved to be aggressive." (*Piper.*)

For previous introduction, see S. P. I. No. 37567.

50354 to 50356—Continued.

50356. TERAMNUS LABIALIS (L.) Spreng. Fabaceæ.

"This is a slender leguminous vine abundant both in the West Indies and East Indies, of possible value as a cover crop in orchards. Recent investigations have shown pretty clearly that the East Indian and West Indian species are distinct, a matter upon which I understand E. D. Merrill expects to publish. If this conclusion is valid, the oriental species will be *Teramnus uncinatus*, while the West Indian species will remain *T. labialis*." (*Piper.*)

For previous introductions, see S. P. I. No. 30716.

50357. SOLANUM TUBEROSUM L. Solanaceæ. **Potato.**

From San Jose, Costa Rica. Tubers presented by Benjamin F. Chase, American consul. Received May 1, 1920.

"*Papa amarilla*, Italian potato, with yellow flesh." (*Chase.*)

50358. ZEA MAYS L. Poaceæ. **Corn.**

From Honolulu, Hawaii. Seed presented by J. M. Westgate, agronomist in charge, Agricultural Experiment Station. Received May 26, 1920.

"Guam seed corn." (*Westgate.*)

50359 to 50373.

From Darjiling, India. Seeds presented by G. H. Cave, curator, Lloyd Botanic Garden. Received May 20, 1920.

50359. ACER CAMPBELLII Hook. f. and Thoms. Aceraceæ. **Maple.**

The chief maple of the northeastern Himalayas up to 7,000 feet. A large tree, freely reproduced by seed or coppice, with pale close-grained wood which is particularly valuable for planking. (Adapted from *Mueller, Useful Native Plants of Australia, p. 14.*)

For previous introduction, see S. P. I. No. 48024.

50360. ACER LAEVIGATUM Wall. Aceraceæ. **Maple.**

A handsome maple from the northeastern Himalayas up to 7,000 feet, the wood of which is much used for building and for tea boxes. (Adapted from *Mueller, Useful Native Plants of Australia, p. 14.*)

For previous introduction, see S. P. I. No. 47631.

50361. ACER THOMSONI Miquel. Aceraceæ. **Maple.**

A large, handsome tree with thin gray bark, native to the Sikkim Himalayas and Bhutan at altitudes of 7,000 to 9,000 feet. The leaves, 3½ to 10 inches long and wide, are small lobed, and the fruits are 2 to 3 inches long. The soft wood is grayish white. (Adapted from *Hooker, Flora of British India, vol. 1, p. 695,* and *Gamble, A Manual of Indian Timbers, p. 99.*)

50362. ASTILBE RIVULARIS Buch.-Ham. Saxifragaceæ.

A perennial herbaceous plant native to Nepal and the temperate regions of the Himalayas from Kashmir to Bhutan. This species has creeping rhizomes and large radical leaves which are biternately divided into dentate sections and have the leafstalks furnished with numerous tawny hairs. The flowering stems, which attain a height of nearly 5 feet, bear a few alternate leaves and terminate in a remarkably effective, slightly nodding panicle of numerous small flowers. The corolla is wanting and the lobes of the calyx, four or five in number, are yellowish white; the 8 to 10 stamens are pure white. (Adapted from *The Garden, vol. 48, p. 355.*)

For previous introduction, see S. P. I. No. 47643.

50359 to 50373—Continued.

50363. CRACCA CANDIDA (DC.) Kuntze. Fabaceæ.
(*Tephrosia candida* DC.)

A shrub which attains a height of about 10 or 12 feet. It makes a great deal of soft growth and covers the ground well. This shrub has been very well reported on in the East and in various parts of the West Indies. A characteristic feature is its long taproot. (Adapted from *Proceedings of the Agricultural Society of Trinidad and Tobago, vol. 12, p. 256.*)

For previous introduction, see S. P. I. No. 47666.

50364. DOCYNIA INDICA (Wall.) Decaisne. Malaceæ.

A small erect tree with yellowish bark and spreading branches. The sparse glabrous ovate leaves are 2 to 3 inches long. The white flowers, three or four in a single umbel, with hairy calyxes, are followed by smooth, roundish, greenish yellow fruits with orange-colored spots. The flavor of the fruit somewhat resembles that of the quince. (Adapted from *Wallich, Plantae Asiaticae Rariores, vol. 2, p. 173.*)

50365. ECHINOLAENA POLYSTACHYA H. B. K. Poaceæ. **Grass.**

A perennial grass with decumbent straggling stems branched below into leafy slender branches 4 to 18 inches long, native to the eastern Himalayas from Nepal to Sikkim at altitudes of 3,000 to 6,000 feet. The ovate-lanceolate, flat, membranous leaves are 2 to 4 inches long. (Adapted from *Hooker, Flora of British India, vol. 7, p. 59.*)

50366. FRAXINUS FLORIBUNDA Wall. Oleaceæ. **Ash.**

A large tree, leafless during part of winter, found locally in groups in shady parts of mixed forests in Afghanistan, Kandahar, and rarely in the Sikkim Himalayas to a height of 11,000 feet. The finest specimens in the northwestern Himalayas are those planted near villages and temples and on the Chenab, some of which are exceedingly handsome trees, 120 feet high with a thick-based, tall, erect trunk. The cinereous bark is smooth, but with deep longitudinal cracks and transverse furrows. The wood is similar to that of the English ash, tough and hard and much valued for plows, and in Kashmir is reckoned the best wood for oars. (Adapted from *Brandis, Forest Flora of India, p. 302.*)

For previous introduction, see S. P. I. No. 47687.

50367. HYDRANGEA ROBUSTA Hook. f. and Thoms. Hydrangeaceæ.

A very robust species with cordate leaves, deeply and closely toothed and fimbriated, and generally with winged petioles. The pedicels are red; the broadly ovate, white, sinuate, acutely toothed sepals are faintly veined with red-purple. The small perfect flowers have blue petals and stamens. (Adapted from *Curtis's Botanical Magazine, pl. 5038.*)

For previous introduction, see S. P. I. No. 47694.

50368. INDIGOFERA DOSUA Buch.-Ham. Fabaceæ. **Indigo.**

A low shrub with woody branches, clothed with a short gray or brownish pubescence. The leaves, 1 to 3 inches long, bear leaflets one-fourth to half an inch long, which are dull green above, glaucous below. The racemes of bright-red flowers are 1 to 3 inches long with lanceolate-cuspidate silky bracts. (Adapted from *Hooker, Flora of British India, vol. 2, p. 102.*)

For previous introduction, see S. P. I. No. 43776.

50369. INDIGOFERA DOSUA TOMENTOSA Baker. Fabaceæ. **Indigo.**

A shrub of the temperate central and eastern Himalayas at altitudes of 6,000 to 8,000 feet, with its branches clothed with silky pubescence. The leaves are 6 to 9 inches long, composed of 41 to 51 leaflets 1 inch long. The racemes are

50359 to 50373—Continued.

over 3 inches long; the bracts are densely brown velvety, with a very long rigid point. The flowers are said to be eaten in Kangra as a potherb. This shrub is prized as a fodder for sheep and goats. (Adapted from *Hooker, Flora of British India, vol. 2, p. 102*, and *Watt, Dictionary of the Economic Products of India, vol. 4, p. 385.*)

50370. PHOTINIA sp. Malaceæ.

Received as *Photinia integrifolia*, but the seeds do not agree with a previous sample from the same source.

50371. PUERARIA PEDUNCULARIS (Benth.) R. Grah. Fabaceæ.

A copiously twining plant with slender branches clothed with short deflexed deciduous hairs. The membranous green leaflets are gray with a thick down. The reddish flowers with a deep purple tipped keel are in moderately close racemes 6 inches to 1 foot in length. Native to the temperate regions of the eastern Himalayas, Khasi Hills, Nepal, Sikkim, and Mishmi, at altitudes of 5,000 to 9,000 feet. (Adapted from *Hooker, Flora of British India, vol. 2, p. 197.*)

50372. THEMEDA GIGANTEA VILLOSA (Poir.) Hack. Poaceæ. **Grass.**

A stout grass 8 to 16 feet high, with glabrous or scaberulous branches and branchlets, linear leaves 4 to 8 feet long, and a large decompound panicle. Native to Assam, the Khasi Hills, Java, and Malacca. (Adapted from *Hooker, Flora of British India, vol. 7, p. 217.*)

50373. TRACHYCARPUS MARTIANUS (Wall.) Wendl. Phœnicaceæ. **Palm**

A tall, slender tree, 40 to 50 feet high, stunted on dry ground or in otherwise unfavorable localities, with a globose crown of dark shining leaves. The trunk below the crown is clothed with a network of brown fibrous rhomboid meshes formed by the sheathing bases of the 3-foot petioles. The blade is roundish, consisting of 30 to 40 linear segments, 15 to 20 inches long, joined for half their length, emarginate at the top. The drooping compound panicle bears only one berry, which is oblong, yellow at first, dark glossy blue when ripe. The fruit is eaten, though the pulp is scanty and almost tasteless. (Adapted from *Brandis, Forest Flora of India, p. 546.*)

For previous introduction, see S. P. I. No. 48281.

50374 and 50375. SACCHARUM OFFICINARUM L. Poaceæ.

Sugar cane.

From Coimbatore, South India. Cuttings presented by T. S. Venkatraman, Agricultural College. Received May 27, 1920.

"Indigenous Indian canes of the type of the Japanese forage cane which seems to be immune to the mosaic disease, which apparently attacks more or less severely all other sugar-cane types." (*C. O. Townsend.*)

50374. "*Shamsara.* A hardier variety than the following one, chiefly grown in North India, green when young, turning greenish brown at maturity. It yields in northern India 15 to 20 tons in cane, with 16 to 17 per cent sucrose in the juice, and a purity ranging from 80 to 85 per cent. It matures in 10 months. Probably an introduction into this country." (*Venkatraman.*)

50375. "*Vellai.* A thick, juicy cane of South India, green or greenish yellow when young, turning golden yellow at maturity. It yields 20 to 25 tons in cane, with 17 to 18 per cent sucrose in the juice, and a purity ranging from 85 to 90 per cent. It requires 12 to 14 months to mature, is rather delicate, requires careful cultivation, and can not stand water-logging. Not an indigenous cane, but apparently introduced into this country about a century ago." (*Venkatraman.*)

50376 and 50377.

From Gatun, Canal Zone. Seeds presented by Sergt. G. E. Hardwick, Quartermaster Corps. Received May 10, 1920.

50376. CARICA PAPAYA L. Papayaceæ. **Papaya.**

"A very large papaya, which, however, is not sweet. I have never seen one as large in Cuba or the neighboring islands." (*Hardwick.*)

50377. VIGNA SESQUIPEDALIS (L.) Fruwirth. Fabaceæ. **Yard-Long bean.**

"One pod was 37½ inches long." (*Hardwick.*)

50378. HOLCUS SORGHUM L. Poaceæ. Sorghum.

(*Sorghum vulgare* Pers.)

From Teheran, Persia. Plant material presented by Amir Aalam, Minister of Agriculture, Commerce, and Public Works, who obtained it from Amid-ol-Molk, Government agricultural representative in Mazenderan. Received May 22, 1920. Quoted notes by Amid-ol-Molk.

"Seed of *Tani* sugar cane (*nei shakar tani*). The stalk is not higher than 4 feet. This cane is very delicate and can not stand drought. In case no rain falls within one month after the cuttings are planted, they must be irrigated to prevent their spoiling by drying out. The sugar from this sorghum is sweeter than that from the Indian sugar cane (*nei shakar hendi*). A sort of candy is made out of the juice. Red sugar (*shakar ghermez*), which is quite well known in Persia, is extracted from this cane. It is quite evident, however, that if the juice is perfectly purified it will turn white and crystallize."

50379. CASIMIROA EDULIS La Llave. Rutaceæ. White sapote.

Plants grown at the Miami Plant-Introduction Garden from seeds presented by F. O. Popenoe, West India Gardens, Altadena, Calif. Numbered June 8, 1919.

"Seeds from a tree at Sierra Madre. This is a fairly large fruited form and a heavy bearer." (*F. O. Popenoe.*)

50380 and 50381.

From Lamao, Bataan, Philippine Islands. Seeds presented by P. J. Wester, agricultural adviser, Lamao Horticultural Station. Received May 26, 1920.

50380. GARCINIA sp. Clusiaceæ.

[Apparently sent by mistake, as the label is Zalacca, which is a palm.]

50381. PROSOPIS VIDALIANA Naves. Mimosaceæ. **Aroma.**

"A tall, spiny shrub of rapid growth, with long, arching branches, found growing on the beach. The plant grows luxuriantly on poor, sandy land and is of fair value as a sand binder. Properly trimmed it is an attractive ornamental shrub that should be of value in extreme southern Florida. If sufficiently hardy it would make a pretty good 'live' fence." (*Wester.*)

For previous introduction, see S. P. I. No. 42807.

50382 to 50387.

From Foochow, Fukien, China. Seeds collected by C. R. Kellogg. Received May 27, 1920. Quoted notes by Mr. Kellogg.

50382. ARACHIS HYPOGAEA L. Fabaceæ. **Peanut.**

"Sixty-day peanuts from Kuliang."

50383. CANAVALI GLADIATUM (Jacq.) DC. Fabaceæ. **Sword bean.**

"Knife bean, with a pod 12 inches long."

50382 to 50387—Continued.

50384. PHASEOLUS AUREUS Roxb. Fabaceæ. **Mung bean.**

"Small green pea from Futsing."

50385. SOJA MAX (L.) Piper. Fabaceæ. **Soy bean.**
(*Glycine hispida* Maxim.)

"Yellow bean from Hokchiang (Futsing)."

50386. VIGNA SESQUIPEDALIS (L.) Fruwirth. Fabaceæ. **Yard-Long bean.**

"Black bean from Futsing."

50387. VIGNA SINENSIS (Torner) Savi. Fabaceæ. **Cowpea.**

"Red bean from Futsing."

50388. MANIHOT ESCULENTA Crantz. Euphorbiaceæ. **Cassava.**
(*M. utilissima* Pohl.)

From Bahia, Brazil. Cuttings presented by Dr. V. A. Argollo Ferrão. Received May 27, 1920.

"A very curious and interesting variety from the highlands of the interior. It is called *manioc of 10 years*, because it may remain 10 years in the ground and produce roots that weigh more than 500 kilograms (1,102.3 pounds) on one tree, if they are planted from 10 to 12 meters apart. The roots are very long. It is interesting for countries where there is no frost and where droughts may occur from time to time." (*Argollo Ferrão.*)

50389. SACCHARUM OFFICINARUM L. Poaceæ. **Sugar cane.**

From Santiago de las Vegas, Cuba. Cuttings presented by Dr. Mario Calvino, director, Agricultural Experiment Station. Received May 29, 1920.

The *Cristalina* variety of sugar cane for trial in connection with the sugar-cane work of the United States Department of Agriculture.

50390. SACCHARUM OFFICINARUM L. Poaceæ. **Sugar cane.**

From Rio Piedras, Porto Rico. Cuttings presented by Prof. F. S. Earle, Insular Experiment Station. Received May 24, 1920.

"*Kavangire* seed cane grown from that received from Argentina last summer." (*Earle.*)

50391 to 50394.

From Montevideo, Uruguay. Seeds presented by Luis Guillot, Dirección General de Paseos Públicos. Received May 19, 1920.

50391. CLEMATIS MONTEVIDENSIS Spreng. Ranunculaceæ. **Clematis.**

A very attractive clematis found in thickets in various parts of Uruguay, especially near the town of Salto, where it climbs trees and shrubs. The large whitish yellow flowers are about 2 centimeters (four-fifths of an inch) in diameter and are borne in axillary and terminal clusters. The ashy green leaves are either entire or more or less three lobed. (Adapted from *Arechavaleta, Flora Uruguaya, vol. 1, p. 24.*)

50392. EUGENIA GLAUCESCENS Cambess. Myrtaceæ.

A large shrub, native to southern Brazil, with rather short, lanceolate leaves up to 2½ inches in length and small white flowers borne singly in the axils of the leaves. (Adapted from *St. Hilaire, Flora Brasiliae Meridionalis, vol. 2, p. 368.*)

50391 to 50394—Continued.

50393. EUPATORIUM OBLONGIFOLIUM (Spreng.) Baker. Asteraceæ.

A tall, smooth, somewhat shrubby composite, native to southern Brazil and Uruguay, where it is called *yerba lagarto*. The unbranched stems, which are almost free of leaves in the upper part, become 2 feet or more high and bear a terminal corymb of red flowers. (Adapted from *Arechavaleta, Flora Uruguaya, vol. 3, p. 161.*)

50394. MIKANIA AMARA (Vahl) Willd. Asteraceæ.

A shrubby climber, found in woods along rivers in Uruguay, where it is called guaco. It has oblong, coriaceous leaves and clusters of whitish flowers. (Adapted from *Arechavaleta, Flora Uruguaya, vol. 8, p. 171.*)

50395 to 50398.

From Honolulu, Hawaii. Seeds presented by Dr. H. L. Lyon, in charge, department of botany and forestry, Hawaiian Sugar-Planters' Experiment Station. Received May 24, 1920.

50395. ALTINGIA EXCELSA Noronha. Hamamelidaceæ.

A lofty deciduous tree native to Assam and Tenasserim, with smooth, light-gray bark peeling off in large thin flakes. The soft wood, reddish gray with lighter streaks, is used in Assam for building and ordinary domestic purposes. (Adapted from *Gamble, Manual of Indian Timbers, p. 175.*)

50396. FICUS INVOLUCRATA Blume. Moraceæ. **Fig.**

A tree with oval, obtuse, smooth, parchmentlike leaves 5 to 7 inches long on petioles 1 to 1½ inches long and subglobose fruits. (Adapted from *Blume, Bijdragen tot de Flora van Nederlandsch Indië, p. 447.*)

50397. FICUS RIBES Reinw. Moraceæ. **Fig.**

A small tree with membranous lanceolate leaves 2 to 5 inches long. The receptacles rise from elongated leafless branches which issue from the stem near the ground. The male-flower perianth consists of two large inflated roundish pieces. The gall flowers have a broad ovary and no perianth. The fertile female flowers are on separate receptacles, the tubular perianth covering only the pedicel of the achene. A good tonic is made from the bark which, like the seeds and fruit, is possessed of valuable emetic properties. (Adapted from *Kirtikar, Indian Medicinal Plants, vol. 2, p. 1199.*)

50398. FICUS VARIEGATA Blume. Moraceæ. **Fig.**

A tall spreading tree with pale bark and cordate leaves 4 to 7 inches long, glabrous above. The receptacles, clustered on tubercles of the trunk and branches, are smooth, globose, 1 inch in diameter, and red when ripe, with white streaks and dots. Native to Chittagong, Assam, and Penang. (Adapted from *Hooker, Flora of British India, vol. 5, p. 535.*)

50399 to 50402.

From Ventimiglia, Italy. Seeds presented by Joseph Benbow, superintendent, La Mortola. Received May 24, 1920.

50399. DODONAEA THUNBERGIANA Eckl. and Zeyh. Sapindaceæ.

Zand Olyf. A resinous shrub native to South Africa, with viscid shining coriaceous leaves and short racemes or panicles of greenish flowers. It is frequent on the hillocks from the Fish River westward and on the mountains in the southwest and west. A decoction of the root is used as a slight purgative in cases of fever. (Adapted from *Sim, The Forests and Forest Flora of Cape Colony, p. 173, pl. 26.*)

For previous introduction, see S. P. I. No. 44536.

50399 to 50402—Continued.

50400. DODONAEA TRIQUETRA Wendl. Sapindaceæ.

A tall, erect, glabrous shrub from Australia, with oval-elliptic leaves 2 to 4 inches long and very smooth shining-brown seeds in medium-sized capsules. The wood is light colored and close grained. (Adapted from *Maiden, Useful Native Plants of Australia, p. 417,* and *Bentham, Flora Australiensis, vol. 1, p. 474.*)

For previous introduction, see S. P. I. No. 10493.

50401. RUBUS ULMIFOLIUS Schott. Rosaceæ. **Bramble.**

A vigorous European shrub with more or less plum-colored arching stems clothed with starry down and armed with long, broad-based prickles. The leaves are slightly downy above and white felted beneath. The showy cylindrical panicles of bright rosy red flowers are followed by small dryish fruits. Several ornamental garden varieties have been obtained from this species.

For previous introduction, see S. P. I. No. 40787.

50402. SMILAX ASPERA L. Smilacaceæ. **Smilax.**

A graceful climber native to the Mediterranean basin. It climbs mainly by the aid of stem prickles, but the backs and edges of the leaves are also prickly, helping to sustain the plant as it scrambles over rocks and bushy growths. The form of the leaf, though usually that of a broad lance head with distinct shoulders, is extremely variable both in size and shape; it is sometimes like a wild ivy or Convolvulus leaf. The leaves are sometimes spotted with dull white markings. This pretty plant bears axillary spikes of small, fragrant whitish flowers which are followed by red currantlike fruits. Its near relative [*Smilax officinalis*] of the tropical regions of Central America and the West Indies yields the sarsaparilla of medicine. (Adapted from *The Garden, vol. 62, p. 397.*)

50403 to 50435.

From Jamaica Plain, Mass. Seeds presented by Prof. C. S. Sargent, Arnold Arboretum. Received May 25, 1920.

"Collected in northern Honan by Joseph Hers." (*Sargent.*)

50403. ACTINIDIA PURPUREA Rehder. Dilleniaceæ.
"(No. 1265.)"

50404. BERBERIS POIRETI C. Schneid. Berberidaceæ. **Barberry.**
"(No. 982.)"

50405. BERBERIS sp. Berberidaceæ. **Barberry.**
"(No. 1160.)"

50406. CELASTRUS LOESENERI Rehd. and Wils. Celastraceæ.
"(No. 828.)"

50407. CELASTRUS sp. Celastraceæ.
"(No. 1287.)"

50408. CELTIS KORAIENSIS Nakai. Ulmaceæ. **Hackberry.**
"(No. 1071.)"

50409. CORNUS sp. Cornaceæ.
"(No. 70.)"

50410. CORNUS WALTERI Wangerin. Cornaceæ.
"(No. 946.)"

50403 to 50435—Continued.

50411. CORNUS POLIOPHYLLA Schneid. and Wang. Cornaceæ.
"(No. 1308.)"

50412. COTONEASTER ZABELI C. Schneid. Malaceæ.
"(No. 1194.)"

50413. COTONEASTER ZABELI C. Schneid. Malaceæ.
"(No. 1379.)"

50414. CRATAEGUS sp. Malaceæ. **Hawthorn.**
"(No. 942.)"

50415. CRATAEGUS sp. Malaceæ. **Hawthorn.**
"(No. 1332.)"

50416. DALBERGIA HUPEANA Hance. Fabaceæ.
"(No. 1359.)"

50417. EUONYMUS sp. Celastraceæ.
[No number.]

50418. EUONYMUS GIRALDII Loes. Celastraceæ.
"(No. 1145.)"

50419. GREWIA PARVIFLORA Bunge. Tiliaceæ.
"(No. 1358.)"

50420. ILEX sp. Aquifoliaceæ.
"(No. 1201.)"

50421. LONICERA sp. Caprifoliaceæ. Honeysuckle.
"(No. 1358.)"

50422. MALUS sp. Malaceæ.
"(No. 912.)"

50423. MALUS THEIFERA Rehder. Malaceæ.
"(No. 1115.)"

50424. RHAMNUS sp. Rhamnaceæ.
"(No. 1155.)"

50425. RHAMNUS sp. Rhamnaceæ.
[No number.]

50426. RHAMNUS sp. Rhamnaceæ.
"Small-leaved."

50427. ROSA BANKSIOPSIS Baker. Rosaceæ. **Rose.**
"(No. 896.)"

50428. ROSA sp. Rosaceæ. **Rose.**
[No number.]

50429. SMILAX DISCOTIS CONCOLOR Norton. Smilacaceæ. **Smilax.**
"(No. 1212.)"

50430. SMILAX sp. Smilacaceæ. **Smilax.**
[No number.]

50431. MALUS THEIFERA Rehder. Malaceæ.
"(No. 1161.)"

50432. TILIA sp. Tiliaceæ. **Linden.**
"(No. 1068.)"

50403 to 50435—Continued.

50433. VIBURNUM sp. Caprifoliaceæ.

"(No. 1162.)"

50434. VIBURNUM SHENSIANUM Maxim. Caprifoliaceæ.

"(No. 1326.)"

50435. RHAMNUS sp. Rhamnaceæ.

"(No. 1368.)" Received as *Ilex* sp.

50436 to 50441.

From Foochow, Fukien, China. Seeds collected by C. H. Riggs at Shaowu Agricultural Experiment Station, Shaowu, Fukien; presented through C. R. Kellogg. Quoted notes by Mr. Riggs. Received May 26, 1920.

50436. CACARA EROSA (L.) Kuntze. Fabaceæ. **Yam bean.**
(*Pachyrhizus angulatus* Rich.)

"*De kua* (earth melon). A field crop in any soil; sandy soil is preferred."

For previous introduction, see S. P. I. No. 47146.

50437. CITRULLUS VULGARIS Schrad. Cucurbitaceæ. **Watermelon.**

"*Beh je kua siou* (small white 'only' watermelon). A small white watermelon raised for the seed only, hence called 'only melon.' Flavor poor to medium. Vines short and quite prolific; will yield 10 to 15 bushels of seed per acre."

50438. FAGOPYRUM VULGARE Hill. Polygonaceæ. **Buckwheat.**
(*F. esculentum* Moench.)

"*Kiau ma* (buckwheat). Only type of buckwheat known here."

50439. SESAMUM ORIENTALE L. Pedaliaceæ. **Sesame.**

"*Moi* (sesame). A very common field crop here. Usually planted in gardens or on land not adapted to rice. Best in medium clay loam."

50440 and 50441. SOJA MAX (L.) Piper. Fabaceæ. **Soy bean.**
(*Glycine hispida* Maxim.)

50440. "*Deu tz* (bean). The only yellow soy bean known here and the one referred to when beans are spoken of unless some other variety is definitely mentioned. A field crop; clay preferred. Usually planted right after rice is reaped, making a rotation of rice in the spring and beans in the fall."

50441. "*U deu* (black bean). The only other type of soy bean grown here. Rather heavier yielder and more vine than the yellow, but not grown very much. A field crop preferring medium-heavy clay soil. Collected at the farm of Lee U. Ken."

50442 to 50465.

From Peking, Chihli, China. Seed presented by N. H. Cowdry, Department of Anatomy, Peking Union Medical College. Received May 26, 1920. Quoted notes by Mr. Cowdry.

50442. APIUM GRAVEOLENS L. Apiaceæ. **Celery.**

"Celery seed."

50443. BETA VULGARIS L. Chenopodiaceæ. **Beet.**

"Beet seed."

50442 to 50465—Continued.

50444 to 50449. BRASSICA PEKINENSIS (Lour.) Gagn. Brassicaceæ. **Pai ts'ai.**

50444. "Oil cabbage seed."
50445. "Red cabbage seed."
50446. "Flat cabbage seed."
50447. "Blue cabbage seed."
50448. "Ordinary Chinese cabbage seed."
50449. "Cabbage seed."

50450. BRASSICA RAPA L. Brassicaceæ. **Turnip.**

"Turnip seed."

50451. CHRYSANTHEMUM CORONARIUM L. Asteraceæ.

Sent in as Sagittaria seed.

50452. CORIANDRUM SATIVUM L. Apiaceæ. **Coriander.**

For previous introduction, see S. P. I. No. 26448.

50453. FOENICULUM VULGARE Hill. Apiaceæ. **Fennel.**

For previous introduction, see S. P. I. No. 35634.

50454. GYMNOCLADUS CHINENSIS Baill. Cæsalpiniaceæ.

"Large black seed."

50455. LACTUCA SATIVA L. Cichoriaceæ. **Lettuce.**

For previous introduction, see S. P. I. No. 47148.

50456. PERILLA FRUTESCENS (L.) Britton. Menthaceæ. **Perilla.**

For previous introduction, see S. P. I. No. 45265.

50457. PISUM SATIVUM L. Fabaceæ. **Garden pea.**

For previous introduction, see S. P. I. No. 48783.

50458 to 50465. RAPHANUS SATIVUS L. Brassicaceæ. **Radish.**

50458. "Big red radish."
50459. "Red radish."
50460. "Radish seed."
50461. "Green radish."
50462. "Green radish with red interior."
50463. "Red radish."
50464. "Large red radish."
50465. "Green radish."

50466 to 50517.

From Para, Brazil. Presented by Sr. André Goeldi, Museu Goeldi. Received June 1, 1920. Quoted notes by Sr. Goeldi.

50466. ACHRAS ZAPOTA L. Sapotaceæ. **Sapodilla.**

Plants of the best of the sapotaceous fruits. It is common in many parts of tropical America and is cultivated successfully in southern Florida, where it merits commercial exploitation.

For previous introduction, see S. P. I. No. 48596.

50467. ACROCOMIA SCLEROCARPA Mart. Phœnicaceæ. **Macaúba palm.**

Seeds of the *gru-gru* nut which is widely distributed throughout Trinidad, but not in sufficient abundance for the development of an export trade. It is used locally as a roasted nut. The kernels contain 57 per cent of fat which is in a yellowish white crystalline form. (Adapted from *The Monthly Bulletin of Agricultural Intelligence and Plant Disease, vol. 5, p. 75.*)

For previous introduction, see S. P. I. No. 37382.

50466 to 50517—Continued.

50468. ASTROCARYUM JAUARI Mart. Phœnicaceæ. **Palm.**

"Seed of a palm with large nuts."

A graceful palm of medium height, with pinnate spiny leaves. Native to tropical America.

50469. CARYOCAR VILLOSUM (Aubl.) Pers. Caryocaraceæ.

"Seeds of the piquiá tree, which furnishes a hard wood especially valuable for cart work. The pulp of the fruit is edible when the whole fruit has been cooked in salted water."

For previous introduction, see S. P. I. 31204.

50470. CASSIA sp. Cæsalpiniaceæ.

"Plants."

50471. CHRYSOPHYLLUM CAINITO L. Sapotaceæ. **Caimito.**

"Plants of the caimito."

A tree 8 to 10 meters high, native to tropical America, highly esteemed there for its rose-fleshed fruit. The large, entire, elliptic leaves are glabrous above and golden tomentose beneath. The small white flowers are followed by round pale reddish yellow fruits the size of a large apple. It is a rival of the sapodilla (*Achras sapota*), which is often considered the best of tropical fruits. (Adapted from *L'Illustration Horticole, vol. 32, p. 127.*)

For previous introduction, see S. P. I. No. 46150.

50472. CHRYSOPHYLLUM sp. Sapotaceæ.

"Small seedlings from the Purus River."

50473. CHRYSOPHYLLUM sp. Sapotaceæ.

"Seed from the Purus River."

50474. CISSUS sp. Vitaceæ.

"Roots of a Cissus which I brought from the Purus River some years ago. The vine grows wild there in the forests. Except for the somewhat more rigid flesh, the fruits have more or less the taste of an Isabella wine grape."

50475. COUROUPITA GUIANENSIS Aubl. Myrtaceæ.

Plants of the cannon-ball tree, a native of British Guiana, and known there to the half-breed Spaniards as *Tapara da Suce;* the Caribs call it *Cokoi monoh* (probably a corruption of the Spanish *Coco de monos*, that is, "monkey coconut"). The tree is plentiful in the upper Cuyuni River region and grows to a very considerable size. The trunks are straight and clear of leaf branches nearly to the top, but from about 10 feet from the ground upward they bear many of the peculiar flower and fruit branches which are very persistent. A very characteristic feature of the cannon-ball tree is the uniform change of foliage three times a year. There is no variation of this change due to age, situation, or weather. The gradual shedding of the foliage takes three or four weeks, and at last every leaf has dropped and the trees stand bare; in a few hours, rarely more than a day, the new foliage bursts forth, and in a day or two, as if by magic, the trees are vested again in full dress. The flowering branches are 2 to 5 feet long, pendent and interlaced, persistent like the foliage branches. (Adapted from *The Journal of the Board of Agriculture of British Guiana, vol. 12, p. 40.*)

50476. DRACONTIUM sp. Araceæ.

"Plants of an interesting aroid which grows wild in the open savannas at Marajo Island. No use is made of it, but I once tasted the roots cooked and roasted like potatoes and found them not disagreeable. Perhaps it may be of use in the future."

50466 to 50517—Continued.

50477. ECHINOCHLOA sp. Poaceæ. **Grass.**

"Plants."

50478. ECHINOCHLOA sp. Poaceæ. **Grass.**

"Plants of No. 287."

50479. ECHINOCHLOA sp. Poaceæ. **Grass.**

"Plants."

50480. ELAEIS MELANOCOCCA Gaertn. Phœnicaceæ. **Palm.**

"Plants, originally from the Purus River."

A large, spreading, low palm which grows in low, moist land. It is closely related to the African oil palm (*Elaeis guineensis*), and a clear oil is extracted from the kernels in small quantities by the natives, who prize it highly for cooking.

For previous introduction, see S. P. I. No. 46048.

50481. EUTERPE OLERACEA Mart. Phœnicaceæ. **Palm.**

"Seeds of the *assahy* palm originally from the Purus River and other parts of the upper Amazon."

"A graceful palm with a trunk seldom more than 4 inches in diameter. It is said that fats suitable for oils and soaps can be derived from the blue-black berrylike fruits, and a wine is made from them also." (*Lange, Lower Amazon, pp. 16, 461.*)

For previous introduction, see S. P. I. No. 46743.

50482 to 50484. GUILIELMA SPECIOSA Mart. Phœnicaceæ. **Pupunha.**
(*Bactris gasipaes* H. B. K.)

50482. Seeds of the "peach-palm" of the Amazon River, which ascends to the warm temperate regions of the Andes. The clustered stems attain a height of 40 feet. The fruit grows in large bunches, has a thick, firm, and mealy pericarp, and when cooked has a flavor between that of the potato and the chestnut, but superior to either. (Adapted from *Mueller, Select Extra-Tropical Plants, p. 69.*)

For previous introduction, see S. P. I. No. 47868.

50483. "Plants of No. 13, a spineless variety."

50484. "Plants of No. 14, a spiny variety."

50485. IRIARTEA sp. Phœnicaceæ. **Palm.**

Plants of a tall spineless ornamental palm with few unequally pinnate leaves and cuneate leaflets. Native to Brazil.

50486. LECYTHIS sp. Lecythidaceæ.

"Seed of a tall species furnishing hard timber much used for railroad sleepers, posts, etc."

Received as *Chytroma jarana*, a name used without a description. All species of this genus are now referred to Lecythis.

50487. LUCUMA MACROCARPA Huber. Sapotaceæ.

"Seed of the *cutiriba grande*, an edible fruit."

A medium-sized tree with cinnamon-gray bark and glabrous lanceolate leaves crowded at the tips of the branches. The globose fruit, 10 centimeters in diameter, contains 6 to 10 shining brown seeds. Cultivated in Brazil for its fruit. (Adapted from *Huber, Boletim do Museu Paraense, vol. 3, p. 57.*)

50466 to 50517—Continued.

50488. LUCUMA RIVICOA Gaertn. f. Sapotaceæ.

"Seed of an edible fruit very much in use here. Known as *cutitiribá*."

A small handsome tree with bright-green leaves, indigenous to tropical America. The fruit is very variable, from small and carissalike to the size and shape of a large hen's egg, with yellow, sweet, rich, rather dry pulp inclosing one or two large seeds. The mealy pulp tastes somewhat like an inspiced pumpkin custard flavored with nanca. It is eaten out of hand. (Adapted from *The Philippine Farmer, vol. 5, p. 23,* and *The Philippine Agricultural Review, vol. 9, p. 249.*)

50489. MAMMEA AMERICANA L. Clusiaceæ. **Mamey.**

"Seed of the *abrico*."

A tree native to tropical America, cultivated in Jamaica up to 3,000 feet. The large fruit is edible. (Adapted from *Mueller, Select Extra-Tropical Plants, p. 296.*)

For previous introduction, see S. P. I. No. 47425.

50490. MAXIMILIANA sp. Phœnicaceæ. **Palm.**

"Seed."

50491. ORYZA LATIFOLIA Desv. Poaceæ. **Wild rice.**

"A kind of native rice growing on not-inundated soil in Marajo. It is an interesting kind for several reasons. In the first place, it is the tallest I ever heard of, growing sometimes to a height of 8 feet. In the second place, it is a perennial kind, growing in large isolated bunches for several years, flowering and bearing seeds the whole year round. Its leaves are very broad. The kernels may not have any industrial or culinary value, but as a cattle feed the green plant might be useful. Besides this I consider this kind interesting from a phytogeographical standpoint, demonstrating that real native kinds of rice are to be found in the Amazonian region." (*Goeldi.*)

For previous introduction, see S. P. I. No. 47029.

50492. ORYZA SATIVA L. Poaceæ. **Rice.**

"Plants of No. 262."

50493. ORYZA sp. Poaceæ. **Wild rice.**

"Wild water rice plants."

50494. ORYZA sp. Poaceæ. **Wild rice.**

"(No. 296.) Wild rice plants from Belem."

50495. ORYZA sp. Poaceæ. **Wild rice.**

"(No. 290.) Wild rice plants from Soure."

50496. PHYSALIS ANGULATA L. Solanaceæ.

"Seed of *camapu*."

A much-branched herb with very small flowers and a fruiting calyx which is conical-ovoid with a sunken base, 10-angled loosely inflated, at length well filled by the greenish yellow berry. Found in open rich ground from Pennsylvania to Minnesota and southward. (Adapted from *Gray's New Manual of Botany, seventh edition, p. 715.*)

50497. ROLLINIA MUCOSA (Jacq.) Baill. Annonaceæ.

"Plants of *Cachiman morveux*."

The flowers of this species have oblong corolla lobes spreading outward in such a way as not inaptly to represent a tricorn hat. The areoles of the fruit

50466 to 50517—Continued.

are gibbous or convex. The viscous pulp is edible but of poor flavor. It grows spontaneously in the forests of Martinique and is very rarely cultivated; known locally as *cachiman morveux*. (Adapted from *Journal of the Washington Academy of Sciences, vol. 6, p. 374.*)

Received as *Annona obtusiflora*, which is referred to this species by Doctor Safford.

For previous introduction, see S. P. I. No. 44659.

50498. STENOCALYX sp. Malpighiaceæ.

"Plants."

50499. STERCULIA SPECIOSA Schum. Sterculiaceæ.

"A tall ornamental tree with seeds which are supposed to be edible after having been roasted."

50500. SYAGRUS DRUDEI Beccari. Phœnicaceæ. **Palm.**

A palm with a stem 2 to 5 meters high and smooth rigid linear glaucous leaflets on a rachis 1½ meters long. The 15 to 20 branches of the spadix are gracefully erect and bear dry yellowish drupes. Native to the central mountainous region of Brazil. (Adapted from *Martius, Flora Brasiliensis, vol. 3, p. 412.*)

50501 to 50505. THEOBROMA CACAO L. Sterculiaceæ. **Cacao.**

50501. "Seeds from the Purus River. Now in cultivation here in botanical gardens."

50502. "Seeds."

50503. "Plants bearing red pods."

50504. "Plants."

50505. "Seeds of the red-shelled cacao which we obtained a few years ago from Trinidad, British West Indies, for the botanical gardens."

50506 to 50508. THEOBROMA GRANDIFLORA (Willd.) Schum. Sterculiaceæ.

50506. "*Cupú-assú* fruits, the fine pulp of which is used to make refreshing drinks and jellies."

50507. "Plants." **50508.** "Plants."

50509. THEOBROMA MICROCARPA Mart. Sterculiaceæ.

"Plants. Originally from the Purus River."

The seeds of this tree are used as a substitute for cacao and are even considered by some to be superior to the true cacao. It is not grown commercially as yet, however. (Adapted from *Correa, Flora do Brazil, p. 101.*)

50510 and 50511. THEOBROMA SPECIOSA Willd. Sterculiaceæ.

50510. "Plants of *cacau-y*. The small cacao, the fruits of which have a delicious pulp which one eats by sucking the seeds. It grows wild in the forests here."

50511. "Plants."

50512. THEOBROMA sp. Sterculiaceæ.

"Pods of the common variety."

50513. THEOBROMA sp. Sterculiaceæ.

"Plants of the common variety."

50514. THEOBROMA sp. Sterculiaceæ.

"Plants."

Received as *Theobroma ovata*, for which a place of publication has not yet been found.

50466 to 50517—Continued.

50515. THEOBROMA sp. Sterculiaceæ.

"Plants of the common variety."

50516. (Undetermined.)

"Fruits."

Received as *Platonia insignis*, but it does not agree with material received earlier under that name.

50517. (Undetermined.)

"*Mamaca* plants."

50518. MILLETTIA MEGASPERMA (F. Muell.) Benth. Fabaceæ.

From New South Wales, Australia. Seeds presented by Hugh Dixson, Abergeldie. Received June 3, 1920.

"This plant is quite unlike Chinese or Japanese varieties of wistaria. It has dark-green foliage and is a rank grower when established; mine is growing over a park railing 90 feet long, 4 feet wide, and 5 feet high, and has to be kept within bounds on width and height. It is not particular as to soil, but I would not advise a heavy clay. The plant stands 8 to 10 degrees of frost without injury. The flowers are darker purple than those of the Chinese variety, sweet scented, and in dense panicles. It is a very shy seeder with seldom more than one seed in a pod, but it strikes root freely when layered and also from cuttings. The root of a layer afterwards potted had the largest number of nodules I have ever seen on any leguminous plant. It is an exceedingly rare plant simply because it is not known." (*Dixson.*)

50519. RHUS POTANINI Maxim. Anacardiaceæ.

From Jamaica Plain, Mass. Seeds presented by Prof. C. S. Sargent, Arnold Arboretum. Received June 4, 1920.

"Collected in northern Honan by Joseph Hers." (*Sargent.*)

An elegant Chinese shrub remarkable for the bright coloring of the leaves in autumn. The long graceful leaves are made up of deeply serrate leaflets. (Adapted from *The Gardeners' Magazine, vol. 52, p. 721.*)

On this sumach a gall insect makes its home, producing large inflated galls which the Chinese utilize for dyeing black. The foreigners found that the galls contain a great percentage of tannin and use them for dyeing purposes, exporting vast quantities from Hankow especially, under the name of Chinese gallnuts.

For previous introduction, see S. P. I. No. 40717.

50520. CHAMAEDOREA GEONOMAEFORMIS Wendl. Phœnicaceæ.

Palm.

From Nice, France. Seeds presented by A. Robertson Proschowsky. Received June 4, 1920.

"A very graceful diœcious palm which, on account of its small size and easy culture as a pot plant, should have some importance for decoration." (*Proschowsky.*)

50521. PLACUS BALSAMIFER (L.) Baill. Asteraceæ.

(*Blumea balsamifera* DC.)

From Manila, Philippine Islands. Seeds presented by Elmer D. Merrill, director, Bureau of Science. Received June 6, 1920.

A perennial shrubby plant, native to Borneo. The leaves when bruised smell strongly of camphor and are used medicinally by the natives. The gum from this tree is known as "Nagai camphor." (Adapted from *Macmillan, A Handbook of Tropical Gardening and Planting, second edition, p. 509.*)

50522 to 50524. SOJA MAX (L.) Piper. Fabaceæ. **Soy bean.**
(*Glycine hispida* Maxim.)

From Mukden, China. Seeds presented by Albert W. Pontius, American consul general. Received June 7, 1920.

Market beans requested for the Office of Forage-Crop Investigations.

50522. "*Hei tou* (black)."

"A small flat shining black bean used when boiled, salted, and fermented as the main ingredient in a sauce; also fed, when boiled, to water buffaloes." (*Frank N. Meyer.*)

For previous introduction, see S. P. I. No. 45294.

50523. "*Hsiao chin huang tou* (small golden yellow bean)."

50524. "*Pai mei tou* (white-crested bean)."

A late-maturing bean, yellow with a "white eyebrow."

For previous introduction, see S. P. I. No. 30745.

50525. SYZYGIUM CUMINI (L.) Skeels. Myrtaceæ. **Jambolan.**
(*Eugenia jambolana* Lam.)

From Manila, Philippine Islands. Seeds presented by Elmer D. Merrill, director, Bureau of Science. Received June 8, 1920.

Duhat. A widely distributed Philippine timber tree frequently cultivated for its fruit which in size, color, and flavor resembles a black cherry. The grayish or pale-brown wood is moderately hard to hard and durable; even the sapwood is rarely attacked by beetles. It is used for the building of ships, wharves, and bridges, for furniture and cabinetwork, and for the heavy parts of musical instruments. (Adapted from *Schneider, Commercial Woods of the Philippines: Their Preparation and Uses, Manila Bureau of Forestry Bulletin No. 14, p. 189.*)

For previous introduction, see S. P. I. No. 43217.

50526. ACER sp. Aceraceæ. **Maple.**

From Jamaica Plain, Mass. Seeds presented by Prof. C. S. Sargent, Arnold Arboretum. Received June 11, 1920.

"A green-barked variety collected in northern Honan, China, by Joseph Hers." (*Sargent.*)

50527. ATTALEA COHUNE Mart. Phœnicaceæ. **Cohune.**

From Ceiba, Honduras. Seeds presented by Charles N. Willard, American consul. Received June 11, 1920.

"With the demand for combating the use of poison gas in the war, it was found that the shell of the cohune nut when carbonized acted as a preventive against the injurious effects of the gas. It therefore became the principal element used in the manufacture of the gas mask. The utilization of the cohune nut for war purposes served to bring to light an industry which may be permanent, namely, the extraction of oil from the kernel of the nut. The cohune (or corozo) nut is a product of the manaca palm, is indigenous to tropical countries, and is found mostly on low, damp lands, along creeks and rivers. It thrives best in the deep forests, and the greatest supply is found in virgin forest lands, of which there are extensive areas in Honduras.

"The nuts grow in large oblong clusters weighing probably 75 pounds each. A single tree will have from one to four clusters on it at a time, with an average production of four clusters a year to the tree. The nut varies in size from 1½ to 3 inches in length and from 1 to 2 inches in diameter. The shell is hard and dense, with an average thickness of one-fourth to half an inch. For cracking the nuts preparatory

to extracting the oil, two varieties of machines are used. One is designated a 'knuckle' machine, in which the nuts drop from a hopper between heavy knuckles, thus cracking the shell. The other is called an 'impact' machine. It operates by a centrifugal motion which propels the nut against the side of a large metal bowl with sufficient force to break the shell. The oil can then be extracted from this copra, or crushed product.

"The oil is high grade, said to be superior to coconut oil, and finds a ready sale for cooking purposes, being claimed to be adapted for any use to which a good cooking oil may be put.

"The Aguan River valley contains a single field of these nut-bearing trees extending 60 to 70 miles up the river from its mouth and with an average width of 10 to 12 miles." (*Willard.*)

50528. ANANAS SATIVUS Schult. f. Bromeliaceæ. **Pineapple.**

From San Jacinto, D. F., Mexico. Shoots presented by Sr. José Duvallon, Director de Agricultura. Received June 19, 1920.

"A spineless pineapple, called *Cayena*, from Coatepec zone." (*Duvallon.*)

50529. CYCLAMEN ROHLFSIANUM Aschers. Primulaceæ. **Cyclamen.**

From Libia, Tripoli. Tubers presented by Dr. E. O. Fenzi. Received June 19, 1920.

"I hope that some of your cyclamen specialists may succeed in evolving a new type combining the characters of Cyclamen and of Dodecatheon." (*Fenzi.*)

A plant native to the grottos of Gureina, Libia, where the yellow ellipsoid tubers grow in the fissures. The stem, 5 centimeters long, bears circular leaves, variegated with silvery splotches and variously incised, on petioles 3 to 18 centimeters long. The fragrant pale-purple flowers appear in autumn; the exserted anthers bring it near the neighboring genus, Dodecatheon. (Adapted from *Bulletin de l'Herbier Boissier, vol. 5, p. 523.*)

50530. ZELKOVA SINICA C. Schneid. Ulmaceæ.

From Jamaica Plain, Mass. Seeds presented by Prof. C. S. Sargent, director, Arnold Arboretum. Received June 19, 1920.

A rare Chinese tree about 17 meters (60 feet) high, with smooth pale-gray bark which exfoliates in small thin roundish flakes, leaving many brown scars. The small leaves are crenately serrate. (Adapted from *Sargent, Plantae Wilsonianae, vol. 3, p. 286.*)

50531 to 50539.

From Keijo, Chosen (Korea). Seed presented by Miss Katherine Wambold. Received June 21, 1920.

50531. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

"*Soo soo;* may be used for bread or porridge."

For previous introduction, see S. P. I. No. 42060.

50532. PERILLA FRUTESCENS (L.) Britton. Menthaceæ. **Perilla.**

"*Tŭl kai,* or *tŭl găi,* utilized for oiling the excellent oil paper used on mud floors in Chosen."

For previous introduction, see S. P. I. No. 42062.

50533. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. Fabaceæ. **Adsuki bean.**

"*Pat,* peas."

For previous introduction, see S. P. I. No. 42063.

50531 to 50539—Continued.

50534. PHASEOLUS AUREUS Roxb. Fabaceæ. **Mung bean.**

"*Nŏk too;* used for 'mook,' a jelly."

For previous introduction, see S. P. I. No. 42064.

50535 and 50536. SOJA MAX (L.) Piper. Fabaceæ. **Soy bean.**
(*Glycine hispida* Maxim.)

50535. "*Kong* bean."

For previous introduction, see S. P. I. No. 42059.

50536. "*Kong* bean; this is used for making sauce."

50537. VIGNA CYLINDRICA (Stickm.) Skeels. Fabaceæ. **Catjang.**

"*Tong poo;* may be used as 'mook,' a sort of jelly."

50538. VIGNA SESQUIPEDALIS (L.) Fruwirth. Fabaceæ. **Yard-Long bean.**

"*Pat ke cho kwang,* for flour or bread."

50539. ZIZIPHUS JUJUBA Mill. Rhamnaceæ. **Jujube.**
(*Z. sativa* Gaertn.)

"*Tai chew,* Korean dates."

50540 to 50542.

From Paris, France. Plant material purchased from Vilmorin-Andrieux & Co. Received May 20, 1920.

50540. MOLINIA CAERULEA (L.) Moench. Poaceæ. **Grass.**

Seed of a grass which is introduced in a few localities in the Eastern States from New England to Pennsylvania. In Europe this is considered to be a good forage grass. A form with striped leaves is cultivated as an ornamental for use in borders. (Adapted from *Hitchcock, Genera of Grasses of the United States, U. S. Department of Agriculture Bulletin No. 772, p. 50.*)

In the early stages this grass makes a fairly good grade of hay.

50541. STACHYS SIEBOLDII Miquel. Menthaceæ.

Tubers of a Chinese plant valuable for food. It is completely hardy and easy of cultivation. The crisp ivory-white tubers, 2 to 3 inches long, may be eaten in the fresh state, boiled, fried like salsify, made into sauce, or made into fritters. An analysis of the tubers shows the following percentages: Starch, 17.80; protein, 4.31; fat, 0.55; cellulose, 1.34; mineral, 1.81; water, 74.19. (Adapted from *Gardeners' Chronicle, third series, vol. 3, p. 16.*)

For previous introduction, see S. P. I. No. 21702.

50542. TRISETUM FLAVESCENS (L.) Beauv. Poaceæ. **Grass.**

"A grass resembling tall meadow oat-grass, growing on open ground, in copses and meadows, which may prove valuable as a forage crop. Native to Europe and Asia." (*A. S. Hitchcock.*)

50543 to 50579. PYRUS spp. Malaceæ. **Pear.**

From Talent, Oreg. Cuttings collected in China by Prof. F. C. Reimer, superintendent, Southern Oregon Agricultural Experiment Station. Received January 9, 1920. Numbered June, 1920.

"Varieties which I regard as very promising for America and of very great value. The introduction of this material, I believe, marks an epoch in American horticulture; this material can not be duplicated without great cost and real personal risk." (*Reimer.*)

"We have this material grafted on four kinds of stocks which will give us an interesting experiment, namely, Kieffer stocks, *Pyrus serrulata* stocks grown by us here,

French stocks sent to us by Jackson & Perkins, and Japanese stocks sent to us by Prof. Reimer. The grafts will be put out in the department grounds and watched this summer for the presence of insects and disease." (*B. T. Galloway.*)

50543. "No. 1."
50544. "No. 2."
50545. "No. 3."
50546. "No. 4."
50547. "No. 5."
50548. "No. 6."
50549. "No. 7."
50550. "No. 8."
50551. "No. 9."
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50559. "No. 17."
50560. "No. 18."
50561. "No. 19."
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50563. "No. 21."
50564. "No. 22."
50565. "No. 23."
50566. "No. 24."
50567. "No. 25."
50568. "No. 26."
50569. "No. 27."
50570. "No. 28."
50571. "No. 29."
50572. "No. 30."
50573. "No. 31."
50574. "No. 32."
50575. "No. 33."
50576. "No. 34."
50577. "No. 35."
50578. "No. 36."
50579. "No. 37."

50580. ARALIA CACHEMIRICA Decaisne. Araliaceæ.

From Rochester, N. Y. Plant presented by John Dunbar, assistant superintendent of Parks. Received March 30, 1920. Numbered June, 1920.

A vigorous, erect, roughly pubescent shrub, 5 to 10 feet high, native to the temperate Himalayas. The large leaves have pale lower surfaces and the white flowers are borne in panicled umbels. It is a useful fodder for goats. (Adapted from *Collett, Flora Simlensis, p. 216,* and *Watt, Dictionary of the Economic Products of India, vol. 1, p. 287.*)

For previous introduction, see S. P. I. No. 42607.

50581. GOSSYPIUM sp. Malvaceæ. **Cotton.**

From the City of Mexico, D. F., Mexico. Seed presented by Francisco V. Vidal. Received April 26, 1920.

"A drought-resistant cotton tree which has grown by accident in a crack in the cement between a masonry vault and a wall. The conditions under which the plant has developed both regarding food and moisture have been remarkable. The plant has produced about 230 bolls. There are others like it growing wild in the vicinity which present the same characteristic of resistance to drought, but not in such a degree as this one. Although the boll is small, I have decided to plant the seeds again in a regular field and cultivate them." (*Vidal.*)

50582. ALLIUM SATIVUM L. Liliaceæ. **Garlic.**

From Tamingfu, Chihli, North China. Sets presented by Rev. Horace W. Houlding, South Chihli Mission. Received June 19, 1920.

"Compound bulbs of the white garlic common here. Immense quantities are used all through this region." (*Houlding.*)

50583. COLOCASIA ESCULENTA (L.) Schott. Araceæ. **Dasheen.**

From Canton, Kwangtung, China. Tubers presented by G. Weidman Groff, Canton Christian College. Received June 28, 1920.

"*Hung nga u.* A popular variety widely planted in Kwantung. Not so long in form as the *Pan long u*, which it resembles except for the red coloring of the sprout which gives it its name of 'redbud.' The flesh is white but spotted with yellow; very mealy and good. A medium early variety and heavy yielder. Planted in February or March and harvested about September. It is planted widely and brings a high price on the markets." (*Groff.*)

50584 to 50586.

From San Jose, Costa Rica. Collected by Wilson Popenoe, Agricultural Explorer of the United States Department of Agriculture. Received June 18, 1920. Quoted notes by Mr. Popenoe.

50584. PERSEA AMERICANA Mill. Lauraceæ. **Avocado.**

(*P. gratissima* Gaertn. f.)

"(No. 386. May 30, 1920.) Budwood of avocado No. 44, from the grounds of Chaille and Assmann, in San Vicente, a suburb of San Jose. This variety is recommended by Don Otón Jimenez as the best with which he is familiar. It is of the West Indian race and is said to have been grown from a seed brought from Santa Clara, on the Atlantic side of Costa Rica. The tree is probably 30 or 40 years old at least and is 40 feet high, broad, and round topped, with a well-formed crown and a shapely trunk branching 8 to 10 feet above the ground. The fruit, which is said to ripen in September and October, is green, obovoid in form, and probably a pound in weight at maturity. I have not seen the mature fruit, hence can not describe its quality nor the size of the seed.

"It is thought that some of the West Indian varieties of Costa Rica, which have been grown in the highlands at altitudes of 4,000 to 6,000 feet, may ripen their fruits at a time of the year which will make them valuable in California or Florida, more probably the latter. The variety under consideration comes from an altitude of approximately 4,000 feet. It can not be expected that it will prove to be much hardier than the West Indian sorts now grown in Florida."

50585. PERSEA AMERICANA Mill. Lauraceæ.

(*P. gratissima* Gaertn. f.)

"(No. 387. May 30, 1920.) Budwood of the *aguacate de anis, aguacate de mono*, or *aguacate de manzana* (anise-flavored avocado, monkey's avocado, or apple avocado). A wild avocado which I have seen only in the vicinity of La Palma and San Isidro, about 15 miles from San Jose, but which is reported also from Turrialba. The character of the tree and fruit are such as to suggest that this species, which is certainly indigenous in the mountains of central Costa Rica, is the wild prototype of the cultivated Guatemalan race, if not of the West Indian as well (since it is believed that both races are derived from a single species). The fruiting habit of the tree suggests the Guatemalan race more than the West Indian, as also the hard, granular shell and the general character of the fruit. The only point in which the plant differs noticeably from the cultivated Guatemalan avocado is in the aniselike odor and flavor of the bark, leaves, and fruit. The wild tree, which has been studied by Don Otón Jimenez and myself, has been observed up to the present only at elevations between 4,500 and 5,000 feet. It is not found in the forest, but, like several other species of Persea and allied genera which occur in Costa Rica, it frequents open places close to small streams and brooks or is found associated with a few other trees along the margins of such watercourses. The region in which it grows is one of abundant rainfall with cool but never cold weather, and the soil is a substantial clay loam. The trees we have seen have not been in any case more than 40 feet high, and all were of erect,

50584 to 50586—Continued.

almost slender habit. In general appearance they can scarcely be distinguished from Guatemalan avocados; the foliage is of a somewhat lighter shade of green than is common in the latter. The leaves are thick and stiff (for an avocado), glabrous on the upper surface, and sparsely puberulent below. The fruits, so far as observed, are borne singly on stout fruitstalks about 4 inches long. The form is roundish oblate, the greatest diameter being 2 to 3 inches. The stem is inserted without depression, nearly centrally, and the apex is only slightly flattened. There is sometimes a faint crease down one side of the fruit, from the stem nearly to the apex. The surface is moss green in color and distinctly pebbled. The dots are few to numerous, small and yellowish. The skin is 1 to 3 millimeters thick, very coarsely granular in texture, and so hard as to be woody. The flesh is dull whitish or pale brown near the seed, frequently yellowish in the fully ripe fruit, and close to the shell tinged with green. There are no fibers through the flesh, but there are numerous small, hard bodies which suggest the stone cells of certain pears. These give the flesh a gritty feeling in the mouth, described as 'sandy' by the natives. The flavor is strong, suggesting anise, but with a less noticeable nutty flavor, such as is possessed by cultivated avocados. The aniselike element is so predominant and so strong that the fruit is scarcely edible. I am told, however, that it varies in quantity and that the fruits of some trees are much better than those of others. The seed is very large, oblate, with both seed coats adhering closely to the cotyledons. It resembles in every way the seeds of many Guatemalan avocados. The flowering season is March and April, and the fruits ripen a year from the following May or June; that is, in 12 to 15 months. The fruits from some of the wild trees are harvested by the natives and carried into the villages, where they are sold. In general, however, the *aguacate de anis* is little esteemed, most of the natives going so far as to say it is not good to eat. In regard to the common name, *aguacate de anis* is the one generally used in the vicinity of La Palma, and *aguacate de mono* is occasionally heard. In Turrialba I am told that the name *aguacate de manzana* is current.

"This species will be studied further to determine its relationship with the cultivated avocados. It is introduced with this object in view and in the hope that it may prove to be a vigorous stock plant on which to graft some of the cultivated avocados."

50586. DUGGENA PANAMENSIS (Cav.) Standl. Rubiaceæ.

"(No. 385. May 30, 1920. Herb. No. 991.) Cuttings of an attractive shrub found wild and cultivated in the region of La Palma, at elevations of about 5,000 feet. The region is one of cool, moist climate and heavy soil. The plant, which has narrow, long-pointed leaves, is of erect habit and reaches about 10 feet in height. Its flowers, which are freely produced on graceful pendent panicles about 4 inches long, are small, star shaped, and of delicate pink color. Said to grow readily from cuttings. The species merits a trial in southern Florida and California."

50587. ORYZA SATIVA L. Poaceæ. **Rice.**

From Vercelli, Italy. Seed presented by Dr. Novello Novelli, director, Stazione Sperimentale di Risicoltura. Received June 12, 1920.

"*Yellow Early Ardizzone.*" (*Novelli.*)

A rice of low erect growth with delicate yellowish green culms. The endosperm is brittle, permitting the securing of a commercial rice of pearly transparent brightness, with a faint yellow tinge. The ability to stool is on the average with, in some cases superior to, that of the common early rices, and from the reports of the weight of the unpolished grain one may conclude that this variety is very productive. The residue from milling is good, and there is but a small percentage of waste. (Adapted from *Il Giornale di Risicoltura, vol. 9, p. 20.*)

50588. ULMUS PUMILA L. Ulmaceæ. **Elm.**

From Peking, Chihli, China. Seed presented by the Forestry Department of the Ministry of Agriculture and Commerce, through Forsythe Sherfesee. Received June 22, 1920.

The Chinese drought-resistant elm which has proved to be a very valuable tree for practically the entire United States.

For previous introduction, see S. P. I. No. 45025.

50589. ULMUS PUMILA L. Ulmaceæ. **Elm.**

From Nanking, Kiangsu, China. Seeds presented by J. Hers, secretary of the Lung Hai Railway, from near Chengchow, Honan, through John H. Reisner, Nanking University. Received June 24, 1920.

"The Chinese elm has proved to be adapted to a very wide area of country. It has proved to be one of the best trees for shelter-belt work in the arid Northwest and thrives in the central part of the Great Plains region and throughout California." (*David Fairchild.*)

For previous introduction, see S. P. I. No. 45025.

50590. ANDROPOGON sp. Poaceæ. **Grass.**

From Kisantu, Belgian Kongo. Seeds presented by Father H. Vanderyst. Received July 29, 1920.

Numbered for convenience in testing by the Office of Forage-Crop Investigations.

50591 and 50592.

From New Orleans, La. Plant material presented by Charles Dittmann. Received May 29, 1920. Quoted notes by Mr. Dittmann.

50591. ASTROCARYUM sp. Phœnicaceæ.

"*Indaiassu* nuts from Brazil."

This might be the one from which the fiber *tucum* is obtained.

50592. COUEPIA sp. Rosaceæ.

"*Oticia* nuts from Brazil."

50593. ANDROPOGON sp. Poaceæ. **Grass.**

From Kisantu, Belgian Kongo. Seeds presented by Father H. Vanderyst. Received July 29, 1920.

Numbered for convenience in testing by the Office of Forage-Crop Investigations.

50594 and 50595. ORBIGNYA SPECIOSA (Mart.) Barb.-Rodr. Phœnicaceæ. **Babassu.**

From New Orleans, La. Plant material presented by Charles Dittmann. Received May 29, 1920. Quoted notes by Mr. Dittmann, except as otherwise stated.

50594. "*Babassu* nuts from Brazil. (No. 1.)"

"In the Provinces of El Oro and Azuay, Ecuador, is a large American-owned tract of land called 'Rosa de Oro y Piedad,' which is located partly among the foothills of the western Andes and partly on the coastal plain, about 5,000 acres being practically level. With the exception of a limited area that has been cleared for pastures and cacao growing, the property is covered with the usual tropical growth, including timber of variable value.

"Nut-bearing palm trees (*Orbignya speciosa*) occupy a fan-shaped area 1½ miles wide and many miles long, one plat of a thousand acres carrying 10 or more trees to the acre. Each tree bears one to three bunches of nuts, a bunch containing 5,000 to 9,000 nuts, and has a stalk several feet in length with 500 to 700

50594 and 50595—Continued.

branch stalks, each of which bears 5 to 20 nuts. When the nuts are ripe the stalk falls to the ground, the harvest continuing throughout the year. The estimated average yield of nuts per tree each year is 1,000 pounds, one-half the weight being lost in drying. The kernel represents one-third the weight of the dried nut and contains 60 per cent of palm oil, each tree averaging 100 pounds of oil.

"Machinery has been installed for crushing the nuts and extracting the oil, which finds a market in the United States." (*Frederick W. Goding.*)

For previous introduction, see S. P. I. No. 41254.

50595. "*Babassu* nuts from Brazil. (No. 2.)"

See preceding number for description.

50596. ANDROPOGON sp. Poaceæ. **Grass.**

From Kisantu, Belgian Kongo. Seeds presented by Father H. Vanderyst. Received July 29, 1920.

Numbered for convenience in testing by the Office of Forage-Crop Investigations.

50597 to 50607.

From Guayaquil, Ecuador. Seeds presented by James Birch Rorer, Asociación de Agricultores del Ecuador. Received June 14, 1920. Quoted notes by Mr. Rorer except where otherwise noted.

50597. ANNONA SQUAMOSA L. Annonaceæ. **Sugar-apple.**

"Seeds from two very good fruits, from Chobo, Las Guayas, Ecuador."

For previous introduction, see S. P. I. No. 47875.

50598. CAESALPINIA PULCHERRIMA (L.) Swartz. Cæsalpiniaceæ.

"*Pride of Barbados*, from Chobo, Las Guayas, Ecuador."

This Caesalpinia is widely distributed throughout the Tropics because of the beauty of its blossoms. Where favorably situated, with plenty of light and sunshine and ample space for development, it attains the dimensions of a large shrub or small tree. Its dark-green pinnate leaves are decidedly ornamental, and the flowers, 2 inches in diameter, in magnificent open clusters at the points of the shoots, are scarlet, edged with gold, a striking combination, the effect of which is heightened by the crisping or frilling of the margins of the petals. The long red stamens also form another notable feature. (Adapted from the *Journal of Horticulture and Home Farmer, third series, vol. 66, p. 204.*)

50599. CANNA sp. Cannaceæ. **Canna.**

"*Plantanillo*, a wild canna with yellow flowers, from Chobo, Las Guayas, Ecuador."

50600. CANNA sp. Cannaceæ. **Canna.**

"*Plantanillo*, a wild canna with red flowers, from Chobo."

50601. CASSIA OCCIDENTALIS L. Cæsalpiniaceæ.

"Small legume possibly good for cover crop, from Pascuales, Las Guayas, Ecuador."

A low shrub with a leaf like the mimosa. The Stinkard's root, as it is sometimes called, is a powerful drastic; homeopaths infuse it in spirits of wine and employ it as quinine; the beans are sometimes made into coffee, as maize is in the United States. (Adapted from *Burton, The Highlands of Brazil, vol. 2, p. 60.*)

For previous introduction, see S. P. I. No. 42830.

50597 to 50607—Continued.

50602. MAXIMILIANEA VITIFOLIA (Willd.) Krug and Urb. Cochlospermaceæ. (*Cochlospermum hibiscoides* Kunth.)

"*Silk cotton*, seed and lint from Summit, Canal Zone."

"A common shrub or small tree of eastern and central Guatemala from the highlands at about 4,000 feet down to a level of 1,000 feet or perhaps lower. The plant occasionally reaches a height of 35 feet, is always stiff, rather sparsely branched, and bears stout branchlets which usually carry leaves only toward their tips. The plant is leafless from December or January to May in most sections, and at this period it produces at the end of the branchlets numerous large yellow flowers, single, brilliant in color, with a deep-orange center. They are followed by oval seed pods as large as a hen's egg." (*Wilson Popenoe.*)

For previous introduction, see S. P. I. No. 44821.

50603. MIMOSA sp. Mimosaceæ.

"*Espiño*, from Chobo, Las Guayas, Ecuador, a plant which may become a pest in pastures, but is good for hedges."

50604. PRUNUS SEROTINA Ehrh. Amygdalaceæ. **Capulin.**

"*Capulin*, from Ambato, Ecuador."

"The wild cherry, found both wild and cultivated in the mountains of Guatemala, from elevations of about 4,000 feet up to 9,000 feet or perhaps higher. As commonly seen, the tree is erect, often somewhat slender, reaching a height of about 30 feet, the trunk stout and occasionally as much as 3 feet thick, and the bark rough and grayish. The young branchlets are dotted with grayish lenticels. The leaves, which are borne upon slender petioles three-fourths of an inch long, are commonly 4¼ inches in length, 1¼ to 1½ inches in breadth at the widest point, oblong-lanceolate in outline, with a long, slender tip. The upper surface is dull green, the lower surface glaucous, and the margin is rather finely serrate. The flowers, which are produced from January to May, are white, about three-eighths of an inch wide, and very numerous on slender racemes 2 to 4 inches in length. As many as 15 or 20 fruits sometimes develop on a single raceme, but many drop off before reaching maturity, with the result that two to five ripe fruits are commonly found on each raceme. The season of ripening in Guatemala is from May to September. The ripe fruits, which are slightly oblate in form and up to three-fourths of an inch in diameter, separate readily from the short fruitstalks, leaving the green 5-toothed calyxes adhering to the latter. In color the fruit is deep glossy maroon-purple. The skin is thin and tender, but so firm that the fruit is not easily injured by handling. The flesh is pale green, meaty, but full of juice. The flavor is sweet, suggestive of the Bigarreau type of cherry, with a trace of bitterness in the skin. The stone is a trifle large in comparison to the size of the fruit.

"Pleasant to eat out of hand, this cherry can also be eaten in various other ways—stewed or made into preserves or jams. In Guatemala it is most commonly eaten out of hand and as a sweet preserve.

"This species does not appear to be adapted to hot tropical seacoasts, but it seems to be distinctly subtropical in character. It may succeed in moist subtropical regions, such as Florida, where other types of cherries do not thrive." (*Wilson Popenoe.*)

For previous introduction, see S. P. I. No. 44885.

50605. PSIDIUM GUAJAVA L. Myrtaceæ. **Guava.**

"Seeds from the largest fruit of this kind I have ever seen; it measured a little over 3 inches in diameter."

For previous introduction, see S. P. I. No. 48575.

50597 to 50607—Continued.

50606. SIDA RHOMBIFOLIA L. Malvaceæ.

"*Escoba*, from Chobo, Las Guayas, Ecuador."

A half-shrubby weed growing by the roadsides and in open places, having yellow flowers which open at about half-past 10 o'clock in the morning and soon fade to a whitish color. It yields a good fiber, which in Australia is known as Queensland hemp. This is fine, strong, white, and lustrous and is easily extracted. It is softer and finer than jute, but shorter. Experiments made with this fiber show that a cord 12.5 millimeters in circumference will sustain a weight of 400 pounds. In Guam fresh plants are gathered each morning and made into bundles which serve as brooms. (Adapted from *Safford, Useful Plants of Guam, p. 375.*)

For previous introduction, see S. P. I. No. 46990.

50607. SOLANUM QUITOENSE Lam. Solanaceæ. **Naranjilla.**

"*Naranjilla.* From fruits bought in the market at Guayaquil, Ecuador."

For previous introduction, see S. P. I. No. 47951.

50608. SYZYGIUM CUMINI (L.) Skeels. Myrtaceæ. **Jambolan.**
(*Eugenia jambolana* Lam.)

From Manila, Philippine Islands. Seeds presented by Elmer D. Merrill, director, Bureau of Science. Received June 19, 1920.

A tall handsome tree native to southern Asia, ascending to an altitude of 5,000 feet in Kumaon and Polynesia and probably hardy in extratropical latitudes. The edible fruit is about the size of a cherry and is purplish black when ripe; it may perhaps be improved by culture; fruits 1½ inches long have been produced under cultivation. The seeds are used as a remedy for diabetes. (Adapted from *Mueller, Select Extra-Tropical Plants, p. 213.*)

For previous introduction, see S. P. I. No. 43217.

50609 to 50623.

From Coban, Alta Vera Paz, Guatemala. Seeds presented by Harry Johnson. Received June 7, 1920. Quoted notes by Mr. Johnson.

50609. BEGONIA sp. Begoniaceæ. **Begonia.**

"(No. 182.) A rather abundant rhizomatous plant from Chama, with smooth leaves 6 to 12 inches in diameter. The cymes of white flowers on long stems are very ornamental."

50610. BEGONIA sp. Begoniaceæ. **Begonia.**

"(No. 173.) An upright plant from Chama, with white flowers and reddish leaves."

50611. BEGONIA sp. Begoniaceæ. **Begonia.**

"(No. 180.) An upright plant from Coban, with pink flowers. Seems to prefer clay soils."

50612. BEGONIA sp. Begoniaceæ. **Begonia.**

"(No. 181.) An upright plant from Chama, with smooth leaves and pink flowers. Very ornamental when in full flower."

50613. BEGONIA sp. Begoniaceæ. **Begonia.**

"(No. 172.) Similar to *Begonia ricinifolia.* A plant from Chama, with pink flowers and leaves marked with deep green on a lighter field. Plant smaller here."

50614. CHAMAEDOREA sp. Phœnicaceæ. **Pacaya.**

"(No. 183.) Pacaya palm."

For previous introductions, see S. P. I. No. 44059.

50609 to 50623—Continued.

50615. IPOMOEA sp. Convolvulaceæ. **Morning-glory.**

"(No. 176.) A very ornamental vine, vigorous, covered with soft prickles. The flowers, 4 to 5 inches in diameter, are pink with deeper pink veins; the throat is yellow and the corolla thick and succulent."

50616. LASIACIS DIVARICATA (L.) Hitchc. Poaceæ. **Grass.**

"(No. 177.) A grasslike plant climbing up in second growth."

For previous introduction, see S. P. I. No. 24879.

50617. NYMPHAEA BLANDA G. F. W. Meyer. Nymphæaceæ. **Water lily.**

"(No. 184.) A tender, night-blooming water lily from Lago Izabal, native to tropical America, with creamy white flowers, 4 inches across, closing very early in the morning." (*Peter Bisset.*)

50618. PASSIFLORA FOETIDA L. Passifloraceæ.

"(No. 175.) A hairy leaved plant, not a large grower, which may be of value in hybridizing or as an ornamental. The flowers are light purple to almost blue, and the calyx is laciniated. The edible fruit is bright cherry red, shining, and three-eighths to three-fourths of an inch in diameter."

For previous introduction, see S. P. I. No. 38989.

50619. RUBUS sp. Rosaceæ. **Raspberry.**

"(No. 167.) A vigorous grower with canes fully 10 feet long."

50620. SOLANUM sp. Solanaceæ.

"(No. 168.) From hillsides above Tactic. The plant climbs up through the underbrush. The leaves are similar to those of a tomato plant, and the fruits look exactly like a small pepino (*Solanum muricatum*) and are about half an inch long. I have not been able to find any use for the fruit, though it does not have a bad flavor. It may be of use to cross with the pepino to produce a more robust and fruitful plant."

50621. TECOMA sp. Bignoniaceæ.

"(No. 179.) A vine which grows to the tops of lofty trees and is very handsome when in flower. The flowers are pink and borne in terminal clusters."

50622. (Undetermined.)

"(No. 169.) A very pretty, semiscandent, lax plant, climbing up in the second growth and flowering throughout the year; the fine tubular flowers are bright red."

50623. (Undetermined.)

"(No. 185.) A small epiphytic shrub 2 to 2½ feet high with lavender, lilac-like flowers in spikes 4 to 12 inches long borne from the very base of the plant almost to the top. It is very pretty and floriferous and may be useful as a hothouse plant. It should be easy to root from cuttings, as the plant is hard-wooded. This specimen was found growing on a stump on the road to Chama."

50624. KOKIA DRYNARIOIDES (Seem.) Lewton. Malvaceæ. **Kokio.**

From Honolulu, Hawaii. Seeds presented by J. F. Rock, botanist, College of Hawaii. Received May 20, 1920.

"Seeds from a cultivated tree on Molokai." (*Rock.*)

An interesting tree with long-petioled cordate leaves and red, silky flowers. The seeds in the thick woody ovoid capsule are covered with a short reddish brown tomentum. Several trees occurred on the west end of Molokai at Mahana, but have now died, owing to the ravages of cattle, sheep, and goats which eat off the bark and leaves. (Adapted from *Rock, The Indigenous Trees of the Hawaiian Islands, p. 307.*)

For previous introduction, see S. P. I. No. 47223.

50625 to 50634.

From Cape Town, Cape Colony. Seeds presented by J. Burtt Davy through George H. Murphy, American consul general. Received June 18, 1920.

"An exceedingly valuable consignment which might be useful in Porto Rico."

50625 to 50633. COFFEA spp. Rubiaceæ. **Coffee.**

50625. COFFEA ARABICA COLUMNARIS Cramer.

A variety of *Coffea arabica* which is characterized by its slender columnar growth. (Adapted from *Teysmannia, vol. 18, p. 230.*)

50626. COFFEA ARABICA MARAGOGIPE Froehn.

This variety is distinguished by the larger size and thicker character of the leaves and fruit, and in these points it tends toward *Coffea liberica.* It was discovered by Crisogono José Fernandez in 1870, and because of the fine flavor of the beans has been introduced into Brazil and the English colonies. (Adapted from *Engler, Botanische Jahrbücher, vol. 25, p. 263.*)

50627. COFFEA ARNOLDIANA Wildem.

A Belgian Kongo plant with deep-green obovate or oblong leaves, shining above, becoming a deep reddish brown when dry. There are one to five flowers to an involucre in the axillary inflorescence; the calyx is glossy and the disk prominent in the fruit. (Adapted from *Wildeman, Mission Emile Laurent, p. 325.*)

50628. COFFEA ARUWIMIENSIS Wildem.

A sturdy tree with oblong or oblong-lanceolate leaves, obtuse at the apex, the tip shortly acuminate, cuneiform at the base, brown when dry, paler beneath. The flowers with short involucres are in axillary globular clusters. The persistent sepals completely inclose the fruit, which is surmounted with a short cylindrical disk. The inflorescence is covered with a thick varnish, which is shining when dried. Native to Belgian Kongo. (Adapted from *Wildeman, Mission Emile Laurent, p. 321.*)

50629. COFFEA CANEPHORA SANKURUENSIS Wildem.

A plant with elliptic-oblong leaves shortly acuminate, rounded at the base and summit, dull and paler beneath, shining above. The 5-parted flowers are in dense cymes united in a common involucre of which the stipulelike bracts are triangular and keeled. There are three to four inflorescences in each leaf axil. The fruits, with one or two seeds, are in dense, almost sessile clusters. (Adapted from *Wildeman, Mission Emile Laurent, p. 330.*)

50630. COFFEA CONGENSIS CHALOTII Pierre.

A Belgian Kongo plant with leaves 20 centimeters long and inflorescences either solitary or two or three in each leaf axil. The bracts enveloping the inflorescence are short and linear or long and broad. The flowers are five or six parted. A fruiting cyme may bear five slender-pediceled fruits in a cluster. The fruiting pedicel is always longer than the bract. (Adapted from *Wildeman, Mission Emile Laurent, p. 335.*)

50631. COFFEA DEWEVREI Wildem. and Dur.

A tree 15 meters high with shining gray bark and obovate-elliptic leaves, shining above, and yellow when dried. The 5-parted corolla has a tube 1 centimeter long and elliptic-lanceolate lobes; the red fruit is elliptical. (Adapted from *Bulletin de la Société Royale de Botanique de Belgique, vol. 38, p. 202.*)

For previous introduction, see S. P. I. No. 31758.

50625 to 50634—Continued.

50632. COFFEA EXCELSA Cheval.

A species closely allied to *Coffea liberica*, but a stronger grower and apparently a better producer; the seeds, however, are smaller than that of the true Liberian coffee. It is apparently a plant which has considerable powers of thriving under very adverse conditions. Nearly 9 pounds of berries to a tree have been gathered from this variety. It prefers low situations, but may be planted up to 2,000 feet above sea level. They are large-leaved trees of vigorous growth.

Below is a table showing the weight (in kilograms) of berries of various coffees required to give 1 kilogram of marketable coffee:

Coffea canephora var. *sankuruensis*, 4.7; *C. canephora*, 3.8; *C. robusta* (Java), 3.8; *C. excelsa*, 5.5; *C. liberica*, 12; *C. dewevrei*, 8.3; *C. aruwimiensis*, 6.7. *C. excelsa* is found in the wild state in central Africa at altitudes of 2,200 feet in a climate which is dry for six months of the year and has a rainfall of at least 40 inches during the remaining six months. The temperature in summer is tropical, while in December and January it falls below 10° C. (50° F.) at night. This type does well in equatorial regions, has a satisfactory strength in caffein, and though somewhat bitter it has an excellent flavor. In Tonking its growth has been remarkable and entirely free from insect and fungoid pests. The bean is small and uniform in size, and it is hoped to sell it in competition with Arabian coffee blended with Mocha. In appearance it is less luxuriant than *C. liberica*, though it is hardier and earlier. This species is particularly robust in Java. It commences to flower in the second year and yields a crop of berries in the third year.

The value of the coffee approaches that of the Liberian coffee and amounts to about £20 per acre. The beans require particular care, since they are inclosed within a thin skin which must be completely removed before the highest prices can be obtained. (Adapted from *Bulletin of the Department of Agriculture, Trinidad and Tobago, vol. 17, p. 62.*)

50633. COFFEA sp.

Received as *Coffea wannirukula*, for which a place of publication has not yet been found.

50634. ELAEIS GUINEENSIS Jacq. Phœnicaceæ. **Oil palm.**

The trunk of the oil palm is from 15 to 25 meters in height and is crowned with a cluster of 26 to 30 pinnate leaves. In the center of this crown is the terminal bud, consisting of young leaves closely folded, the tissue of which is white and tender. This is the palm-cabbage which the natives use largely for food.

Incisions are made in the terminal part of the trunk, and often the tree is felled in order to prepare from the pith palm wine, a drink which is very much enjoyed by the natives. In certain regions of the Ivory Coast they cultivate this palm almost entirely for the wine and do not hesitate to sacrifice thousands of trees every year to obtain the palm must.

The tree does not begin to produce fruit until toward the fifth year. This fruit is more or less like an elongated and flattened plum. It grows in bunches, the weight of which varies, according to the variety and the country, between 5 and 12 or even 15 kilograms. The pericarp of the fruit is fleshy and fibrous and very rich in fatty matter, and from it the palm oil is extracted. When the pericarp is removed, the palm nut, which is very hard, remains, and this contains the kernel from which palm-nut oil is extracted.

50625 to 50634—Continued.

There are numerous varieties of oil palms along the West African coast extending sometimes for a distance of 100 or 125 kilometers. In 1909 the palm trees in West Africa produced more than 100,000 tons of oil and 250,000 tons of palm kernels, and yet this is only a part, perhaps a third, of the amount that Africans could supply, allowing about another third, which is required by the natives for food. (Adapted from *The Monthly Bulletin of Agricultural Intelligence and Plant Diseases, vol. 2, p. 314.*)

For previous introduction, see S. P. I. No. 48633.

50635 to 50647.

From Nanking, Kiangsu, China. Seeds presented by John H. Reisner, University of Nanking. Received April 9, 1920. Quoted notes by Mr. Reisner.

50635. ALEURITES FORDII Hemsl. Euphorbiaceæ. **Tung-oil tree.**

"From Chuchow, Anhwei, north of Yangtze."

For previous introduction and description, see S. P. I. No. 44661.

50636 and 50637. CUCUMIS SATIVUS L. Cucurbitaceæ. **Cucumber.**

50636. "*Chinese long green.*" **50637.** "*Chinese long white.*"

50638. GLEDITSIA SINENSIS Lam. Cæsalpiniaceæ.

"A handsome Chinese tree known as 'Tsao-k'o shu,' abundant throughout the Yangtze Valley up to 3,500 feet altitude. It grows 60 to 100 feet tall and has a thick trunk, smooth gray bark, a spreading head with massive branches, small pinnate leaves, and inconspicuous greenish flowers. The latter are followed by pods or 'beans,' which, when ripe, are black, 6 to 14 inches long and three-fourths of an inch to 1½ inches wide. These pods are broken up and are in general use for ordinary laundry work, producing a good lather in either hot or cold water. They are also used in the process of tanning hides. The saponaceous fat is contained in the pod itself, which is the only part utilized, the hard, flattened brown seeds being discarded." (*Wilson, A Naturalist in Western China, vol. 2, p. 71.*)

For previous introduction, see S. P. I. No. 45803.

50639 and 50640. HELIANTHUS ANNUUS L. Asteraceæ. **Sunflower.**

50639. "*Black seeded.*" **50640.** "*White seeded.*"

50641. JUGLANS REGIA L. Juglandaceæ. **Walnut.**

"From Pochow, Anhwei, China."

50642. KOELREUTERIA APICULATA Rehd. and Wils. Sapindaceæ.

A tree, 3 to 12 meters high, with a dense, spreading head and dark-gray bark-bearing bipinnate leaves, 18 to 35 centimeters long, and erect terminal many-flowered panicles of yellow flowers which are sometimes used to make a yellow dye for cotton cloth and silk fabrics. Native to China. (Adapted from *Sargent, Plantae Wilsonianae, vol. 2, p. 191.*)

50643. RICINUS COMMUNIS L. Euphorbiaceæ. **Castor-bean.**

"Castor beans."

50644. SPINACIA OLERACEA L. Chenopodiaceæ. **Spinach.**

"Chinese early long leaf."

50645. STILLINGIA SEBIFERA (L.) Michx. Euphorbiaceæ.

"A long-lived tree, 40 to 50 feet high, which occurs in all the warmer parts of China and is remarkable for the beautiful autumnal tints of its foliage. It yields the valuable Chinese vegetable tallow of commerce. In Hupeh, where

50635 to 50647—Continued.

the industry is well looked after, the larger branches are kept 'headed in' to facilitate the gathering of the fruits. The fruits are three celled, flattened ovoid, and about 1.5 centimeters in diameter. When ripe they are blackish brown and woody in appearance and are either gathered from the trees by hand or knocked off by the aid of bamboo poles. After being collected, the fruits are spread in the sun, where they open, and each liberates three elliptical seeds, which are covered with a white substance. This covering is a fat or tallow and is removed by steaming and rubbing through a bamboo sieve having meshes sufficiently small to retain the black seeds. The fat is collected and melted; afterwards it is molded into cakes, in which state it is known as the 'pi-yu' of commerce. After the fatty covering has been removed the seeds are crushed and the powdered mass is subjected to partial roasting in shallow pans. Then it is placed in wooden vats, fitted with wicker bottoms, and thoroughly steamed over boiling water. Next, with the aid of an iron ring and straw, it is made into circular cakes about 18 inches in diameter. These cakes are arranged edgeways in a large press, and, when full, pressure is exerted by driving in one wedge after another, thereby crushing out the oil, which falls into a vat below. The oil expressed from the seeds is the 'ting-yu' of commerce. Very often no attempt is made to separate the fat and the oil. The seeds with their white covering are crushed and steamed together and submitted to pressure, the mixed product so obtained being known as 'mou-yu.' The yield of fat and oil is about 30 per cent by weight of the seeds. In China all three products are largely employed in the manufacture of candles. The pure 'pi-yu' has a higher melting point than the 'ting-yu' or the mixture 'mou-yu.' All Chinese candles have an exterior coating of insect white wax, but when made from 'pi-yu' only the thinnest possible covering of wax is necessary (one-tenth of an ounce to a pound). All three products of the vegetable-tallow tree are exported in quantity to Europe, where they are used in the manufacture of soap, being essential constituents of certain particular forms of this article." (*Wilson, A Naturalist in Western China, vol. 2, p. 68.*)

For previous introduction, see S. P. I. No. 47363.

50646. THEA SASANQUA (Thunb.) Nois. Theaceæ.
(*Camelia sasanqua* Thunb.)

A large, wide-spreading ornamental shrub or small tree common throughout the warmer parts of Japan. The branches are very slender, and in the wild plant the flowers are always white. It is a popular garden shrub, and under cultivation forms with pink and rose-colored flowers are common. The seeds contain an inferior sort of oil used by the Japanese women for dressing their hair. (Adapted from *Sargent, Plantae Wilsonianae, vol. 2, p. 394.*)

For previous introduction, see S. P. I. No. 35248.

50647. TOONA SINENSIS (Juss.) Roemer. Meliaceæ.
(*Cedrela sinensis* Juss.)

A tree 80 feet high with a straight trunk, common in western Hupeh up to 4,500 feet. The young shoots are cooked and eaten as a vegetable. The valuable wood is beautifully marked with rich-red bands on a yellow-brown ground. Foreigners call it "*Chinese mahogany.*" It is easily worked, does not warp or crack, and is esteemed for making window sashes, door joists, and furniture. (Adapted from *Wilson, A Naturalist in Western China, vol. 2, p. 22.*)

For previous introduction, see S. P. I. No. 38805.

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